

Table Of Results - Appendix

Job Number: 06/19166/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

[illegible]

DIOXIN/FURAN ANALYSIS OF THREE SOIL SAMPLES

REPORT NO : 31470R1(0)

Client : Alcontrol Laboratories,
Units 7&8,
Hawarden Business Park,
Manor Road,
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CH5 3US.

DOCUMENT ISSUE STATUS

01	29.11.06	Final Report			
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29 November 2006

Our ref: 31470R1(0)

Your ref: 13162

Gemma Farren,
Alcontrol Laboratories,
Units 7&8,
Hawarden Business Park,
Manor Road,
Hawarden,
Deeside,
CH5 3US

Dear Ms. Farren,

Dioxin/Furan Analysis of Three Soil Samples.

We are pleased to submit our final report on the above analysis.

We appreciate the opportunity to be of service on this occasion and look forward to our continued association.

If you have any questions regarding the report please do not hesitate to contact either of the undersigned.

Yours sincerely
Envirolab Limited

Kate Rawlinson
Analytical Chemist

Louise Adams
Associate Director – Operations



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QA STATEMENT

Sample management protocol for the main reception and sample preparation laboratory requires the samples be logged and allocated Envirolab project and identification numbers on receipt. The samples are then transferred to the appropriate laboratory for extraction and analyses. Protocol is in place to minimise any possible cross contamination.

Recovery tests are used and are necessary to evaluate the analytical methodology. Isotopically labelled (^{13}C and ^{37}Cl) analytes are spiked into the sample. These provide the greatest accuracy since they are subject to the same matrix effects as the analytes. The ^{13}C -labelled compounds are used to validate analytical pre-treatment (clean-up surrogate) and quantification (as internal standards)

In the absence of field blanks, efforts are made to obtain blank samples that best simulate a sample that does not contain the analyte.

In addition, measurements are made to ascertain whether, and to what extent, any reagents, solvents or glassware used may contribute to or interfere with the analytical results (laboratory [system] and solvent blanks).

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. Tests marked "" in this report are not included in the UKAS Accreditation Schedule for the laboratory.



1. INTRODUCTION

Three soil samples were received on 03 November 2006 for analysis for dioxin/furan content. Sample labelling and Envirolab reference numbers are given in Table 1.1. Sample analysis commenced 07 November 2006.

Envirolab Ref. No.	Your Ref.
55629	19166-3
55630	19166-6
55631	16166-9

Table 1.1: Sample Reference and Labelling

2. DIOXIN/FURAN ANALYSIS

Dioxin / Furan analysis is carried out in accordance with procedures A-T-001, A-T-002 and A-T-003, as summarised below.

2.1 EXTRACTION

An aliquot of the air-dried sample was placed in a thimble and spiked with a mixture of a known amount of spike material. This mixture contains known concentrations of the following ¹³C isomers (Cambridge Isotopes Laboratories mixes ED998 and EF999): -

DIOXIN		FURAN	
2,3,7,8	TCDD	2,3,7,8	TCDF
1,2,3,7,8	PeCDD	1,2,3,7,8	PeCDF
		2,3,4,7,8	PeCDF
1,2,3,4,7,8	HxCDD	1,2,3,4,7,8	HxCDF
1,2,3,6,7,8	HxCDD	1,2,3,6,7,8	HxCDF
1,2,3,7,8,9	HxCDD	2,3,4,6,7,8	HxCDF
1,2,3,4,6,7,8	HpCDD	1,2,3,4,6,7,8	HpCDF
		1,2,3,4,7,8,9	HpCDF
	OCDD		OCDF

The added carbon-13 mixes are used as a quantitative standard to compensate for recovery efficiency and as an internal retention time reference in the gas chromatographic analysis.

The thimble was extracted with a 4:1 mixture of hexane:acetone for at least 8 hours. The Soxhlet extract was then water washed to remove acetone where present, reduced in volume to 5mls and subjected to the sample clean-up procedure in section 2.2.

2.2 CLEAN-UP PROCEDURE

Clean-up procedure is based on a method of **A. di Domenico et al.** (Anal. Chem., 51 735 1979) and has proved effective in removing most substances which interfere with the subsequent gas chromatography/mass spectrometry analysis.

The hexane extract is put onto a prewashed column containing, in order, anhydrous sodium sulphate, 1/1 (w/w) concentrated sulphuric acid/celite, 9/1 (w/w) anhydrous sodium sulphate/sodium bicarbonate, 50-100 mesh silica gel and finally anhydrous sodium sulphate. The column is eluted with 100mls of hexane to ensure efficient elution of the PCDDs and PCDFs.

The 100ml extract volume obtained is reduced to about 2mls by freeze-drying and then transferred onto a prewashed basic chromatography grade alumina (Woelm Super I) column. The column is eluted with hexane containing 2% dichloromethane and the eluate collected.

A subsequent wash, using a 50/50 hexane/dichloromethane mixture (10mls) is used to elute the PCDDs and PCDFs. The eluate is reduced to <1ml under stream of clean, dry air.

Dodecane (containing a known concentration of ^{37}Cl , 2,3,7,8- TCDD as an overall recovery standard) is added to the sample to act as a keeper. The solution is then further reduced to the volume of the keeper.

This is then transferred into a micro-vial, which is capped and sent to the MS Laboratory.



2.3 GC/MS ANALYSIS

2.3.1 GC Conditions

Instrument: HP5890 Series II. split/splitless injector at 280°C operated in splitless mode for 1 min after injection

Column: 60 m DB5 capillary column, 0.25 mm ID, 0.25 µm film thickness.

Temperature programme: 190°C for 2 mins then at 2.5°C /min to 230°C, held for 1 min, then at 2.5°C /min to 250°C, held for 2 mins, then at 4°C /min to 290°C, held for 17 mins (total run time 56 mins).

Transfer line: 280°C

Helium carrier gas at ~ 1ml/min (head pressure 29 psi)

2.3.2 MS Conditions

Instrument: VG Autospec.

Tuned to resolution >7500 on PFK.

Electron energy ~32 ev (optimised on m/z 92 of toluene)

Operated in MID (SIM) mode using the following five groups: -

M/z	Ions	
Group 1 -	TCDD & TCDF	
303.9016	M	TCDF
305.8987	M + 2	TCDF
315.9419	M	¹³ C ₁₂ TCDF
316.9824	PFK Lock	
317.9389	M + 2	¹³ C ₁₂ TCDF
319.8965	M	TCDD
321.8936	M + 2	TCDD
327.8847	M	³⁷ Cl ₄ TCDD
331.9368	M	¹³ C ₁₂ TCDD
333.9338	M + 2	¹³ C ₁₂ TCDD



Group 2 -

PeCDD & PeCDF

337.8627	M	PeCDF
339.8597	M + 2	PeCDF
349.9029	M	¹³ C ₁₂ PeCDF
351.9000	M + 2	¹³ C ₁₂ PeCDF
353.8576	M	PeCDD
355.8546	M + 2	PeCDD
365.8978	M	¹³ C ₁₂ PeCDD
366.9792	PFK Lock	
367.8949	M + 2	¹³ C ₁₂ PeCDD

Group 3 -

HxCDD & HxCDF

373.8207	M + 2	HxCDF
375.8178	M + 4	HxCDF
380.9760	PFK Lock	
385.8610	M + 2	¹³ C ₁₂ HxCDF
387.8580	M + 4	¹³ C ₁₂ HxCDF
389.8156	M + 2	HxCDD
391.8127	M + 4	HxCDD
401.8559	M + 2	¹³ C ₁₂ HxCDD
403.8530	M + 4	¹³ C ₁₂ HxCDD

Group 4 -

HpCDD & HpCDF

407.7818	M + 2	HpCDF
409.7788	M + 4	HpCDF
419.8220	M + 2	¹³ C ₁₂ HpCDF
421.8191	M + 4	¹³ C ₁₂ HpCDF
423.7767	M + 2	HpCDD
425.7737	M + 4	HpCDD
435.8169	M + 2	¹³ C ₁₂ HpCDD
437.8140	M + 4	¹³ C ₁₂ HpCDD
442.9729	PFK Lock	



Group 5 -

OCDD & OCDF

441.7428	M + 2	OCDF
443.7398	M + 4	OCDF
453.7830	M + 2	$^{13}\text{C}_{12}$ OCDF
454.9728	PFK Lock	
455.7801	M + 4	$^{13}\text{C}_{12}$ OCDF
457.7377	M + 2	OCDD
459.7348	M + 4	OCDD
469.7780	M + 2	$^{13}\text{C}_{12}$ OCDD
471.7750	M + 4	$^{13}\text{C}_{12}$ OCDD

Relative response factors (RRF's) for the ^{12}C and ^{13}C congeners are calculated as the ratio of the sum of the areas of the two isotopic ions of the ^{13}C congener to the sum of the corresponding ^{12}C congener scaled by the relative concentrations of the two species in a standard calibration mix.

The RRF's so obtained are then compared with the running mean values and provided they do not differ by more than $\pm 15\%$, the samples are then analysed.

The unknown samples are analysed by extracting the areas and retention times of all the peaks in each mass chromatogram and transferring them to a spread sheet programme. This programme then filters the peaks on the basis of the isotopic ratios, targets the 2,3,7,8- containing congeners from retention time data and, using the RRFs derived from the calibration mix data and the amount of spike mix added, calculates the concentrations of the 2,3,7,8- containing congeners and the totals for each congener group, as well as the data on any peaks rejected on isotopic ratio grounds.

The integrated traces are then inspected to ensure that peaks are not included or rejected on the basis of an incorrect integration baseline.

These values are scaled by the amount of the original sample, when known, to give the concentrations of the various species in the sample. A TEQ is then calculated based on the concentration of the 2,3,7,8-containing congeners multiplied by the appropriate TEFs (in this case the NATO/CCMS I-TEFs) and summed.

All these values are automatically compensated for extraction and clean-up efficiency by being referenced to the added spike mix concentrations. The actual recovery (for 2,3,7,8- TCDD) is obtained by comparing the areas of the ^{13}C TCDD spike and the added $^{37}\text{Cl}_4$ TCDD GC standard, scaled for relative amounts, with those obtained from a standard mix of the two compounds.



The use of more than one mass for monitoring each congener group and for monitoring the ^{13}C congeners means that in addition to mass specificity, intensity ratio measurements of the different ions can be made to detect any interference which may have occurred due to the elution of other species at or close to the retention time of the species of interest.

The criterion of similar GC retention time in the sample relative to the calibration standard is also used to aid identification and specificity. It is assumed for the 2,3,7,8-containing congener specific analyses that the sample response at the retention time of the 2,3,7,8-containing ^{13}C standard is due only to the 2,3,7,8-containing congener.

The criteria used are those of the UK Acceptance Criteria Guidelines [Ambidge et al., Chemosphere, 21, 999 (1990)]

The analytical measurement should have a precision of $\pm 10\%$ (from measurements of calibration standards and repeat sample extract injections).

3. RESULTS

The dioxin/furan results for the samples are presented in Table 3.1.



Envirolab Ref. No.	55629	55630	55631
YOUR REF.	19166-3	19166-6	19166-9
Analytical Recovery (¹³ C-2,3,7,8-TCDD) %	74	62	65
2378-TCDD	<0.005	<0.005	<0.005
Total TCDD	<0.05	<0.05	<0.05
12378-PeCDD	<0.005	<0.005	<0.005
Total PeCDD	<0.05	<0.05	<0.05
123478-HxCDD	<0.005	<0.005	<0.005
123678-HxCDD	<0.005	<0.005	<0.005
123789-HxCDD	<0.005	<0.005	<0.005
Total HxCDD	<0.05	<0.05	<0.05
1234678-HpCDD	0.014	0.009	0.007
Total HpCDD	<0.05	<0.05	<0.05
OCDD	0.13	0.066	0.032
2378-TCDF	<0.005	<0.005	<0.005
Total TCDF	0.06	<0.05	<0.05
23478-PeCDF	<0.005	<0.005	<0.005
12378-PeCDF	<0.005	<0.005	<0.005
Total PeCDF	<0.05	<0.05	<0.05
123478-HxCDF	<0.005	<0.005	<0.005
123678-HxCDF	<0.005	<0.005	<0.005
234678-HxCDF	<0.005	<0.005	<0.005
123789-HxCDF	<0.005	<0.005	<0.005
Total HxCDF	<0.05	<0.05	<0.05
1234678-HpCDF	0.014	0.016	0.012
1234789-HpCDF	<0.005	<0.005	<0.005
Total HpCDF	<0.05	<0.05	<0.05
OCDF	0.023	0.028	0.017
I-TEQ (min/max)	0/0.015	0/0.015	0/0.015

Note: Total refers to all isomers of the congener group.
TEQ (max) calculated with "<" values at their reported limits.
TEQ (min) calculated with "<" values at zero.

Table 3.1 - Dioxin/Furan Content of Three Soil Samples

(ng / g, air dried sample)



APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Napthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)- Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC-FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene (2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
Dioxins	no	no
Ethylbenzene	yes	p
Furans	no	no
Hexachlorobutadiene (SVOC)	yes	yes
Hydrocarbons	yes	yes
Nitroaromatics	yes	no
Pentachlorophenol	p	p
Phenols - Phenol by HPLC	yes	yes
Phthalate esters	p	p
		yes, exc naphthalene when Kerosene
Polyaromatic hydrocarbons by GC-MS	yes	
Polychlorinated biphenyls (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future

Last updated August 2006



Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 13 December, 2005
Our Reference: 05/17276/02/01
Your Reference: 8352/BX
Location: Not Specified

A total of 3 samples was received for analysis on Tuesday, 22 November 2005 and completed on Friday, 09 December 2005. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Environmental Chemist
Analytical Services

Compiled By

Gemma Rowland

JOB NUMBER : 05/17276/02
CLIENT : Smith Grant Partnership LLP
CONTACT : Derek Boothby
DATE OF RECEIPT : 22/11/05
LOCATION : Not Specified

BATCH NUMBER : 1
CLIENT REF/CODE : 8352/BX
ORDER NUMBER :
TURNAROUND : 10 days

Numeric values indicate additional scheduling
 * Indicates test subcontracted

Page 3 of 16

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 05/17276/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 22/11/05

LOCATION : Not Specified

BATCH NUMBER : 1

CLIENT REF/CODE : 8352/BX

ORDER NUMBER :

TURNAROUND : 10 days

Numeric values indicate
additional scheduling

* Indicates test subcontracted

		ISO 17025 Accredited ?																		

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 05/17276/02/01
Client: Smith Grant Partnership LLP
Client Ref : 8352/BX

Grain sizes	
<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Job Number:	05/17276/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BX	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 13.12.2005

Job Number:	05/17276/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BX	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 13.12.2005

ALcontrol Geochem Analytical Services

[#] ISO 17025 accredited
^M MCERTS accredited
^{*} Subcontracted test
^W Shown on prev. report

Job Number: 05/17276/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BX

Matrix: LEACHATE
Location: Not Specified
Client Contact: Derek Boothby

[illegible]

Date 13.12.2005

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Client Contact: Derek Boothby

[illegible]

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 05/17276/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BX

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓		DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓		WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS	✓		DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓		DRY	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓		WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy	✓		NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓		NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC	✓		NA	
TM148	BS 1377: Part 3 1990 (Extraction)	Analysis of Total Sulphate using Unicam 701 Spectrophotometer			DRY	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	✓		WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 05/17276/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BX

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 05/17276/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BX

Summary of Coolbox temperatures

[illegible]

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammoniacal N₂ by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. A sub sample of all samples received will be retained free of charge for one month for both soils and waters (sample size permitting), but may then be discarded unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification and quantification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then drying and crushing will be suspended on that sample until the asbestos results are known. If asbestos is present, then no analysis requiring dry sample will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace is present in the volatile sample.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
12. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
13. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
14. **MCERTS** – When many instruments are used for MCERTS analysis, there may be occasions when the precision and bias do not fall within the set MCERTS criteria (which are even lower than those required by USEPA). Under these circumstances, although the analysis will have been conducted using the full MCERTS method, the certificate will be issued omitting the "m" signifying MCERTS accreditation. Precision and bias data is available on request.

Last updated November 2005

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	p
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	p
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene	yes	yes
Benzo[a]pyrene	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	yes
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	yes
1,2-dichloroethane	yes	yes
Dichloromethane	yes	yes
"Dioxins"	no	no
Ethylbenzene	yes	yes
"Furans"	no	no
Hexachloro-1,3-butadiene	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Loss on Ignition	yes	yes
Pentachlorophenol	p	p
"Phenols"	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" - 16	yes	yes - 16
"Polychlorinated biphenyls"	yes	p
Tetrachloroethane	yes	no
Tetrachloroethene	yes	yes
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future



RECEIVED

27 JUL 2006

Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 17 July, 2006
Our Reference: 06/11616/02/01
Your Reference: 8352/BY
Location: Not Specified

A total of 6 samples was received for analysis on Friday, 07 July 2006 and completed on Monday, 17 July 2006. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



MCERTS
UK ACCREDITED TESTING ORGANISATION



1291
GROUP

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/11616/02 **BATCH NUMBER :** 1
CLIENT : Smith Grant Partnership LLP **CLIENT REF/CODE :** 8352/BY
CONTACT : Derek Boothby **ORDER NUMBER :**
DATE OF RECEIPT : 07/07/06 **TURNAROUND :** 10 days

Numeric values indicate additional scheduling

* indicates test subcontracted

LOCATION : Not Specified

Sample Number	Sample Identity	UKAS Accredited ?		Metals ICP, 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	C6-40 (Band 6) EZ (S)										
		P / V	Depth	Sample Type																						
1	070706 TS1	JAR	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X										
2	070706 TS1	TUB	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X										
3	070706 TS2	JAR	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X										
4	070706 TS2	TUB	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X										
5	070706 TS3	JAR	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X										
6	070706 TS3	TUB	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X										
				Total Number of Tests	3	3	3	3	3	3	3	3	3	3	3	3										

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/11616/02/01
Client: Smith Grant Partnership LLP
Client Ref : 8352/BY

Grain sizes	
<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

☒

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Matrix: SOLID

Location: Not Specified

Client Contact: Derek Boothby

All results expressed on a dry weight basis.

Page 4 of 10

- * ISO 17025 accredited
- ** MCERTS accredited
- * Subcontracted test
- » Shown on prev. report

Client Contact: Derek Boothby

[illegible]

Date: 17.07.2006

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/11616/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	Accredited	ISO 17025	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7; Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓			WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓			DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS	✓			DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS	✓		✓	DRY	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓			WET	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓		✓	WET	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	✓			WET	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓		✓	WET	
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	✓			WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/11616/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	12

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (emailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutter. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Naphthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these material- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interests of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by ALcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

Last updated April 2006

ALCONTROL GEOCHEM - MCERTS UPDATE (10th April 2006)

Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" by GC-MS	yes	yes, exc naphthalene
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/12924/02/01

Client: Smith Grant Partnership LLP

Client Ref : 8352/BY

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated ☒
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 06/12924/02/01

Matrix: SOLID

Client: Smith Grant Partnership LLP

Location: Not Specified

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

Sample Identity	280706 FWTA1	280706 FWTA2	280706 FWTA3	280706 FWTA4	280706 FWTA5	280706 FWTA6	280706 FWTA7	280706 FWTA8	280706 FWTA9	Method Code	LoD/Units
Depth (m)											
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06		
Sample Received Date	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18		
Total Sulphate	1250	<100	<100	1143	316	864	<100	958	1130	TM129 ^M	<100 mg/kg
Boron Water Soluble	1	<1	<1	1	<1	1	<1	<1	<1	TM129 ^M	<1 mg/kg
Arsenic	10	4	3	4	2	25	5	4	24	TM129 ^M	<1 mg/kg
Cadmium	<1	<1	<1	<1	<1	6	<1	<1	2	TM129 ^M	<1 mg/kg
Chromium	51	24	12	1325	14	9	23	40	<1	TM129 ^M	<1 mg/kg
Copper	26	2	6	20	8	<1	4	5	<1	TM129 ^M	<1 mg/kg
Lead	95	18	16	43	14	116	19	29	29	TM129 ^M	<1 mg/kg
Mercury	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	TM129 ^M	<1.2 mg/kg
Nickel	41	22	16	41	17	37	22	26	28	TM129 ^M	<1 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	<3	<3	TM129 ^M	<3 mg/kg
Zinc	268	45	28	93	33	723	42	57	185	TM129 ^M	<1 mg/kg
Water Soluble Sulphate as SO4 2:1 Extract	-	0.006	-	-	0.074	-	-	-	0.171	TM098 ^M	<0.003 g/l
Acid Soluble Sulphide	<50	<50	<50	82	<50	<50	<50	<50	<50	TM101 ^M	<50 mg/kg
Hexavalent Chromium	<0.3	<0.3	<3.0	<0.3	<0.3	<0.3	<3.0	<0.3	<0.3	TM151 ^M	<0.3 mg/kg
Phenols Monohydric	0.05	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	TM062 ^M	<0.01 mg/kg
Thiocyanate	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^M	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^M	<1 mg/kg
Asbestos Presence Screen	No Fibres Detected	-	-	No Fibres Detected	-	-	No Fibres Detected	-	-	TM001	NONE
pH Value	7.94	7.26	6.85	8.43	7.38	8.30	7.47	8.24	7.98	TM133 ^M	<1.00 pH Units
Total Sulphur	0.06	<0.01	<0.01	0.05	0.02	0.08	<0.01	0.01	0.03	TM068 ^M	<0.01 %
TPH C6-8	<10	<10	<10	<10	<10	<10	<10	<10	<10	TM154 ^M	<10 mg/kg
TPH >C8-10	<10	<10	<10	<10	<10	<10	<10	<10	<10	TM154 ^M	<10 mg/kg
TPH >C10-12	<10	<10	<10	<10	<10	<10	<10	<10	<10	TM154 ^M	<10 mg/kg
TPH >C12-16	<10	<10	<10	<10	<10	16	<10	<10	<10	TM154 ^M	<10 mg/kg
TPH >C16-21	43	<10	<10	32	<10	207	<10	<10	<10	TM154 ^M	<10 mg/kg
TPH >C21-40	442	<10	<10	187	<10	1103	<10	22	87	TM154 ^M	<10 mg/kg
TPH C6-40	486	<10	<10	218	<10	1342	<10	25	92	TM154 ^M	<10 mg/kg

All results expressed on a dry weight basis.

Date 11.08.2006

Validated ☒
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 06/12924/02/01 Matrix: SOLID
Client: Smith Grant Partnership LLP Location: Not Specified
Client Ref. No.: 8352/BY Client Contact: Derek Boothby

Sample Identity	280706 FWTA1	280706 FWTA2	280706 FWTA3	280706 FWTA4	280706 FWTA5	280706 FWTA6	280706 FWTA7	280706 FWTA8	280706 FWTA9	Method Code	LoD/Units
Depth (m)											
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06		
Sample Received Date	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18		
PAH by GCMS											
Naphthalene	443	272	263	216	107	1595	270	190	345	TM074 [#]	<10 ug/kg
Acenaphthylene	15	<5	<5	<5	<5	35	<5	<5	9	TM074 [#] _M	<5 ug/kg
Acenaphthene	99	<14	<14	20	<14	68	<14	<14	26	TM074 [#] _M	<14 ug/kg
Fluorene	99	<12	<12	<12	<12	144	<12	<12	17	TM074 [#] _M	<12 ug/kg
Phenanthrene	597	<21	<21	225	<21	717	<21	97	172	TM074 [#] _M	<21 ug/kg
Anthracene	163	<9	<9	49	<9	116	<9	22	49	TM074 [#] _M	<9 ug/kg
Fluoranthene	773	<25	<25	166	<25	385	<25	32	181	TM074 [#] _M	<25 ug/kg
Pyrene	732	<22	<22	156	<22	486	<22	43	189	TM074 [#] _M	<22 ug/kg
Benz(a)anthracene	421	<12	<12	103	<12	261	<12	58	155	TM074 [#] _M	<12 ug/kg
Chrysene	365	<10	<10	82	<10	286	<10	35	137	TM074 [#] _M	<10 ug/kg
Benzo(b)fluoranthene	533	<16	<16	144	<16	303	<16	46	266	TM074 [#] _M	<16 ug/kg
Benzo(k)fluoranthene	196	<25	<25	41	<25	194	<25	<25	77	TM074 [#] _M	<25 ug/kg
Benzo(a)pyrene	253	<12	<12	51	<12	194	<12	<12	69	TM074 [#] _M	<12 ug/kg
Indeno(123cd)pyrene	134	<11	<11	37	<11	134	<11	<11	41	TM074 [#] _M	<11 ug/kg
Dibenzo(ah)anthracene	67	<8	<8	12	<8	57	<8	<8	21	TM074 [#] _M	<8 ug/kg
Benzo(ghi)perylene	184	<10	<10	49	<10	220	<10	<10	62	TM074 [#] _M	<10 ug/kg
PAH 16 Total	5074	272	263	1351	107	5195	270	523	1816	TM074 [#]	<25 ug/kg

All results expressed on a dry weight basis.

Date 11.08.2006

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
D Shown on prev. report

Job Number: 06/12924/02/01

Matrix: SOLID

Client: Smith Grant Partnership LLP

Location: Not Specified

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

Sample Identity	280706 FWTA10	280706 FWTA11	280706 FWTA12	280706 FWTA13	280706 FWTA14						
Depth (m)											
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID						
Sampled Date	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06						
Sample Received Date	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06						
Batch	1	1	1	1	1						
Sample Number(s)	19-20	21-22	23-24	25-26	27-28						
Total Sulphate	762	161	844	688	554					TM129 ^d _M	<100 mg/kg
Boron Water Soluble	<1	<1	1	<1	1					TM129 ^d _M	<1 mg/kg
Arsenic	26	27	25	26	27					TM129 ^d _M	<1 mg/kg
Cadmium	3	2	2	2	2					TM129 ^d _M	<1 mg/kg
Chromium	<1	<1	35	176	<1					TM129 ^d _M	<1 mg/kg
Copper	<1	<1	<1	15	<1					TM129 ^d _M	<1 mg/kg
Lead	54	<1	87	121	57					TM129 ^d _M	<1 mg/kg
Mercury	<1.2	<1.2	<1.2	<1.2	<1.2					TM129 ^d _M	<1.2 mg/kg
Nickel	35	22	29	37	11					TM129 ^d _M	<1 mg/kg
Selenium	<3	<3	<3	<3	<3					TM129 ^d _M	<3 mg/kg
Zinc	259	56	113	177	87					TM129 ^d _M	<1 mg/kg
Water Soluble Sulphate as SO4 2-1 Extract	-	-	0.042	-	-					TM098 ^d _M	<0.003 g/l
Acid Soluble Sulphide	<50	<50	<50	183	59					TM101 ^d	<50 mg/kg
Hexavalent Chromium	<0.3	<0.3	<6.0	<6.0	<3.0					TM151 ^d	<0.3 mg/kg
Phenols Monohydric	<0.01	<0.01	0.08	<0.01	0.23					TM062 ^d	<0.01 mg/kg
Thiocyanate	<1	<1	<1	<1	2					TM153 ^d _M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1					TM153 ^d _M	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1					TM153 ^d _M	<1 mg/kg
Asbestos Presence Screen	-	No Fibres Detected	-	-	No Fibres Detected					TM001	NONE
pH Value	7.90	8.01	7.36	7.44	7.58					TM133 ^d _M	<1.00 pH Units
Total Sulphur	0.04	<0.01	0.06	0.07	0.04					TM068 ^d	<0.01 %
TPH C6-8	<10	<10	<10	<10	<10					TM154 ^d	<10 mg/kg
TPH >C8-10	<10	<10	<10	<10	<10					TM154 ^d	<10 mg/kg
TPH >C10-12	<10	<10	<10	<10	<10					TM154 ^d	<10 mg/kg
TPH >C12-16	<10	<10	39	<10	<10					TM154 ^d	<10 mg/kg
TPH >C16-21	42	<10	91	24	<10					TM154 ^d	<10 mg/kg
TPH >C21-40	565	29	335	170	30					TM154 ^d	<10 mg/kg
TPH C6-40	608	34	471	196	20					TM154 ^d	<10 mg/kg

All results expressed on a dry weight basis.

Date 11.08.2006

* ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 n Shown on prev. report

Job Number:	06/12924/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

Sample Identity	280706 FWTA10	280706 FWTA11	280706 FWTA12	280706 FWTA13	280706 FWTA14						
Depth (m)											
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID						
Sampled Date	28.07.06	28.07.06	28.07.06	28.07.06	28.07.06						
Sample Received Date	29.07.06	29.07.06	29.07.06	29.07.06	29.07.06						
Batch	1	1	1	1	1						
Sample Number(s)	19-20	21-22	23-24	25-26	27-28						
PAH by GCMS											
Naphthalene	612	687	1313	477	1263					TM074 ^g	<10 ug/kg
Acenaphthylene	<25	19	20	24	29					TM074 ^g _M	<5 ug/kg
Acenaphthene	<70	28	39	23	47					TM074 ^g _M	<14 ug/kg
Fluorene	<60	28	29	23	47					TM074 ^g _M	<12 ug/kg
Phenanthrene	140	33	399	515	84					TM074 ^g _M	<21 ug/kg
Anthracene	85	<9	62	101	17					TM074 ^g _M	<9 ug/kg
Fluoranthene	383	<25	222	235	67					TM074 ^g _M	<25 ug/kg
Pyrene	340	<22	222	224	67					TM074 ^g _M	<22 ug/kg
Benz(a)anthracene	222	18	172	211	75					TM074 ^g _M	<12 ug/kg
Chrysene	267	<10	172	186	65					TM074 ^g _M	<10 ug/kg
Benzo(b)fluoranthene	532	<16	141	286	56					TM074 ^g _M	<16 ug/kg
Benzo(k)fluoranthene	133	<25	71	50	47					TM074 ^g _M	<25 ug/kg
Benzo(a)pyrene	133	<12	91	75	47					TM074 ^g _M	<12 ug/kg
Indeno(123cd)pyrene	113	<11	60	48	30					TM074 ^g _M	<11 ug/kg
Dibenzo(ah)anthracene	56	<8	36	32	20					TM074 ^g _M	<8 ug/kg
Benzo(ghi)perylene	113	<10	120	80	50					TM074 ^g _M	<10 ug/kg
PAH 16 Total	3330	813	3169	2590	2011					TM074 ^g	<25 ug/kg

All results expressed on a dry weight basis.

Date 11/08/2006

Validated



Preliminary



ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited

M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 06/12924/02/01

Matrix: LEACHATE

Client: Smith Grant Partnership LLP

Location: Not Specified

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

Sample Identity	280706 FWTA1	280706 FWTA5	280706 FWTA9	280706 FWTA14							
Depth (m)											
Sample Type	SOLID	SOLID	SOLID	SOLID							
Sampled Date	28.07.06	28.07.06	28.07.06	28.07.06							
Sample Received Date	29.07.06	29.07.06	29.07.06	29.07.06							
Batch	1	1	1	1							
Sample Number(s)	1-2	9-10	17-18	27-28							
Arsenic Dissolved (NRA) (ICP-MS)	<1	<1	<1	4						TM152	<1 ug/l
Boron Dissolved (NRA) (ICP-MS)	44	<10	20	<10						TM152	<10 ug/l
Cadmium Dissolved (NRA) (ICP-MS)	<0.4	<0.4	<0.4	<0.4						TM152	<0.4 ug/l
Chromium Dissolved (NRA) (ICP-MS)	<1	<1	<1	2						TM152	<1 ug/l
Copper Dissolved (NRA) (ICP-MS)	3	3	4	12						TM152	<1 ug/l
Lead Dissolved (NRA) (ICP-MS)	<1	2	<1	5						TM152	<1 ug/l
Nickel Dissolved (NRA) (ICP-MS)	1	<1	3	2						TM152	<1 ug/l
Selenium Dissolved (NRA) (ICP-MS)	<1	<1	<1	<1						TM152	<1 ug/l
Zinc Dissolved (NRA) (ICP-MS)	4	9	<3	5						TM152	<3 ug/l
Mercury Dissolved (NRA) (CVAA)	<0.05	<0.05	<0.05	<0.05						TM127	<0.05 ug/l
Hexavalent Chromium (NRA)	<0.03	<0.03	<0.03	<0.03						TM151	<0.03 mg/l
Sulphide (NRA)	<0.50	<0.50	<0.50	<0.50						TM101	<0.5 mg/l
Sulphate (NRA)	53	19	40	3						TM098	<3 mg/l
Phenols Monohydric (NRA)	<0.01	<0.01	<0.01	<0.01						TM062	<0.01 mg/l
Thiocyanate (NRA)	<0.05	<0.05	<0.05	<0.05						TM153	<0.05 mg/l
Total Cyanide (NRA)	<0.05	<0.05	<0.05	<0.05						TM153	<0.05 mg/l
Free Cyanide (NRA)	<0.05	<0.05	<0.05	<0.05						TM153	<0.05 mg/l
Free Sulphur (NRA)	<0.05	<0.05	<0.05	<0.05						TM136	<0.05 mg/l
pH (NRA)	8.34	7.24	7.91	8.30						TM133	<1.00 pH Units

Date 11.08.2006

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 06/12924/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

[illegible]



19 SEP 2006

Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Katrina Hawkins

CERTIFICATE OF ANALYSIS

Date: 11 September, 2006
Our Reference: 06/13915/02/01
Your Reference: 8352BY
Location: R175

A total of 12 samples was received for analysis on Tuesday, 15 August 2006 and completed on Wednesday, 23 August 2006. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/13915/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Katrina Hawkins

DATE OF RECEIPT : 15/08/06

LOCATION : R175

BATCH NUMBER : 1

CLIENT REF/ CODE : 8352BY

ORDER NUMBER :

TURNAROUND : 5 days

Numeric values indicate
additional scheduling

* Indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited ?			Total Number of Tests																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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ALcontrol Geochem TEST SCHEDULE

JOB NUMBER: 06/13915/02

CLIENT: Smith Grant Partnership LLP

CONTACT: Katrina Hawkins

DATE OF RECEIPT : 15/08/06

LOCATION: R175

BATCH NUMBER : 1

CLIENT REF/CODE: 8352BY

ORDER NUMBER:

TURNAROUND : 5 days

Numeric values indicate additional scheduling

* Indicates test subcontracted

[illegible]

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/13915/02/01

Client: Smith Grant Partnership LLP

Client Ref: 8352BY

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

ALcontrol Geochem Analytical Services Table Of Results

* ISO 17025 accredited
 M MCERTS accredited
 S Subcontracted test
 D Shown on prev. report

Job Number: 06/13915/02/01

Matrix: SOLID

Client: Smith Grant Partnership LLP

Location: R175

Client Ref. No.: 8352BY

Client Contact: Katrina Hawkins

[illegible]

All results expressed on a dry weight basis.

Date 11.09.2006

☒

11

» Shown on prev. report

Client Contact: Katrina Hawkins

[illegible]

Date 11.09.2006

- ^a ISO 17025 accredited
- ^m MCERTS accredited
- ^{*} Subcontracted test
- [»] Shown on prev. report

Job Number:	06/13915/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	R175
Client Ref. No.:	8352BY	Client Contact:	Katrina Hawkins

[illegible]

All results expressed on a dry weight basis.

Date 11.09.2006

ALcontrol Geochem Analytical Services

* ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test.

b Shown on prev. report

Job Number: 06/13915/02/01

Matrix: LEACHATE

Client: Smith Grant Partnership LLP

Location: R175

Client Ref. No.: 8352BY

Client Contact: Katrina Hawkins

[illegible]

Date 11.09.2006

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

[†] ISO 17025 accredited
^M MCERTS accredited
^{*} Subcontracted test
^g Shown on prev. report

Job Number: 06/13915/02/01

Matrix: LEACHATE

Client: Smith Grant Partnership LLP

Location: R175

Client Ref. No.: 8352BY

Client Contact: Katrina Hawkins

[illegible]

Date 11.09.2006

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/13915/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352BY

Report Key :

NDP No Determination Possible
 NFD No Fibres Detected
 # ISO 17025 accredited
 PFD Possible Fibres Detected

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷
 * Subcontracted test
 » Result previously reported (Incremental reports only)
 M MCERTS Accredited
 EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM001	In - house Method	Screening of Soils for Fibres			WET	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			WET	
TM068	ASTMD-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓		DRY	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓		WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter			NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/13915/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	✓		WET	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓	✓	WET	
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	✓		WET	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/13915/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352BY

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	14°C

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (emailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutter. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Naphthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

Last updated August 2006

MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granula material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

Last updated August 2006

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)

Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" by GC-MS	yes	yes, exc naphthalene when Karosene
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending + data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future



ALcontrol Geochem

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Deeside
CH5 3U5
Tel: (01244) 528700
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email: mkt@alcontrol.co.uk
website: www.alcontrol.co.uk

RECEIVED

21 SEP 2006

Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Katrina Hawkins

CERTIFICATE OF ANALYSIS

Date: 11 September, 2006
Our Reference: 06/14250/02/01
Your Reference: 8352
Location: R175

A total of 4 samples was received for analysis on Saturday, 19 August 2006 and completed on Friday, 01 September 2006. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone

Customer Services

Jane Seymour

Customer Services

David O'Hare

Customer Services

Caroline Suttie

Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



MCERTS
UKAS
TESTING



1291
GROUP

ALcontrol Geochem

JOB NUMBER: 06/14250/02

CLIENT: Smith Grant Partnership LLP

CONTACT: Katrina Hawkins

DATE OF RECEIPT: 19/08/06

LOCATION: R175

BATCH NUMBER: 1

CLIENT REF/CODE : 8352

ORDER NUMBER:

TURNAROUND : 10 days

Numeric values indicate additional scheduling

* indicates test subcontracted

[illegible]

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/14250/02/01

Client: Smith Grant Partnership LLP

Client Ref : 8352

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services
Table Of Results

* ISO 17025 accredited

MCERTS accredited

- Subcontracted test

16 Shown on prev. report

Job Number: 06/14250/02/01

Matrix: SOLID

Client: Smith Grant Partnership LLP

Location: R175

Client Ref. No.: 8352

Client Contact: Katrina Hawkins

[illegible]

All results expressed on a dry weight basis.

Date 11.09.2006

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/14250/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	Accredited	ISO 17025	MCERTS Accredited	Wet/Dry Sample *	Surrogate Corrected
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection.				WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓			DRY	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓			WET	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	✓	WET	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓	✓	✓	WET	
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	✓			WET	

* Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 06/14250/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352

Summary of Coolbox temperatures

[illegible]

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (emailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutter. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Napthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

Last updated August 2006

MCERTS

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Last updated August 2006

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)

Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" by GC-MS	yes	yes, exc naphthalene when Kerosene
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future



13 OCT 2006

Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 05 October, 2006
Our Reference: 06/15842/02/01
Your Reference: 8352/BY
Location: Not Specified

A total of 14 samples was received for analysis on Tuesday, 12 September 2006 and completed on Monday, 02 October 2006. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/15842/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 12/09/06

LOCATION : Not Specified

BATCH NUMBER : 1

CLIENT REF/ CODE : 8352/BY

ORDER NUMBER :

TURNAROUND : 10 days

Numeric values indicate
additional scheduling

* indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited ?			Sample Type	Depth	P / V	UKAS Accredited ?																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/15842/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 12/09/06

LOCATION : Not Specified

BATCH NUMBER : 1

CLIENT REF/CODE : 8352/BY

ORDER NUMBER :

TURNAROUND : 10 days

Numeric values indicate
additional scheduling

* indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited ?		P / V	Depth	Sample Type	PAH Spec MS (NRA)	Free Sulphur (NRA)												
1	110906 FWTA1	JAR 250g	-	SOLID																
2	110906 FWTA1	TUB 400g	-	SOLID																
3	110906 FWTA2	JAR 250g	-	SOLID																
4	110906 FWTA2	TUB 400g	-	SOLID			X	X												
5	110906 FWTA3	JAR 250g	-	SOLID																
6	110906 FWTA3	TUB 400g	-	SOLID																
7	110906 FWTA4	JAR 250g	-	SOLID																
8	110906 FWTA4	TUB 400g	-	SOLID			X	X												
9	120906 LTDM1	TUB 400g	-	SOLID			X	X												
10	120906 LTDM2	TUB 400g	-	SOLID																
11	120906 LTDM3	TUB 400g	-	SOLID																
12	120906 LTDM4	TUB 400g	-	SOLID																
13	120906 LTDM5	TUB 400g	-	SOLID			X	X												
14	120906 LTDM6	TUB 400g	-	SOLID																
Total Number of Tests							4	4												

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/15842/02/01
Client: Smith Grant Partnership LLP
Client Ref : 8352/BY

Grain sizes	
<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

* ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Client Contact: Derek Boothby

[illegible]

Page 7 of 18

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
w Shown on prev. report

Job Number: 06/15842/02/01

Matrix: SOLID

Client: Smith Grant Partnership LLP

Location: Not Specified

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 05.10.2006

☒

11

- # ISO 17025 accredited
- M MCERTS accredited
- * Subcontracted test
- » Shown on prev. report

Matrix: SOLID

Location: Not Specified

Client Contact: Derek Boothby

All results expressed on a dry weight basis.

Page 9 of 18

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services

- * ISO 17025 accredited
- M MCERTS accredited
- * Subcontracted test
- » Shown on prev. report

Job Number: 06/15842/02/01

Matrix: LEACHATE

Client: Smith Grant Partnership LLP

Location: Not Specified

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

[illegible]

Date 05.10.2006

^N ISO 17025 accredited
^M MCERTS accredited
^{*} Subcontracted test
ⁿ Shown on prev. report

Job Number:	06/15842/02/01	Matrix:	LEACHATE
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

Date 05.10.2006

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/15842/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			NA	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓		WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter			NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/15842/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

[†] Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/15842/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	12

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Napthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)- Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
		yes, exc naphthalene when Kerosene
"Polyaromatic hydrocarbons" by GC-MS	yes	
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future

Last updated August 2006



03 NOV 2006

Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 01 November, 2006
Our Reference: 06/17083/02/01
Your Reference: 8352/BY
Location: Not Specified

Please Note: That Silt samples are not MCERTS accredited.

A total of 6 samples was received for analysis on Friday, 29 September 2006 and completed on Tuesday, 17 October 2006. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

<u>Diane Whittlestone</u>	<u>Jane Seymour</u>	<u>David O'Hare</u>	<u>Caroline Suttie</u>
Customer Services	Customer Services	Customer Services	Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/17083/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 29/09/06

LOCATION : Not Specified

BATCH NUMBER : 1

CLIENT REF/CODE : 8352/BY

ORDER NUMBER :

TURNAROUND : 10 days

Numeric values indicate
additional scheduling

* Indicates test subcontracted

Sample Number	Sample Identity	P / V	Depth	Sample Type	UKAS Accredited ?	Metals ICP. 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH (DRO) (S)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)	Phenols HPLC (NRA)
1	270906 FWTA1	JAR 250g	-	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	270906 FWTA1	TUB 400g	-	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	270906 FWTA2	JAR 250g	-	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	270906 FWTA2	TUB 400g	-	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	270906 FWTA 3	JAR 250g	-	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	270906 FWTA 3	TUB 400g	-	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Number of Tests						3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/17083/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 29/09/06

LOCATION : Not Specified

BATCH NUMBER : 1

CLIENT REF/CODE : 8352/BY

ORDER NUMBER :

TURNAROUND : 10 days

Numeric values indicate
additional scheduling

* Indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited ?		P / V	Depth	Sample Type	PAH Spec MS (NRA)	Free Sulphur (NRA)															
1	270906 FWTA1	JAR 250g	-	SOLID																			
2	270906 FWTA1	TUB 400g	-	SOLID																			
3	270906 FWTA2	JAR 250g	-	SOLID																			
4	270906 FWTA2	TUB 400g	-	SOLID			X	X															
5	270906 FWTA 3	JAR 250g	-	SOLID																			
6	270906 FWTA 3	TUB 400g	-	SOLID																			
Total Number of Tests							1	1															

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/17083/02/01
Client: Smith Grant Partnership LLP
Client Ref : 8352/BY

Grain sizes	
<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Job Number:	06/17083/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 30.10.2006

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
* Shown on prev. report

Job Number:	06/17083/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 30.10.2006

* ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number:	06/17083/02/01	Matrix:	LEACHATE
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

Date 30.10.2006

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
y Shown on prev. report

Job Number:	06/17083/02/01	Matrix:	LEACHATE
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

Date 30.10.2006

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/17083/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			NA	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓		WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter			NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/17083/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP No Determination Possible

- * Subcontracted test

NFD No Fibres Detected

» Result previously reported (Incremental) reports only)

ISO 17025 accredited

M MCERTS Accredited

PFD	Possible Fibres Detected
1	100%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%
14	100%
15	100%
16	100%
17	100%
18	100%
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88	100%
89	100%
90	100%
91	100%
92	100%
93	100%
94	100%
95	100%
96	100%
97	100%
98	100%
99	100%
100	100%

EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

[†]Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/17083/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	11

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutter. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Naphthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)- Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Tabel 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" by GC-MS	yes	yes, exc naphthalene when Kerosene
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future

Last updated August 2006



RECEIVED

01 SEP 2006

Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 24 August, 2006

Our Reference: 06/13576/02/01

Your Reference:

Location: 8352/BY

A total of 4 samples was received for analysis on Wednesday, 09 August 2006 and completed on Monday, 21 August 2006. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/13576/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 09/08/06

LOCATION : 8352/BY

BATCH NUMBER : 1

CLIENT REF/CODE :

ORDER NUMBER :

TURNAROUND : 10 days

Numeric values indicate additional scheduling

* Indicates test subcontracted

Sample Number	Sample Identity	P / V	Depth	Sample Type	UKAS Accredited ?															
						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1	090806 FUTA1	JAR 250g	N/A	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	090806 FUTA2	JAR 250g	N/A	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	090806 FUTA2	TUB 400g	N/A	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	090806 FUTA2	TUB 400g	N/A	SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Number of Tests						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/13576/02/01

Client: Smith Grant Partnership LLP

Client Ref :

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1 mm - 2 mm	Medium
---------------	--------

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client.

☒

9

• ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

*) Shown on prev. report

Matrix: SOLID

Location: 8352/BY

Client Contact: Derek Boothby

All results expressed on a dry weight basis.

Date: 24.08.2006

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

06/13576/02/01

Smith Grant Partnership LLP

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

- * Subcontracted test

Result previously reported (Incremental reports only)

M MCERTS Accredited

EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/13576/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.:

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	22

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (emailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutter. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
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8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Naphthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

Last updated August 2006

MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granula material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

Last updated August 2006

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)

Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" by GC-MS	yes	yes, exc naphthalene when Kerosene
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future

04 12 06



ALcontrol Geochem

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Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 28 November, 2006
Our Reference: 06/18815/02/01
Your Reference: 8352/BY
Location: Not Specified

A total of 38 samples was received for analysis on Wednesday, 25 October 2006 and completed on Wednesday, 15 November 2006. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



MCERTS
THE ENGINEERING COUNCIL



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/18815/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 25/10/06

LOCATION : Not Specified

BATCH NUMBER : 1

CLIENT REF/CODE : 8352/BY

ORDER NUMBER :

TURNAROUND : 10 days

Numeric values indicate
additional scheduling

* indicates test subcontracted

Sample Number	Sample Identity	P / V	Depth	Sample Type	UKAS Accredited ?	Metals ICP- 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH (DRO) (S)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)	Phenols HPLC (NRA)
1	241006 FWT A1	JAR 250g	UNKNOWN	SOLID	✓	X	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	241006 FWT A1	TUB 400g	UNKNOWN	SOLID																									
3	241006 FWT A2	JAR 250g	UNKNOWN	SOLID		X	X																						
4	241006 FWT A2	TUB 400g	UNKNOWN	SOLID																									
5	241006 FWT A3	JAR 250g	UNKNOWN	SOLID		X	X																						
6	241006 FWT A3	TUB 400g	UNKNOWN	SOLID																									
7	241006 FWT A4	JAR 250g	UNKNOWN	SOLID		X	X																						
8	241006 FWT A4	TUB 400g	UNKNOWN	SOLID																									
9	241006 FWT A5	JAR 250g	UNKNOWN	SOLID		X	X																						
10	241006 FWT A5	TUB 400g	UNKNOWN	SOLID																									
11	241006 FWT A6	JAR 250g	UNKNOWN	SOLID		X	X																						
12	241006 FWT A6	TUB 400g	UNKNOWN	SOLID																									
13	241006 FWT A7	JAR 250g	UNKNOWN	SOLID		X	X																						
14	241006 FWT A7	TUB 400g	UNKNOWN	SOLID																									
15	241006 FWT A8	JAR 250g	UNKNOWN	SOLID		X	X																						
16	241006 FWT A8	TUB 400g	UNKNOWN	SOLID																									
17	241006 FWT A9	JAR 250g	UNKNOWN	SOLID		X	X																						
18	241006 FWT A9	TUB 400g	UNKNOWN	SOLID																									
19	241006 FWT A10	JAR 250g	UNKNOWN	SOLID		X	X																						
20	241006 FWT A10	TUB 400g	UNKNOWN	SOLID																									
21	241006 FWT A11	JAR 250g	UNKNOWN	SOLID		X	X																						
22	241006 FWT A11	TUB 400g	UNKNOWN	SOLID																									

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/18815/02

BATCH NUMBER : 1

Numeric values indicate additional scheduling

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

* indicates test subcontracted

DATE OF RECEIPT : 25/10/06

TURNAROUND : 10 days

LOCATION : Not Specified

Sample Number	Sample Identity	UKAS Accredited ?		Metals ICP. 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH (DRO) (S)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)	Phenols HPLC (NRA)
		P / V	Depth																								
23	241006 FWT A12	JAR 250g	UNKNOWN	X	X					X	X				X												
24	241006 FWT A12	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
25	241006 FWT A13	JAR 250g	UNKNOWN	X	X					X	X				X												
26	241006 FWT A13	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
27	241006 FWT A14	JAR 250g	UNKNOWN	X	X					X	X				X												
28	241006 FWT A14	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
29	241006 FWT A15	JAR 250g	UNKNOWN	X	X					X	X				X												
30	241006 FWT A15	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
31	241006 FWT A16	JAR 250g	UNKNOWN	X	X					X	X				X												
32	241006 FWT A16	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
33	241006 FWT A17	JAR 250g	UNKNOWN	X	X					X	X				X												
34	241006 FWT A17	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
35	241006 FWT A18	JAR 250g	UNKNOWN	X	X					X	X				X												
36	241006 FWT A18	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
37	241006 FWT A19	JAR 250g	UNKNOWN	X	X					X	X				X												
38	241006 FWT A19	TUB 400g	UNKNOWN	X		X		X	X			X	X	X													
Total Number of Tests				19	19	19	19	19	19	19	19	19	19	19	19	19	7	7	7	7	7	7	7	7	7	7	7

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/18815/02

BATCH NUMBER : 1

Numeric values indicate
additional scheduling

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

* indicates test subcontracted

DATE OF RECEIPT : 25/10/06

TURNAROUND : 10 days

LOCATION : Not Specified

Sample Number	Sample Identity	UKAS Accredited ?		P / V	Depth	Sample Type	PAH Spec MS (NRA)	Free Sulphur (NRA)														
1	241006 FWT A1	JAR 250g	UNKNOWN	SOLID			X															
2	241006 FWT A1	TUB 400g	UNKNOWN	SOLID			X															
3	241006 FWT A2	JAR 250g	UNKNOWN	SOLID																		
4	241006 FWT A2	TUB 400g	UNKNOWN	SOLID																		
5	241006 FWT A3	JAR 250g	UNKNOWN	SOLID																		
6	241006 FWT A3	TUB 400g	UNKNOWN	SOLID																		
7	241006 FWT A4	JAR 250g	UNKNOWN	SOLID																		
8	241006 FWT A4	TUB 400g	UNKNOWN	SOLID			X	X														
9	241006 FWT A5	JAR 250g	UNKNOWN	SOLID																		
10	241006 FWT A5	TUB 400g	UNKNOWN	SOLID																		
11	241006 FWT A6	JAR 250g	UNKNOWN	SOLID																		
12	241006 FWT A6	TUB 400g	UNKNOWN	SOLID																		
13	241006 FWT A7	JAR 250g	UNKNOWN	SOLID																		
14	241006 FWT A7	TUB 400g	UNKNOWN	SOLID			X	X														
15	241006 FWT A8	JAR 250g	UNKNOWN	SOLID																		
16	241006 FWT A8	TUB 400g	UNKNOWN	SOLID																		
17	241006 FWT A9	JAR 250g	UNKNOWN	SOLID																		
18	241006 FWT A9	TUB 400g	UNKNOWN	SOLID																		
19	241006 FWT A10	JAR 250g	UNKNOWN	SOLID																		
20	241006 FWT A10	TUB 400g	UNKNOWN	SOLID			X	X														
21	241006 FWT A11	JAR 250g	UNKNOWN	SOLID																		
22	241006 FWT A11	TUB 400g	UNKNOWN	SOLID																		

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/18815/02

BATCH NUMBER : 1

CLIENT: Smith Grant Partnership LLP

CLIENT REF/CODE: 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

DATE OF RECEIPT : 25/10/06

TURNAROUND : 10 days

LOCATION: Not Specified

Numeric values indicate additional scheduling

[illegible]

Extractable Petroleum Hydrocarbons (formally Diesel Range Organics) :- Any compound extractable in n-hexane within the carbon range C10-C40, includes Aliphatic (Min Oil), Aromatic (PAHs) and naturally occurring compounds.

ALcontrol Geochem Analytical Services
Sample Descriptions

Job Number: 06/18815/02/01
Client: Smith Grant Partnership LLP
Client Ref : 8352/BY

Grain sizes	
<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

[#] ISO 17025 accredited
^M MCERTS accredited
^{*} Subcontracted test
[»] Shown on prev. report

Job Number:	06/18815/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 28.11.2006

☒

ALcontrol Geochem Analytical Services

ISO 17025 accredited

⁵⁴ MCERTS accredited

- Subcontracted test

n Shown on prev. report

Job Number: 06/18815/02/01

Matrix: SOLID

Client: Smith Grant Partnership LLP

Location: Not Specified

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date: 28.11.2006

☒

* ISO 17025 accredited
 M MCERTS accredited
 + Subcontracted test
 w Shown on prev. report

Matrix: SOLID

Location: Not Specified

Client Contact: Derek Boothby

[illegible]

Date 28.11.2006

[#] ISO 17025 accredited
^M MCERTS accredited
^{*} Subcontracted test
[»] Shown on prev. report

Job Number:	06/18815/02/01	Matrix:	LEACHATE
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

Date 28.11.2006

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/18815/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP No Determination Possible * Subcontracted test
 NFD No Fibres Detected » Result previously reported (Incremental reports only)
 # ISO 17025 accredited M MCERTS Accredited
 PFD Possible Fibres Detected EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			NA	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓		WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter			NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/18815/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/18815/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

[illegible]

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Napthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

MCERTS

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2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)- Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
		yes, exc naphthalene when Kerosene
"Polyaromatic hydrocarbons" by GC-MS	yes	yes
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future



ALcontrol Geochem

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Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 09 January, 2007
Our Reference: 06/22224/02/01
Your Reference: 8352/BY
Location: -

A total of 52 samples was received for analysis on Thursday, 14 December 2006 and completed on Monday, 08 January 2007. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/22224/02
CLIENT : Smith Grant Partnership LLP
CONTACT : Derek Boothby
DATE OF RECEIPT : 14/12/06
LOCATION : -

BATCH NUMBER : 1
CLIENT REF/CODE : 8352/BY
ORDER NUMBER :
TURNAROUND : 10 days

Numeric values indicate
additional scheduling
* Indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited ?		P / V	Depth	Sample Type	Metals ICP: 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH C10-40 GC (Band B1 (S))	Asbestos Screen (ID)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)
1	121206AA1	JAR 250g	-	SOLID			X	X																						
2	121206AA1	TUB 400g	-	SOLID			X	X																						
3	121206FP1	JAR 250g	-	SOLID			X	X																						
4	121206FP7	TUB 400g	-	SOLID			X	X																						
5	121206FP1	TUB 400g	-	SOLID			X	X																						
6	121206FP2	JAR 250g	-	SOLID			X	X																						
7	121206FP2	TUB 400g	-	SOLID			X	X																						
8	121206FP3	JAR 250g	-	SOLID			X	X																						
9	121206FP3	TUB 400g	-	SOLID			X	X																						
10	121206FP4	JAR 250g	-	SOLID			X	X																						
11	121206FP4	TUB 400g	-	SOLID			X	X																						
12	121206FP5	JAR 250g	-	SOLID			X	X																						
13	121206FP5	TUB 400g	-	SOLID			X	X																						
14	121206FP6	JAR 250g	-	SOLID			X	X																						
15	121206FP6	TUB 400g	-	SOLID			X	X																						
16	121206FP7	JAR 250g	-	SOLID			X	X																						
17	121206FP8	JAR 250g	-	SOLID			X	X																						
18	121206FP8	TUB 400g	-	SOLID			X	X																						
19	121206FP9	JAR 250g	-	SOLID			X	X																						
20	121206FP9	TUB 400g	-	SOLID			X	X																						
21	121206FP10	JAR 250g	-	SOLID			X	X																						
22	121206FP10	TUB 400g	-	SOLID			X	X																						

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/22224/02

BATCH NUMBER : 1

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

DATE OF RECEIPT : 14/12/06

TURNAROUND : 10 days

LOCATION : -

Numeric values indicate
additional scheduling

* indicates test subcontracted

Sample Number	Sample Identity	P / V	Depth	UKAS Accredited ?	Metals ICP. 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH C10-40 GC (Band R1/S1)	Asbestos Screen (ID)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)
23	121206FP11	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24	121206FP11	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
25	121206FP12	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26	121206FP12	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
27	121206FWTA1	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28	121206FWTA2	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
29	121206FWTA2	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30	121206FWTA2	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
31	121206FWTA3	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
32	121206FWTA3	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
33	121206LDM1	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
34	121206LDM1	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
35	121206LDM2	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
36	121206LDM2	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
37	121206LDM3	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
38	121206LDM3	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
39	121206LDM4	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
40	121206LDM4	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
41	121206LDM5	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
42	121206LDM5	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
43	121206LDM6	JAR 250g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
44	121206LDM6	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/22224/02

BATCH NUMBER : 1

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

DATE OF RECEIPT : 14/12/06

TURNAROUND : 10 days

LOCATION : -

Numeric values indicate additional scheduling

* indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited ?			Metals ICP. 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH C10-40 GC (Band R1/S1)	Asbestos Screen (ID)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)
		P / V	Depth	Sample Type																								
45	121206SLOPE1	JAR 250g	-	SOLID	X	X		X	X		X	X	X	X		X	X				X	X	X					
46	121206SLOPE1	TUB 400g	-	SOLID	X	X		X	X	X	X	X	X	X	X	X	X				X	X	X					
47	121206SLOPE2	JAR 250g	-	SOLID	X	X		X	X		X	X	X	X		X	X				X	X	X					
48	121206SLOPE2	TUB 400g	-	SOLID		X	X	X	X	X		X	X	X	X		X	X				X	X	X				
49	121206WSDA1	JAR 250g	-	SOLID	X	X		X	X		X	X	X	X		X	X				X	X	X					
50	121206WSDA1	TUB 400g	-	SOLID		X	X	X	X	X		X	X	X	X		X	X				X	X	X				
51	121206WSDA2	JAR 250g	-	SOLID	X	X		X	X		X	X	X	X		X	X				X	X	X					
52	121206WSDA2	TUB 400g	-	SOLID		X	X	X	X	X		X	X	X	X		X	X				X	X	X				
Total Number of Tests					26	26	26	26	26	26	26	26	26	26	26	26	26	26	12	7	7	7	7	7	7	7	7	7

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/22224/02

CLIENT: Smith Grant Partnership LLP

CONTACT: Derek Boothby

DATE OF RECEIPT : 14/12/06

LOCATION: -

BATCH NUMBER : 1

CLIENT REF/CODE : 8352/BY

ORDER NUMBER:

TURNAROUND : 10 days

Numeric values indicate additional scheduling

* indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited ?			Phenols HPLC (NRA)	PAH Spec MS (NRA)	Free Sulphur (NRA)
		P / V	Depth	Sample Type			
1	121206AA1	JAR 250g	-	SOLID			
2	121206AA1	TUB 400g	-	SOLID			
3	121206FP1	JAR 250g	-	SOLID			
4	121206FP7	TUB 400g	-	SOLID			
5	121206FP1	TUB 400g	-	SOLID	X	X	
6	121206FP2	JAR 250g	-	SOLID			
7	121206FP2	TUB 400g	-	SOLID			
8	121206FP3	JAR 250g	-	SOLID			
9	121206FP3	TUB 400g	-	SOLID			
10	121206FP4	JAR 250g	-	SOLID			
11	121206FP4	TUB 400g	-	SOLID			
12	121206FP5	JAR 250g	-	SOLID			
13	121206FP5	TUB 400g	-	SOLID	X	X	
14	121206FP6	JAR 250g	-	SOLID			
15	121206FP6	TUB 400g	-	SOLID			
16	121206FP7	JAR 250g	-	SOLID			
17	121206FP8	JAR 250g	-	SOLID			
18	121206FP8	TUB 400g	-	SOLID			
19	121206FP9	JAR 250g	-	SOLID			
20	121206FP9	TUB 400g	-	SOLID			
21	121206FP10	JAR 250g	-	SOLID			
22	121206FP10	TUB 400g	-	SOLID	X	X	X

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/22224/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Derek Boothby

DATE OF RECEIPT : 14/12/06

LOCATION: -

BATCH NUMBER: 1

CLIENT REF/CODE : 8352/BY

ORDER NUMBER :

TURNAROUND: 10 days

Numeric values indicate additional scheduling

* Indicates test subcontracted

[illegible]

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 06/22224/02

BATCH NUMBER : 1

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

DATE OF RECEIPT : 14/12/06

TURNAROUND : 10 days

LOCATION : -

Numeric values indicate
additional scheduling

* indicates test subcontracted

UKAS Accredited 7																					
Sample Number	Sample Identity	P / V	Depth	Sample Type	Phenols HPLC (NRA)	PAH Spec MS (NRA)	Free Sulphur (NRA)														
45	121206SLOPE1	JAR 250g	-	SOLID																	
46	121206SLOPE1	TUB 400g	-	SOLID																	
47	121206SLOPE2	JAR 250g	-	SOLID																	
48	121206SLOPE2	TUB 400g	-	SOLID																	
49	121205WSDA1	JAR 250g	-	SOLID																	
50	121205WSDA1	TUB 400g	-	SOLID																	
51	121205WSDA2	JAR 250g	-	SOLID																	
52	121205WSDA2	TUB 400g	-	SOLID	X	X	X														
Total Number of Tests					7	7	7														

ALcontrol Geochem

Extractable Petroleum Hydrocarbons (EPH) By GC-FID

Carbon Range C10-C40

Job Number : 06/22224/02/01

Client : Smith Grant Partnership LLP

Client Ref : 8352/BY

Matrix [Units] : SOLID [mg/kg]

All results expressed on a dry weight basis.

Sample No	Sample Identity	Depth	EPH	Interpretation
1	121206AA1	-	343	Degraded Fuel Oil
3	121206FP1	-	1080	used engine oil/PAHs
6	121206FP2	-	750	used engine oil/PAHs
8	121206FP3	-	1116	used engine oil/PAHs
10	121206FP4	-	1518	used engine oil/PAHs
12	121206FP5	-	671	used engine oil/PAHs
14	121206FP6	-	414	kerosene residues/ PAHs/lube oil
16	121206FP7	-	631	used engine oil/PAHs
17	121206FP8	-	511	used engine oil/PAHs
19	121206FP9	-	761	used engine oil/PAHs
21	121206FP10	-	812	used engine oil/PAHs
23	121206FP11	-	966	used engine oil/PAHs
25	121206FP12	-	1585	used engine oil/PAHs
27	121206FWTA1	-	186	used engine oil/PAHs/bitumen/tar
29	121206FWTA2	-	117	used engine oil/PAHs/bitumen/tar
31	121206FWTA3	-	60	possible biodegraded diesel/humic acids
33	121206LTDM1	-	186	Degraded Fuel Oil
35	121206LTDM2	-	204	PAHs/Bitumen/Tar
37	121206LTDM3	-	173	used engine oil/PAHs
39	121206LTDM4	-	199	used engine oil/PAHs
41	121206LTDM5	-	530	used engine oil/PAHs/bitumen/tar
43	121206LTDM6	-	428	used engine oil/bitumen/tar
45	121206SLOPE1	-	232	used engine oil/PAHs/humic acids
47	121206SLOPE2	-	187	biodegraded diesel/humic acids
49	121206WSDA1	-	128	used engine oil
51	121206WSDA2	-	104	used engine oil

Extractable Petroleum Hydrocarbons (formally Diesel Range Organics) :- Any compound extractable in n-hexane within the carbon range C10-C40, includes Aliphatic (Min Oil), Aromatic (PAHs) and naturally occurring compounds.

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 06/22224/02/01

Client: Smith Grant Partnership LLP

Client Ref : 8352/BY

Grain sizes

<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
121206AA1	-	Dark Brown	<0.063mm	Clay with some Stones	1
121206FP1	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP2	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP3	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP4	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP5	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP6	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP7	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP8	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP9	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP10	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP11	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FP12	-	Dark Brown	0.1mm - 2mm	Sandy Clay with some Stones	1
121206FWTA1	-	Light Brown	<0.063mm	Clay with some Stones	1
121206FWTA2	-	Brown	<0.063mm	Clay with some Stones	1
121206FWTA3	-	Brown	<0.063mm	Silty Clay with some Stones	1
121206LTDM1	-	Grey	<0.063mm	Clay with some Stones	1
121206LTDM2	-	Grey	<0.063mm	Clay with some Stones	1
121206LTDM3	-	Grey	<0.063mm	Clay with some Stones	1
121206LTDM4	-	Grey	<0.063mm	Clay with some Stones	1
121206LTDM5	-	Grey	<0.063mm	Clay with some Stones	1
121206LTDM6	-	Grey	<0.063mm	Clay with some Stones	1
121206SLOPE1	-	Brown	0.1mm - 0.063mm	Silty Clay with some Vegetation	1
121206SLOPE2	-	Brown	0.1mm - 0.063mm	Silty Clay with some Vegetation	1
121206WSDA1	-	Grey	<0.063mm	Clay with some Stones	1
121206WSDA2	-	Dark Grey	0.1mm - 0.063mm	Silt with some Stones	1

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated ☒
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
a Shown on prev. report

Job Number: 06/22224/02/01 Matrix: SOLID
Client: Smith Grant Partnership LLP Location: -
Client Ref. No.: 8352/BY Client Contact: Derek Boothby

Sample Identity	121206AA 1	121206FP 1	121206FP 2	121206FP 3	121206FP4	121206FP5	121206FP 6	121206FP 7	121206FP 8	Method Code	Lod/Units
Depth (m)	-	-	-	-	-	-	-	-	-		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06		
Sample Received Date	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	1-2	3-5	6-7	8-9	10-11	12-13	14-15	4,16	17-18		
Total Sulphate	570	5770	4601	5462	4953	4278	3928	3041	2900	TM129 ^a _M	<100 mg/kg
Boron Water Soluble	<1	3	2	2	2	2	4	2	2	TM129 ^a _M	<1 mg/kg
Arsenic	<3	5	7	12	10	7	8	13	9	TM129 ^a _M	<3.0 mg/kg
Cadmium	<0.3	1.8	1.9	3.8	2.6	1.7	3.4	1.1	3.8	TM129 ^a _M	<0.3 mg/kg
Chromium	38.1	146.7	257.1	219.0	167.0	261.0	267.3	162.5	296.9	TM129 ^a _M	<4.5 mg/kg
Copper	50	89	41	57	54	43	58	40	36	TM129 ^a _M	<6 mg/kg
Lead	34	166	116	190	165	97	236	87	90	TM129 ^a _M	<2 mg/kg
Mercury	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	TM129 ^a _M	<0.6 mg/kg
Nickel	32.3	44.0	36.3	51.0	46.3	39.5	60.8	63.7	41.0	TM129 ^a _M	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	<3	<3	TM129 ^a _M	<3 mg/kg
Zinc	116.1	501.9	436.3	674.3	497.2	377.7	908.1	331.2	702.5	TM129 ^a _M	<2.5 mg/kg
Acid Soluble Sulphide	205	408	263	502	415	141	186	117	196	TM101 ^a	<50 mg/kg
Hexavalent Chromium	<6.0	<0.3	<0.3	<0.3	0.5	<0.3	<3.0	<3.0	<0.3	TM151 ^a	<0.3 mg/kg
Phenols Monochydric	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	TM062 ^a _M	<0.15 mg/kg
Thiocyanate	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^a _M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^a _M	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^a _M	<1 mg/kg
Asbestos Presence Screen	-	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	TM001	NONE
pH Value	8.34	10.39	10.55	10.31	10.70	10.73	8.42	9.90	10.15	TM133 ^a _M	<1.00 pH Units
Total Sulphur	0.04	0.22	0.07	0.28	0.23	0.20	0.27	0.21	0.34	TM068 ^a	<0.01 %
EPH (DRO) (C10-C40)	343	1080	750	1116	1518	671	414	631	511	TM061 ^a _M	<35 mg/kg
EPH C10-12	<35	<35	<35	<35	<35	<35	49	<35	<35	TM061 ^a	<35 mg/kg
EPH >C12-16	61	<35	44	39	42	38	122	<35	<35	TM061 ^a	<35 mg/kg
EPH >C16-21	53	127	106	130	152	85	47	75	59	TM061 ^a	<35 mg/kg
EPH >C21-40	214	922	584	934	1311	534	196	524	416	TM061 ^a	<35 mg/kg

All results expressed on a dry weight basis.

Date 09.01.2007

Job Number:	06/22224/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	-
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 09.01.2007

Validated ☒
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Table Of Results

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Job Number: 06/22224/02/01 Matrix: SOLID
Client: Smith Grant Partnership LLP Location: -
Client Ref. No.: 8352/BY Client Contact: Derek Boothby

Sample Identity	121206FP 9	121206FP 10	121206FP 11	121206FP 12	121206FW TA1	121206FW TA2	121206FW TA3	121206LT DM1	121206LT DM2	Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-	-	-		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06		
Sample Received Date	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	19-20	21-22	23-24	25-26	27	28-30	31-32	33-34	35-36		
Total Sulphate	3924	4401	5107	4840	994	545	272	657	855	TM129 ^f _M	<100 mg/kg
Boron Water Soluble	2	2	2	3	<1	<1	<1	<1	<1	TM129 ^f _M	<1 mg/kg
Arsenic	9	12	12	16	9	8	<3	<3	9	TM129 ^f _M	<3.0 mg/kg
Cadmium	1.3	1.3	2.2	1.4	<0.3	<0.3	<0.3	<0.3	<0.3	TM129 ^f _M	<0.3 mg/kg
Chromium	484.1	211.2	470.1	294.6	431.7	206.0	19.2	20.2	15.5	TM129 ^f _M	<4.5 mg/kg
Copper	48	62	59	80	32	78	8	22	27	TM129 ^f _M	<6 mg/kg
Lead	119	103	136	117	37	31	17	102	26	TM129 ^f _M	<2 mg/kg
Mercury	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	TM129 ^f _M	<0.6 mg/kg
Nickel	48.1	55.7	47.4	78.0	36.0	34.8	23.7	27.0	29.1	TM129 ^f _M	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	<3	<3	TM129 ^f _M	<3 mg/kg
Zinc	360.9	363.4	551.0	417.9	104.5	88.4	50.7	84.8	63.5	TM129 ^f _M	<2.5 mg/kg
Acid Soluble Sulphide	203	396	205	523	68	<50	<50	<50	<50	TM101 ^f	<50 mg/kg
Hexavalent Chromium	<0.3	0.3	<0.3	<0.3	0.4	<0.3	<0.3	<0.3	<0.3	TM151 ^f	<0.3 mg/kg
Phenols Monohydric	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	TM062 ^f _M	<0.15 mg/kg
Thiocyanate	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^f _M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^f _M	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	TM153 ^f _M	<1 mg/kg
Asbestos Presence Screen	No Fibres Detected	No Fibres Detected	No Fibres Detected	No Fibres Detected	-	-	-	-	-	TM001	NONE
pH Value	9.97	10.56	10.58	10.34	9.61	8.59	8.03	8.60	8.51	TM133 ^f _M	<10.0 pH Units
Total Sulphur	0.13	0.23	0.22	0.44	0.05	0.03	0.08	0.11	0.16	TM068 ^f	<0.01 %
EPH (DRO) (C10-C40)	761	812	966	1585	186	117	60	186	204	TM061 ^f _M	<35 mg/kg
EPH C10-12	<35	<35	<35	<35	<35	<35	<35	<35	<35	TM061 ^f	<35 mg/kg
EPH >C12-16	<35	34	36	35	<35	<35	<35	<35	<35	TM061 ^f	<35 mg/kg
EPH >C16-21	79	127	108	153	<35	<35	<35	<35	<35	TM061 ^f	<35 mg/kg
EPH >C21-40	646	610	811	1389	136	76	40	115	158	TM061 ^f	<35 mg/kg

All results expressed on a dry weight basis.

Date 09.01.2007

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ALcontrol Geochem Analytical Services

Table Of Results

* ISO 17025 accredited
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* Subcontracted test
» Shown on prev. report

Job Number: 06/22224/02/01 Matrix: SOLID
Client: Smith Grant Partnership LLP Location: -
Client Ref. No.: 8352/BY Client Contact: Derek Boothby

Sample Identity	121206FP 9	121206FP 10	121206FP 11	121206FP 12	121206FW TA1	121206FW TA2	121206FW TA3	121206LT DM1	121206LT DM2	Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-	-	-		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06		
Sample Received Date	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	19-20	21-22	23-24	25-26	27	28-30	31-32	33-34	35-36		
PAH by GCMS											
Naphthalene	2969	3975	3740	1907	2804	2654	23	595	393	TM074 ^M	<10 ug/kg
Acenaphthylene	123	139	186	87	112	99	7	14	25	TM074 ^M	<5 ug/kg
Acenaphthene	308	451	420	222	284	246	102	186	172	TM074 ^M	<14 ug/kg
Fluorene	197	301	284	148	185	172	29	66	140	TM074 ^M	<12 ug/kg
Phenanthrene	915	1270	1182	721	201	166	111	548	582	TM074 ^M	<21 ug/kg
Anthracene	209	629	331	208	11	11	21	55	113	TM074 ^M	<9 ug/kg
Fluoranthene	1278	1472	1989	1377	89	55	72	180	387	TM074 ^M	<25 ug/kg
Pyrene	1377	1090	1901	1388	78	55	67	151	326	TM074 ^M	<22 ug/kg
Benz(a)anthracene	709	679	1180	721	59	47	52	126	247	TM074 ^M	<12 ug/kg
Chrysene	733	727	1227	756	71	47	51	153	256	TM074 ^M	<10 ug/kg
Benzo(b)fluoranthene	589	800	826	384	36	24	60	116	223	TM074 ^M	<16 ug/kg
Benzo(k)fluoranthene	324	606	507	419	<25	<25	30	57	135	TM074 ^M	<25 ug/kg
Benzo(a)pyrene	444	436	779	419	24	<12	41	90	240	TM074 ^M	<12 ug/kg
Indeno(123cd)pyrene	264	444	471	328	35	12	60	80	219	TM074 ^M	<11 ug/kg
Dibenzo(ah)anthracene	80	152	186	138	23	12	43	53	112	TM074 ^M	<8 ug/kg
Benzo(ghi)perylene	332	503	504	360	35	25	87	175	236	TM074 ^M	<10 ug/kg
PAH 16 Total	10851	13674	15713	9583	4047	3625	856	2645	3806	TM074 ^M	<25 ug/kg

All results expressed on a dry weight basis.

Date 09.01.2007

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ALcontrol Geochem Analytical Services

Table Of Results

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* Subcontracted test
* Shown on prev. report

Job Number: 06/22224/02/01 Matrix: SOLID
Client: Smith Grant Partnership LLP Location: -
Client Ref. No.: 8352/BY Client Contact: Derek Boothby

Sample Identity	121206LT DM3	121206LT DM4	121206LT DM5	121206LT DM6	121206SL OPE1	121206SLO PE2	121206WS DA1	121206WS DA2		Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-	-			
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID			
Sampled Date	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06			
Sample Received Date	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06			
Batch	1	1	1	1	1	1	1	1			
Sample Number(s)	37-38	39-40	41-42	43-44	45-46	47-48	49-50	51-52			
Total Sulphate	883	1009	669	584	631	555	334	376		TM129 ^M	<100 mg/kg
Boron Water Soluble	<1	<1	<1	<1	<1	<1	<1	<1		TM129 ^M	<1 mg/kg
Arsenic	<3	<3	<3	<3	<3	<3	<3	<3		TM129 ^M	<3.0 mg/kg
Cadmium	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	0.6		TM129 ^M	<0.3 mg/kg
Chromium	18.6	20.9	37.9	167.2	68.8	321.8	48.3	36.9		TM129 ^M	<4.5 mg/kg
Copper	18	33	16	23	12	25	18	19		TM129 ^M	<6 mg/kg
Lead	27	16	36	45	75	106	26	32		TM129 ^M	<2 mg/kg
Mercury	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		TM129 ^M	<0.6 mg/kg
Nickel	31.7	33.3	29.0	31.5	17.3	26.8	34.7	39.5		TM129 ^M	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	<3		TM129 ^M	<3 mg/kg
Zinc	42.5	49.5	78.3	86.7	86.6	102.4	131.0	175.1		TM129 ^M	<2.5 mg/kg
Acid Soluble Sulphide	<50	<50	<50	<50	<50	<50	<50	<50		TM101 ^M	<50 mg/kg
Hexavalent Chromium	<0.3	<0.3	<3.0	<3.0	<3.0	<6.0	<0.3	<3.0		TM151 ^M	<0.3 mg/kg
Phenols Monohydric	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15		TM062 ^M	<0.15 mg/kg
Thiocyanate	<1	<1	<1	<1	<1	<1	<1	<1		TM153 ^M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1	<1	<1	<1		TM153 ^M	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1	<1	<1	<1		TM153 ^M	<1 mg/kg
Asbestos Presence Screen	-	-	-	-	-	-	-	-		TM001	NONE
pH Value	8.24	8.37	8.42	8.47	7.41	7.21	8.02	8.13		TM133 ^M	<1.00 pH Units
Total Sulphur	0.17	0.18	0.13	0.16	0.06	0.08	0.10	0.06		TM068 ^M	<0.01 %
EPH (DRO) (C10-C40)	173	199	530	428	232	187	128	104		TM061 ^M	<35 mg/kg
EPH C10-12	<35	<35	<35	<35	<35	<35	<35	<35		TM061 ^M	<35 mg/kg
EPH >C12-16	50	50	<35	<35	<35	<35	<35	<35		TM061 ^M	<35 mg/kg
EPH >C16-21	<35	<35	38	37	<35	<35	<35	<35		TM061 ^M	<35 mg/kg
EPH >C21-40	116	142	464	365	184	155	94	87		TM061 ^M	<35 mg/kg

All results expressed on a dry weight basis.

Date 09.01.2007

Job Number:	06/22224/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	-
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 09.01.2007

Validated ☒
Preliminary ☐

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited
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Subcontracted test
Shown on prev. report

Job Number: 06/22224/02/01 Matrix: LEACHATE
Client: Smith Grant Partnership LLP Location: -
Client Ref. No.: 8352/BY Client Contact: Derek Boothby

Sample Identity	121206FP 1	121206FP 5	121206FP 10	121206FW TA2	121206LT DM2	121206LT M6	121206WS DA2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06				
Sample Received Date	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	3-5	12-13	21-22	28-30	35-36	43-44	51-52				
Arsenic Dissolved (NRA) (ICP-MS)	2	5	<1	<1	3	<1	<1			TM152	<1 ug/l
Boron Dissolved (NRA) (ICP-MS)	112	89	54	19	17	11	<10			TM152	<10 ug/l
Cadmium Dissolved (NRA) (ICP-MS)	<0.4	0.6	<0.4	<0.4	<0.4	<0.4	<0.4			TM152	<0.4 ug/l
Chromium Dissolved (NRA) (ICP-MS)	16	9	12	28	<1	<1	<1			TM152	<1 ug/l
Copper Dissolved (NRA) (ICP-MS)	10	14	21	5	5	8	11			TM152	<1 ug/l
Lead Dissolved (NRA) (ICP-MS)	1	2	<1	1	1	2	<1			TM152	<1 ug/l
Nickel Dissolved (NRA) (ICP-MS)	17	16	13	11	12	5	10			TM152	<1 ug/l
Selenium Dissolved (NRA) (ICP-MS)	3	2	<1	<1	<1	<1	<1			TM152	<1 ug/l
Zinc Dissolved (NRA) (ICP-MS)	20	27	15	23	17	24	21			TM152	<1 ug/l
Mercury Dissolved (NRA) (CVAA)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM127	<0.05 ug/l
Hexavalent Chromium (NRA)	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03			TM151	<0.03 mg/l
Sulphide (NRA)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			TM101	<0.5 mg/l
Sulphate (NRA)	64	61	52	6	31	10	6			TM098	<3 mg/l
Phenols Monohydric (NRA)	0.02	0.01	0.03	0.03	0.01	0.01	0.01			TM062	<0.01 mg/l
Thiocyanate (NRA)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM153	<0.05 mg/l
Total Cyanide (NRA)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM153	<0.05 mg/l
Free Cyanide (NRA)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM153	<0.05 mg/l
Free Sulphur (NRA)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM136	<0.05 mg/l
pH (NRA)	8.04	8.08	8.03	7.69	7.74	7.88	7.81			TM133	<1.00 pH Units

Date: 09.01.2007

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ALcontrol Geochem Analytical Services Table Of Results

® ISO 17025 accredited
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* Shown on prev. report

Job Number: 06/22224/02/01 **Matrix:** LEACHATE
Client: Smith Grant Partnership LLP **Location:** -
Client Ref. No.: 8352/BY **Client Contact:** Derek Boothby

Sample Identity	121206FP 1	121206FP 5	121206FP 10	121206FW TA2	121206LT DM2	121206LTD M6	121206WS DA2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06	12.12.06				
Sample Received Date	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06	14.12.06				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	3-5	12-13	21-22	28-30	35-36	43-44	51-52				
PAH by GCMS											
Naphthalene (NRA)	94	28	49	12	12	13	20			TM074	<10 ng/l
Acenaphthylene (NRA)	<10	<10	<10	12	<10	<10	<10			TM074	<10 ng/l
Acenaphthene (NRA)	56	25	99	118	<10	<10	<10			TM074	<10 ng/l
Fluorene (NRA)	15	<10	18	26	<10	<10	<10			TM074	<10 ng/l
Phenanthrene (NRA)	22	<10	16	10	<10	13	<10			TM074	<10 ng/l
Anthracene (NRA)	23	12	19	<10	<10	<10	<10			TM074	<10 ng/l
Fluoranthene (NRA)	157	57	158	35	20	21	<10			TM074	<10 ng/l
Pyrene (NRA)	161	68	129	32	18	23	<10			TM074	<10 ng/l
Benzo(a)anthracene (NRA)	18	<10	<10	17	<10	14	<10			TM074	<10 ng/l
Chrysene (NRA)	20	<10	11	17	<10	17	<10			TM074	<10 ng/l
Benzo(b)fluoranthene (NRA)	<10	<10	<10	<10	<10	<10	<10			TM074	<10 ng/l
Benzo(k)fluoranthene (NRA)	<10	<10	<10	<10	<10	<10	<10			TM074	<10 ng/l
Benzo(a)pyrene (NRA)	<10	<10	<10	<10	<10	<10	<10			TM074	<10 ng/l
Indeno(1,2,3-cd)pyrene (NRA)	<10	<10	<10	<10	<10	<10	<10			TM074	<10 ng/l
Dibenzo(ah)anthracene (NRA)	<10	<10	<10	<10	<10	<10	<10			TM074	<10 ng/l
Benzo(ghi)perylene (NRA)	<10	<10	<10	<10	<10	<10	<10			TM074	<10 ng/l
PAH 16 Total (NRA)	566	190	499	279	50	101	20			TM074	<10 ng/l

Date: 09.01.2007

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/22224/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key : Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM001	In - house Method	Screening of Soils for Fibres			WET	
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓		DRY	
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			NA	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser	✓		WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 06/22224/02/01
 Client: Smith Grant Partnership LLP
 Client Ref. No.: 8352/BY

Report Key :

NDP No Determination Possible
 NFD No Fibres Detected
 # ISO 17025 accredited
 PFD Possible Fibres Detected

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}
 * Subcontracted test
 » Result previously reported (Incremental reports only)
 M MCERTS Accredited
 EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter			NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	✓		WET	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓	✓	WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/22224/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	9.0

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutter. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Naphthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.

ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)- Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" by GC-MS	yes	yes, exc naphthalene when Kerosene
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future

Last updated August 2006



ALcontrol Geochem

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Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 21 June, 2007
Our Reference: 07/08044/02/01
Your Reference: 8352/BY
Location: Not Specified

A total of 4 samples was received for analysis on Wednesday, 09 May 2007 and completed on Wednesday, 23 May 2007. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem
TEST SCHEDULE

JOB NUMBER : 07/8044/02

BATCH NUMBER : 1

Numeric values indicate
additional scheduling

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

* indicates test subcontracted

DATE OF RECEIPT : 09/05/07

TURNAROUND : 10 days

LOCATION : Not Specified

Sample Number	Sample Identity	UKAS Accredited ?			Metals ICP. 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH C10-40 GC (Band B) (S)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Extractable Petroleum Hydrocarbons (formally Diesel Range Organics) :- Any compound extractable in n-hexane within the carbon range C10-C40, includes Aliphatic (Min Oil), Aromatic (PAHs) and naturally occurring compounds.

ALcontrol Geochem Analytical Services

Job Number: 07/08044/02/01

Client: Smith Grant Partnership LLP

Client Ref : 8352/BY

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm	Medium
-------------	--------

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

^b Sample Description supplied by client

Validated

Preliminary

ALcontrol Geochem Analytical Services Table Of Results

⁹ ISO 17025 accredited

^{MC} MCERTS accredited

- * Subcontracted test

Ⓢ Shown on prev. report

Job Number: 07/08044/02/01

Matrix: SOLID

Client: Smith Grant Partnership LLP

Location: Not Specified

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 21.06.2007

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/08044/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓		DRY	
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			WET	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	✓		WET	
TM153	Method 4500A,B,C,I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓		WET	
TM153	Method 4500A,B,C,I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓	✓	WET	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 07/08044/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

[illegible]

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses, which are surrogate corrected, are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Naphthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
18. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
19. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
20. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
21. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

ALCONTROL GEOCHEM - MCERTS UPDATE (May 2007)- Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	no	no
Arsenic	yes	yes
Barium	yes	yes
Beryllium	no	no
Boron (water soluble)	yes	yes
Cadmium	no	no
Cobalt	yes	yes
Copper	no	no
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	no
Complex cyanide	yes	no
pH	yes	yes
LOI	yes	yes
Sulphide	no	no
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
		yes, exc naphthalene when Kerosene
"Polyaromatic hydrocarbons" by GC-MS	yes	
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	Yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future



ALcontrol Geochem

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05 JUL 2007

Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 19 June, 2007
Our Reference: 07/07474/02/01
Your Reference: 8352/BY
Location: AKZO NOBEL

A total of 14 samples was received for analysis on Friday, 27 April 2007 and completed on Friday, 18 May 2007. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 07/7474/02

BATCH NUMBER : 1

Numeric values indicate
additional scheduling

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

* indicates test subcontracted

DATE OF RECEIPT : 27/04/07

TURNAROUND : 10 days

LOCATION : AKZO NOBEL

Sample Number	Sample Identity	UKAS Accredited ?	P / V	Depth	Sample Type	Metals ICP. 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH C10-40 GC (Band RI/S)	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)	Phenols HPLC (NRA)
1	270407/Fwta 1		JAR 250g	-	SOLID	X	X					X	X				X	X	X	X	X	X	X	X	X	X	X	X
2	270407/Fwta 1		TUB 1kg	-	SOLID			X	X	X	X	X	X	X	X	X												
3	270407/Fwta 2		JAR 250g	-	SOLID	X	X					X	X				X	X	X	X	X	X	X	X	X	X	X	X
4	270407/Fwta 2		TUB 1kg	-	SOLID			X	X	X	X	X	X	X	X	X												
5	270407/Fwta 3		JAR 250g	-	SOLID	X	X					X	X				X	X	X	X	X	X	X	X	X	X	X	X
6	270407/Fwta 3		TUB 1kg	-	SOLID			X	X	X	X	X	X	X	X	X												
7	270407/Fwta 4		JAR 250g	-	SOLID	X	X					X	X				X	X	X	X	X	X	X	X	X	X	X	X
8	270407/Fwta 4		TUB 1kg	-	SOLID			X	X	X	X	X	X	X	X	X												
9	270407/Fwta 5		JAR 250g	-	SOLID	X	X					X	X				X	X	X	X	X	X	X	X	X	X	X	X
10	270407/Fwta 5		TUB 1kg	-	SOLID			X	X	X	X	X	X	X	X	X												
11	270407/Fwta 6		JAR 250g	-	SOLID	X	X					X	X				X	X	X	X	X	X	X	X	X	X	X	X
12	270407/Fwta 6		TUB 1kg	-	SOLID			X	X	X	X	X	X	X	X	X												
13	270407/Fwta 7		JAR 250g	-	SOLID	X	X					X	X				X	X	X	X	X	X	X	X	X	X	X	X
14	270407/Fwta 7		TUB 1kg	-	SOLID			X	X	X	X	X	X	X	X	X												
Total Number of Tests						7	7	7	7	7	7	7	7	7	7	7	7	7	7	2	2	2	2	2	2	2	2	2

Extractable Petroleum Hydrocarbons (formally Diesel Range Organics) - Any compound extractable in n-hexane within the carbon range C10-C40, includes Aliphatic (Min Oil), Aromatic (PAHs) and naturally occurring compounds.

Validated ☒
Preliminary ☐

ALcontrol Geochem Analytical Services Table Of Results

* ISO 17025 accredited
** MCERTS accredited
* Subcontracted test
* Shown on prev. report

Job Number: 07/07474/02/01 **Matrix:** SOLID
Client: Smith Grant Partnership LLP **Location:** AKZO NOBEL
Client Ref. No.: 8352/BY **Client Contact:** Derek Boothby

Sample Identity	270407/Fw ta 1	270407/Fw ta 2	270407/Fw ta 3	270407/Fw ta 4	270407/Fw ta 5	270407/Fw ta 6	270407/Fw ta 7			Method Code	LoD Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID				
Sampled Date	27.04.07	27.04.07	27.04.07	27.04.07	27.04.07	27.04.07	27.04.07				
Sample Received Date	27.04.07	27.04.07	27.04.07	27.04.07	27.04.07	27.04.07	27.04.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	1-2	3-4	5-6	7-8	9-10	11-12	13-14				
Total Sulphate	360	580	300	690	610	650	1100			TM129 ^g _M	<100 mg/kg
Boron Water Soluble	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5			TM129 ^g _M	<3.5 mg/kg
Arsenic	<3	<3	<3	3	<3	6	<3			TM129 ^g _M	<3.0 mg/kg
Cadmium	<0.3	0.5	<0.3	0.4	0.4	0.6	0.5			TM129	<0.3 mg/kg
Chromium	120	340	150	95	71	35	470			TM129 ^g _M	<4.5 mg/kg
Copper	18	23	21	28	21	22	41			TM129 ^g	<6 mg/kg
Lead	34	44	20	84	110	99	100			TM129 ^g _M	<2 mg/kg
Mercury	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6			TM129 ^g _M	<0.6 mg/kg
Nickel	33	32	30	19	16	17	32			TM129 ^g _M	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3			TM129 ^g _M	<3 mg/kg
Zinc	75	98	60	110	110	130	170			TM129 ^g _M	<2.5 mg/kg
Acid Soluble Sulphide	<50	<50	<50	<50	<50	<50	<50			TM101	<50 mg/kg
Hexavalent Chromium	<3.0	0.4	<24.0	<15.0	<24.0	<30.0	<24.0			TM151 ^g	<0.3 mg/kg
Phenols Monohydric	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15			TM062 ^g _M	<0.15 mg/kg
Thiocyanate	<1	<1	<1	<1	<1	<1	<1			TM153 ^g _M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1	<1	<1			TM153 ^g	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1	<1	<1			TM153 ^g	<1 mg/kg
pH Value	7.87	8.58	8.36	7.53	7.65	7.83	8.09			TM133 ^g _M	<1.00 pH Units
Total Sulphur	0.07	0.08	0.06	0.07	0.10	0.09	0.14			TM068 ^g	<0.01 %
EPH (DRO) (C10-C40)	96	200	68	190	280	180	290			TM061 ^g _M	<35 mg/kg
EPH C10-12	<35	<35	<35	<35	<35	<35	<35			TM061 ^g	<35 mg/kg
EPH >C12-16	<35	<35	<35	<35	<35	<35	<35			TM061 ^g	<35 mg/kg
EPH >C16-21	<35	<35	<35	<35	<35	<35	39			TM061 ^g	<35 mg/kg
EPH >C21-40	66	170	45	140	220	120	210			TM061 ^g	<35 mg/kg

All results expressed on a dry weight basis.

Date 19.06.2007

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

- * ISO 17025 accredited
- M MCERTS accredited
- * Subcontracted test
- o Shown on prev. report

Job Number: 07/07474/02/01

Matrix: LEACHATE

Client: Smith Grant Partnership LLP

Location: AKZO NOBEL

Client Ref. No.: 8352/BY

Client Contact: Derek Boothby

[illegible]

Date 19.06.2007

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/07474/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

NDP No Determination Possible * Subcontracted test
NFD No Fibres Detected » Result previously reported (Incremental reports only)
ISO 17025 accredited M MCERTS Accredited
PFD Possible Fibres Detected EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓		DRY	
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			NA	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	

¹Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 07/07474/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

[illegible]

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH₄ by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses, which are surrogate corrected, are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Naphthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
18. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
19. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
20. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
21. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Derek Boothby

CERTIFICATE OF ANALYSIS

Date: 27 June, 2007
Our Reference: 07/09182/02/01
Your Reference: 8352/BY
Location: Not Specified

A total of 10 samples was received for analysis on Saturday, 26 May 2007 and completed on Tuesday, 19 June 2007. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

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Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 07/9182/02

BATCH NUMBER : 1

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

DATE OF RECEIPT : 26/05/07

TURNAROUND : 10 days

LOCATION : Not Specified

Numeric values indicate
additional scheduling

* Indicates test subcontracted

Sample Number	Sample Identity	UKAS Accredited?			Metals ICP-MS 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH C10-40 GC (Band B1/S1)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)	Phenols HPLC (NRA)
		P / V	Depth	Sample Type																								
1	240507 FWTA 1	1KGTub	UNKNOWN	SOLID	X		X	X	X	X			X	X	X			X	X	X	X	X	X	X	X	X	X	X
2	240507 FWTA 1	JAR 250g	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	240507 FWTA 2	1KGTub	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	240507 FWTA 2	JAR 250g	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	240507 FWTA 3	1KGTub	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	240507 FWTA 3	JAR 250g	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	240507 FWTA 4	1KGTub	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	240507 FWTA 4	JAR 250g	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9	240507 FWTA 5	1KGTub	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10	240507 FWTA 5	JAR 250g	UNKNOWN	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Number of Tests					5	5	5	5	5	5	5	5	5	5	5	5	5	2	2	2	2	2	2	2	2	2	2	2

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 07/9182/02

BATCH NUMBER : 1

Numeric values indicate
additional scheduling

CLIENT : Smith Grant Partnership LLP

CLIENT REF/ CODE : 8352/BY

CONTACT : Derek Boothby

ORDER NUMBER :

* indicates test subcontracted

DATE OF RECEIPT : 26/05/07

TURNAROUND : 10 days

LOCATION : Not Specified

Sample Number	Sample Identity	UKAS Accredited ?		P / V	Depth	Sample Type	PAH Spec MS (NRA)	Free Sulphur (NRA)										
1	240507 FWT A 1	1KGTub	UNKNOWN	SOLID			X	X										
2	240507 FWT A 1	JAR 250g	UNKNOWN	SOLID														
3	240507 FWT A 2	1KGTub	UNKNOWN	SOLID														
4	240507 FWT A 2	JAR 250g	UNKNOWN	SOLID														
5	240507 FWT A 3	1KGTub	UNKNOWN	SOLID														
6	240507 FWT A 3	JAR 250g	UNKNOWN	SOLID														
7	240507 FWT A 4	1KGTub	UNKNOWN	SOLID														
8	240507 FWT A 4	JAR 250g	UNKNOWN	SOLID														
9	240507 FWT A 5	1KGTub	UNKNOWN	SOLID			X	X										
10	240507 FWT A 5	JAR 250g	UNKNOWN	SOLID														
Total Number of Tests							2	2										

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 07/09182/02/01

Client: Smith Grant Partnership LLP

Client Ref : 8352/BY

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Job Number:	07/09182/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

Sample Identity	240507 FWTA 1	240507 FWTA 2	240507 FWTA 3	240507 FWTA 4	240507 FWTA 5						
Depth (m)											
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID						
Sampled Date	24.05.07	24.05.07	24.05.07	24.05.07	24.05.07						
Sample Received Date	26.05.07	26.05.07	26.05.07	26.05.07	26.05.07						
Batch	1	1	1	1	1						
Sample Number(s)	1-2	3-4	5-6	7-8	9-10						
Total Sulphate	470	910	800	590	910					TM129 ^M	<100 mg/kg
Boron Water Soluble	<3.5	<3.5	<3.5	<3.5	<3.5					TM129 ^M	<3.5 mg/kg
Arsenic	10	11	8	8	7					TM129 ^M	<3.0 mg/kg
Cadmium	0.6	2.1	0.6	0.3	0.6					TM129	<0.3 mg/kg
Chromium	80	120	240	77	390					TM129 ^M	<4.5 mg/kg
Copper	28	47	25	20	36					TM129 ^B	<6 mg/kg
Lead	74	230	81	70	83					TM129 ^M	<2 mg/kg
Mercury	<0.6	<0.6	<0.6	<0.6	<0.6					TM129 ^M	<0.6 mg/kg
Nickel	39	50	25	13	23					TM129 ^M	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3					TM129 ^M	<3 mg/kg
Zinc	200	580	160	91	140					TM129 ^M	<2.5 mg/kg
Acid Soluble Sulphide	<50	<50	<30	67	<50					TM101	<50 mg/kg
Hexavalent Chromium	<6.0	<15.0	<6.0	<15.0	<3.0					TM131 ^B	<0.3 mg/kg
Phenols Monohydric	1.5	<0.15	<0.15	<0.15	<0.15					TM062 ^M	<0.15 mg/kg
Thiocyanate	1	1	1	3	<1					TM153 ^M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1					TM153 ^B	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1					TM153 ^B	<1 mg/kg
pH Value	7.39	7.71	7.39	6.14	7.99					TM133 ^M	<1.00 pH Units
Total Sulphur	0.05	0.12	0.06	0.13	0.06					TM068 ^B	<0.01 %
EPH (DRO) (C10-C40)	280	240	220	210	270					TM061 ^M	<35 mg/kg
EPH C10-12	<35	<35	<35	<35	<35					TM061 ^B	<35 mg/kg
EPH >C12-16	<35	<35	<35	<35	<35					TM061 ^B	<35 mg/kg
EPH >C16-21	<35	<35	<35	<35	<35					TM061 ^B	<35 mg/kg
EPH >C21-40	220	170	190	170	230					TM061 ^B	<35 mg/kg

All results expressed on a dry weight basis.

Date: 27.06.2007

Job Number:	07/09182/02/01	Matrix:	SOLID
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

All results expressed on a dry weight basis.

Date 27.06.2007

* ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number:	07/09182/02/01	Matrix:	LEACHATE
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

Sample Identity	240507 FWTA 1	240507 FWTA 5									
Depth (m)											
Sample Type	SOLID	SOLID									
Sampled Date	24.05.07	24.05.07									
Sample Received Date	26.05.07	26.05.07									
Batch	1	1									
Sample Number(s)	1-2	9-10									
Arsenic Dissolved (NRA) (ICP-MS)	3	4								TM152	<1 ug/l
Boron Dissolved (NRA) (ICP-MS)	10	49								TM152	<10 ug/l
Cadmium Dissolved (NRA) (ICP-MS)	<0.4	<0.4								TM152	<0.4 ug/l
Chromium Dissolved (NRA) (ICP-MS)	4	4								TM152	<1 ug/l
Copper Dissolved (NRA) (ICP-MS)	44	9								TM152	<1 ug/l
Lead Dissolved (NRA) (ICP-MS)	4	3								TM152	<1 ug/l
Nickel Dissolved (NRA) (ICP-MS)	4	5								TM152	<1 ug/l
Selenium Dissolved (NRA) (ICP-MS)	2	2								TM152	<1 ug/l
Zinc Dissolved (NRA) (ICP-MS)	4	<3								TM152	<3 ug/l
Mercury Dissolved (NRA) (CVAA)	<0.05	<0.05								TM127	<0.05 ug/l
Hexavalent Chromium (NRA)	<0.03	<0.03								TM151	<0.03 mg/l
Sulphide (NRA)	<0.50	<0.50								TM101	<0.5 mg/l
Sulphate (NRA)	3	<3								TM098	<3 mg/l
Phenols Monohydric (NRA)	<0.01	<0.01								TM062	<0.01 mg/l
Thiocyanate (NRA)	<0.05	<0.05								TM153	<0.05 mg/l
Total Cyanide (NRA)	<0.05	<0.05								TM153	<0.05 mg/l
Free Cyanide (NRA)	<0.05	<0.05								TM153	<0.05 mg/l
Free Sulphur (NRA)	<0.05	<0.05								TM136	<0.05 mg/l
pH (NRA)	8.24	8.05								TM133	<1.00 pH Units

Date 27.06.2007

* ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 w Shown on prev. report

Job Number:	07/09182/02/01	Matrix:	LEACHATE
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8352/BY	Client Contact:	Derek Boothby

[illegible]

Date: 27.06.2007

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/09182/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓		DRY	
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			NA	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/09182/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter			NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	✓		WET	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓		WET	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓	✓	WET	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 07/09182/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8352/BY

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	11

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH₄ by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analysis, which is surrogate corrected, is PAHs on soils. For EPH on soils the result is not surrogate corrected, but a percentage recovery is quoted.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Napthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
18. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
19. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
20. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
21. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



ALcontrol Geochem

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Smith Grant Partnership LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

ATTN: Katrina Hawkins

CERTIFICATE OF ANALYSIS

Date: 10 July, 2007
Our Reference: 07/09383/02/01
Your Reference: 8359 BY (R175)
Location: Not Specified

A total of 9 samples was received for analysis on Thursday, 31 May 2007 and completed on Tuesday, 12 June 2007. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone
Customer Services

Jane Seymour
Customer Services

David O'Hare
Customer Services

Caroline Suttie
Customer Services

Valid if signed by any of the above signatories.

Compiled By

Gemma Farren



ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 07/9383/02

BATCH NUMBER : 1

Numeric values indicate
additional scheduling

CLIENT : Smith Grant Partnership LLP

CLIENT REF/CODE : 8359 BY (R175)

CONTACT : Katrina Hawkins

ORDER NUMBER :

* indicates test subcontracted

DATE OF RECEIPT : 31/05/07

TURNAROUND : 5 days

LOCATION : Not Specified

Sample Number	Sample Identity	UKAS Accredited ?																										
		P / V	Depth	Sample Type	Metals ICP. 9 (S)	Boron Water Soluble (S)	Chromium VI (S)	Cyanide Total (S)	Cyanide Free (S)	Thiocyanate (S)	Sulphate Total (S)	Sulphur Total (S)	Sulphide Acid Soluble (S)	pH (S)	Phenols HPLC (S)	PAH Spec MS (S)	EPH (DRO) (S)	NRA Leach	Metals ICP-MS 9 (NRA)	Mercury (NRA) (CVAA)	Chromium VI (NRA)	Cyanide Total (NRA)	Cyanide Free (NRA)	Thiocyanate (NRA)	Sulphate Kone (NRA)	Sulphide (NRA)	pH (NRA)	Phenols HPLC (NRA)
1	300507 RS1	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	300507 RS2	TUB 400g	0.00-0.10	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	300507 RS3	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	300507 RS4	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	300507 RS5	TUB 400g	-	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	300507 TP1.S1	JAR 250g	1.20	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	300507 TP1.S1	TUB 400g	1.20	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	300507 TP2.S1	TUB 400g	1.20	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9	300507 TP3.S1	TUB 400g	0.50	SOLID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
					Total Number of Tests				8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

ALcontrol Geochem TEST SCHEDULE

JOB NUMBER : 07/9383/02

CLIENT : Smith Grant Partnership LLP

CONTACT : Katrina Hawkins

DATE OF RECEIPT : 31/05/07

LOCATION : Not Specified

BATCH NUMBER : 1

CLIENT REF/CODE : 8359 BY (R175)

ORDER NUMBER :

TURNAROUND : 5 days

Numeric values indicate
additional scheduling

* indicates test subcontracted

UKAS Accredited 7																		
Sample Number	Sample Identity	P / V	Depth	Sample Type	PAH Spec MS (NRA)	Free Sulphur (NRA)	EPH (DRO) (NRA)											
1	300507 RS1	TUB 400g	-	SOLID	X	X	X											
2	300507 RS2	TUB 400g	0.00-0.10	SOLID														
3	300507 RS3	TUB 400g	-	SOLID														
4	300507 RS4	TUB 400g	-	SOLID	X	X	X											
5	300507 RS5	TUB 400g	-	SOLID														
6	300507 TP1.S1	JAR 250g	1.20	SOLID														
7	300507 TP1.S1	TUB 400g	1.20	SOLID	X	X	X											
8	300507 TP2.S1	TUB 400g	1.20	SOLID														
9	300507 TP3.S1	TUB 400g	0.50	SOLID	X	X	X											
Total Number of Tests					4	4	4											

Extractable Petroleum Hydrocarbons (EPH) By GC-FID
Carbon Range C10-C40

Client : Smith Grant Partnership LLP

Matrix [Units] : SOLID [mg/kg]

All results expressed on a dry weight basis.

Extractable Petroleum Hydrocarbons (formally Diesel Range Organics) :- Any compound extractable in n-hexane within the carbon range C10-C40, includes Aliphatic (Min Oil), Aromatic (PAHs) and naturally occurring compounds.

ALcontrol Geochem Analytical Services

Sample Descriptions

Job Number: 07/09383/02/01

Client: Smith Grant Partnership LLP

Client Ref : 8359 BY (R175)

Grain sizes

<0.063mm Very Fine

0.1mm - 0.063mm Fine

0.1mm - 2mm Medium

2mm - 10mm Coarse

>10mm Very Coarse

[illegible]

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated ☒
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

* ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
w Shown on prev. report

Job Number: 07/09383/02/01 Matrix: SOLID
Client: Smith Grant Partnership LLP Location: Not Specified
Client Ref. No.: 8359 BY (R175) Client Contact: Katrina Hawkins

Sample Identity	300507 RS1	300507 RS2	300507 RS3	300507 RS4	300507 RS5	300507 TP1.S1	300507 TP2.S1	300507 TP3.S1		Method Code	LoD/Units
Depth (m)	-	0.00-0.10	-	-	-	1.20	1.20	0.50			
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID			
Sampled Date	30.05.07	30.05.07	30.05.07	30.05.07	30.05.07	30.05.07	30.05.07	30.05.07			
Sample Received Date	31.05.07	31.05.07	31.05.07	31.05.07	31.05.07	31.05.07	31.05.07	31.05.07			
Batch	1	1	1	1	1	1	1	1			
Sample Number(s)	1	2	3	4	5	6-7	8	9			
Total Sulphate	780	720	970	1100	1500	1800	940	2200		TM129 ^M	<100 mg/kg
Boron Water Soluble	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5		TM129 ^M	<3.5 mg/kg
Arsenic	<3	<3	<3	<3	<3	23	<3	<3		TM129 ^M	<3.0 mg/kg
Cadmium	0.8	1.0	1.2	1.2	1.2	6.0	1.6	1.4		TM129	<0.3 mg/kg
Chromium	100	100	620	1600	1800	1000	950	1800		TM129 ^M	<4.5 mg/kg
Copper	11	<6	24	24	24	180	30	27		TM129 ^M	<6 mg/kg
Lead	27	71	50	54	48	330	62	94		TM129 ^M	<2 mg/kg
Mercury	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		TM129 ^M	<0.6 mg/kg
Nickel	21	13	60	44	40	220	40	60		TM129 ^M	<0.9 mg/kg
Selenium	<3	<3	<3	<3	<3	<3	<3	<3		TM129 ^M	<3 mg/kg
Zinc	54	73	110	120	94	480	190	120		TM129 ^M	<2.5 mg/kg
Acid Soluble Sulphide	<50	<50	<50	<50	<50	<50	<50	<50		TM101	<50 mg/kg
Hexavalent Chromium	<0.3	<0.3	0.5	0.6	0.4	<3.0	<3.0	0.9		TM151 ^M	<0.3 mg/kg
Phenols Monohydric	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15		TM062 ^M	<0.15 mg/kg
Thiocyanate	<1	<1	<1	<1	<1	<1	<1	<1		TM153 ^M	<1 mg/kg
Total Cyanide	<1	<1	<1	<1	<1	<1	<1	<1		TM153 ^M	<1 mg/kg
Free Cyanide	<1	<1	<1	<1	<1	<1	<1	<1		TM153 ^M	<1 mg/kg
pH Value	9.19	8.47	8.96	9.34	9.50	8.05	8.14	10.11		TM133 ^M	<1.00 pH Units
Total Sulphur	0.08	0.09	0.13	0.13	0.29	0.16	0.11	0.18		TM068 ^M	<0.01 %
EPH (DRO) (C10-C40)	400	490	1200	1800	1100	520	1300	1600		TM061 ^M	<35 mg/kg

All results expressed on a dry weight basis.

Date 10.07.2007

- # ISO 17025 accredited
- M MCERTS accredited
- * Subcontracted test
- » Shown on prev. report

Client Contact: Katrina Hawkins

[illegible]

* ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Client Contact: Katrina Hawkins

[illegible]

Job Number:	07/09383/02/01	Matrix:	LEACHATE
Client:	Smith Grant Partnership LLP	Location:	Not Specified
Client Ref. No.:	8359 BY (R175)	Client Contact:	Katrina Hawkins

Sample Identity	300507 RS1	300507 RS4	300507 TP1.S1	300507 TP3.S1						Method Code	LoD/Units
Depth (m)	-	-	1.20	0.50							
Sample Type	SOLID	SOLID	SOLID	SOLID							
Sampled Date	30.05.07	30.05.07	30.05.07	30.05.07							
Sample Received Date	31.05.07	31.05.07	31.05.07	31.05.07							
Batch	1	1	1	1							
Sample Number(s)	1	4	6-7	9							
PAH by GCMS											
Naphthalene (NRA)	42	53	42	94						TM074	<26 ng/l
Acenaphthylene (NRA)	<11	18	<11	20						TM074	<11 ng/l
Acenaphthene (NRA)	<15	82	<15	120						TM074	<15 ng/l
Fluorene (NRA)	<14	<14	<14	19						TM074	<14 ng/l
Phenanthrene (NRA)	31	56	<22	110						TM074	<22 ng/l
Anthracene (NRA)	<15	34	<15	44						TM074	<15 ng/l
Fluoranthene (NRA)	41	85	<17	110						TM074	<17 ng/l
Pyrene (NRA)	38	77	<15	98						TM074	<15 ng/l
Benzo(a)anthracene (NRA)	<17	<17	<17	<17						TM074	<17 ng/l
Chrysene (NRA)	<13	<13	<13	<13						TM074	<13 ng/l
Benzo(b)fluoranthene (NRA)	<23	<23	<23	<23						TM074	<23 ng/l
Benzo(k)fluoranthene (NRA)	<27	<27	<27	<27						TM074	<27 ng/l
Benzo(a)pyrene (NRA)	<9	<9	<9	<9						TM074	<9 ng/l
Indeno(123cd)pyrene (NRA)	<14	<14	<14	<14						TM074	<14 ng/l
Dibenzo(ah)anthracene (NRA)	<16	<16	<16	<16						TM074	<16 ng/l
Benzo(ghi)perylene (NRA)	<16	<16	<16	<16						TM074	<16 ng/l
PAH 16 Total (NRA)	150	410	42	610						TM074	<27 ng/l

Date 10.07.2007

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/09383/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8359 BY (R175)

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓	✓	DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection			NA	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓		DRY	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.	✓	✓	DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser			NA	
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser			WET	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter			NA	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/09383/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8359 BY (R175)

Report Key :

NDP No Determination Possible * Subcontracted test
 NFD No Fibres Detected " Result previously reported (Incremental reports only)
 # ISO 17025 accredited M MCERTS Accredited
 PFD Possible Fibres Detected EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	Accredited ISO 17025	Accredited MCERTS	Wet/Dry Sample ¹	Surrogate Corrected
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser			NA	
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	✓		WET	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓		WET	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓	✓	WET	
TM172		EPH in Waters			NA	

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 07/09383/02/01
Client: Smith Grant Partnership LLP
Client Ref. No.: 8359 BY (R175)

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	8

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analysis, which is surrogate corrected, is PAHs on soils. For EPH on soils the result is not surrogate corrected, but a percentage recovery is quoted.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Napthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
18. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
19. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
20. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
21. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Appendix G
Regulators Correspondence

Mr Roger Blagg
Project Engineer
Brymbo Developments Ltd
Parkhill House, 133 High Street
Newport
Shropshire TF10 7BH



RABS/AS/CB0016
11 February 2002
Bob Sheffield
01978 292474

Dear Mr Blagg

RECLAMATION OF BRYMBO STEELWORKS SITE : CB0016

I refer to the schemes you have submitted in respect of dust monitoring and Management (Condition 22), protection of controlled waters (Condition 29) and handling of contaminated materials (Condition 30). This letter constitutes the formal agreement of the Wrexham County Borough Council as Local Planning Authority in respect of these schemes.

On checking my file I note that no agreement appears to have been issued in respect of Condition 41, regarding settling lagoons and other water bodies. I confirm that scheme also has been agreed.

Yours sincerely



Chief Planning Officer



BUDDSODDYR Mewn Ffôr
INVESTORS IN PEOPLE

R175-L12

28 October 2002

Angela Roberts
Environment Protection Officer
Environment Agency
Chester Road
Buckley
Flintshire
CH7 3AJ

Dear Angela

Brymbo Steelworks: P20 Risk Assessment

Further to our recent meeting, I enclose responses to the query by Andrea Mann regarding the omission of remedial leachate targets for cadmium and zinc from the final version of the P20 risk assessment report (R175-R12). In order to allow maximum confidence in the results of the risk assessment I have also included the results of P20 risk assessments carried out using an identical methodology to those in the report but for cadmium and zinc.

The report initially discounted cadmium and zinc as these metals were not considered to be leaching from the slag into the underlying aquifer in concentrations that would pose a risk to surface water resources. This decision was based on ground and surface water quality established in previous site investigations and summarised in the report on the hydrological and hydrogeological information available for the site (R175-R11), and the leachate tests carried out on samples taken during the various site investigations carried out to date:

- Zinc was shown to have a mean concentration of 0.039 and a maximum concentration 0.39 mg/l in the groundwater samples taken from onsite boreholes and adits in the area. There is no drinking water standard for zinc, however these concentrations are well below the mandatory limit for zinc in waters for salmonid fish (0.5 mg/l) at the hardness of the waters samples taken (average 112 mg/l Ca). The aquifer was therefore considered to be uncontaminated by zinc from any source.
- Cadmium levels in the groundwater were shown to have a mean concentration of below 0.01 mg/l and to have maximum concentration of 0.01mg/l, equivalent to the limit of detection in the analytical method used. On this basis the contamination of aquifer by cadmium was considered to be minimal. Although the limit of detection of the analytical technique used at the time is higher than the EQS supplied by the EA (0.005 mg/l) the maximum concentration of cadmium recorded would only require dilution by receiving watercourses by a factor of 2 in order to reduce the concentration to below the EQS. Due to this low dilution factor the low levels of cadmium contamination that might be present in the aquifer were considered to pose no significant risk to surface waters.
- Both zinc and cadmium concentrations in the Lodge Stream never exceeded the limit of detection for the analytical method used, however it is acknowledged that the limit of detection for cadmium has been double the EQS set by the EA for surface waters.

continued

- Leachate concentrations of cadmium and zinc from the 71 samples tested only exceeded the relevant EQS in 2.8% and 5.6% of samples respectively.

Although these results indicate that cadmium and zinc leaching is unlikely to result in detrimental effects on surface water receptors, risk assessments were previously carried out for these metals but were not reported. The P20 risk assessments have been carried out using identical parameters to those described in R175-R12 and its appendices. The target concentrations of the metals have been set as the EA EQSs also detailed in the report. The background concentrations in the receiving waters have been set as the measured concentrations for the Lodge Stream and for 50% of the limits of detection for the metals in the Afon Gwenfro and Afon Cedigog, again the same methodology as agreed for the main report.

Full details of the risk assessments are attached. The results indicate that the remedial target for cadmium concentration in leachate derived from the material to be placed in the void has been found to be 0.40mg/l. Levels below this will not have an adverse effect on surface water resources. As with the results for lead and chromium a negative dilution factor was achieved in the risk assessment for the Lodge Stream. This is because background concentrations of cadmium (in this case measured as the limit of detection of the analytical method used) are above the EQS in the stream to begin with. The results for the Lodge Stream and their impact on the risk assessment are explained in detail in chapter 6 of the full P20 risk assessment methodology (R175-R12).

The remedial target for zinc concentration in leachate derived from the material to be placed in the void has been found to be 3.86 mg/l. In this case the concentration of zinc in the Lodge Stream is below the relevant EQS so the remedial target has been selected as the maximum concentration which will not raise concentrations in the lodge stream to above the relevant EQS.

None of the 71 leaching tests carried out on samples from the site shows exceedances of the P20 derived remedial leachate targets for cadmium or zinc. A summary of the results of the leaching tests compared to the P20 derived leachate remedial targets is attached.

If you have any queries regarding the P20 assessments please do not hesitate to contact me.

Yours sincerely
For: Smith Grant LLP

Ben Thomas

CC John Thompson



ASiantaeth yr
Amgylchedd Cymru
ENVIRONMENT
AGENCY WALES

Smith Grant Environmental Consultancy
Croesnewydd Hall
Wrexham Technology Park
Wrexham
LL13 7YP

20th December 2002

Dear Mr Thomas

RE: Brymbo Steelworks – P20 Risk Assessment

I thank you for the letter of 28 October 2002 regarding the above topic and apologies for the delay in responding.

The explanation given in the letter and the submitted P20 spreadsheets, which have reference to the July 2002 Summary of Hydrological & Hydrogeological Information, satisfy the query I'd raised at the meeting regarding remedial targets for leachable concentrations of cadmium and zinc. I therefore have no outstanding groundwater protection concerns regarding the proposals for dealing with the historic contamination at the site.

If you have any queries regarding the Brymbo Steelworks site, please contact Angela Roberts in the first instance on 01244 550124 Ext. 4552.

Yours sincerely

ANDRÉA MANN
Senior Hydrogeologist

C.C John Thompson (Brymbo Development Ltd.)

3rd November 2003
R175-L17

Environment Agency Wales
Chester Road
Buckley
Flintshire
CH7 3AJ

FAO Angela Roberts, Environmental Protection

Dear Angela

BRYMBO STEELWORKS RECLAMATION

At our last monthly review meeting I mentioned that we needed to issue a more concise specification for the W1 / W2 material selection criteria. The existing definition is contained within the approved Planning Condition 30 Method Statement for Identifying and Handling Contaminated Materials (November 2001, SGP Reference: R31-R13/RevD/final), augmented by the "P20" site specific risk assessments that were used to define soil leachate quality criteria for the contaminants of potential concern (cadmium, chromium, lead and zinc). The Environment Agency has confirmed that it has no outstanding groundwater protection concerns regarding these proposals for dealing with the historic contamination (letter from Andrea Mann, Senior Hydrogeologist to SGP, 20th December 2002).

The need to provide a concise engineering-type specification arises from the division of the site reclamation works between Brymbo Developments Ltd. (BDL) and Wrexham County Borough Council. The specification will be referred to in the Council contract documents relating to its part of the reclamation, and will be used to determine the acceptability of earthworks W1 material to be placed as engineered fill within the BDL void. As you appreciate, this is necessary in order to make room for the regrading of the Works Tip to a stable landform, and to fill the void to the designed levels, as required by the planning permission.

Our recommended wording is as follows:

W1 material shall be material excavated within the site that is suitable for use within the Reclamation Works by virtue of meeting the agreed leachability requirements and not having the properties of W2 or W3 materials listed below. The leachability requirements shall be met if the 95th percentile value of the leachability test results for the sampled material are equal to or less than the values determined by the site-specific risk assessment.

W2 material shall be excavated material that is unsuitable for inclusion in the Reclamation Works by reason of:

- (i) having greater than 1% by weight of timber, peat or other perishable organic matter per 50m³; or*
- (ii) having greater than 1% by weight of mineral oil or other liquid hydrocarbon per 50m³; or*
- (iii) being material susceptible to spontaneous combustion; or*
- (iv) being incapable of compaction by normal equipment and techniques.*

W3 material shall be excavated material having hazardous chemical or physical properties requiring special measures for its excavation, handling, storing, transportation, deposition and disposal.

continued

Because of the importance of this specification to the Councils' part in the reclamation of the site we are seeking the agreement of all interested parties to the wording. I would therefore be grateful if you could respond in writing that the specification meets the requirements of the Environment Agency with respect to the selection and use of W1 material from the Wrexham land to infill the BDL void ("The Reclamation Works").

The leaching requirements relate to the contaminants of potential concern identified by the Environment Agency; the risk-based soil leaching test limits agreed by the Agency as part of the W1 material definition are:

cadmium	0.400 mg/l
chromium	6.950 mg/l
lead	2.340 mg/l
zinc	3.860 mg/l

The Agency has also identified three further pollutants of potential concern with respect to earthworks leachates, listed below. As these substances have not been recorded at any significant concentrations in either of the receiving watercourses, or in leaching tests on earthworks material, site-specific risk assessments have not been required to date, and the surface watercourse EQS values will be adopted by default as targets in leaching tests:

copper	0.112 mg/l
mercury	0.001 mg/l
nickel	0.200 mg/l

The draft wording has been copied to Wrexham CBC and the WDA, and I am informed that Martin Ducey and Paul Roberts for the Council are satisfied with the recommended wording. Geraint Bowden of the WDA may have further comments relating to the definition of geotechnical suitability from a contractual perspective, being concerned to ensure that BDL cannot exclude W1 material from the void without good cause. I have explained that the unnecessary exclusion of suitable engineering fill could not be in the interests of either party, however I am awaiting Geraint's further comments. I do not anticipate that these will have any bearing on matters of environmental protection, but will pass on any amendment agreed between us in due course.

Should you have any queries then please contact me.

Yours Sincerely
for: Smith Grant LLP

Dr Anthony Smith

RECEIVED

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ASiantaeth YR
AMGYLCHEDD CYMRU
ENVIRONMENT
AGENCY WALES

Eich cyf/Your ref.

Eia cyf/Our ref. EP5/Brymbo/AR

Ymholiadau/Enquiries Angela Roberts Ext.4585

Dyddiad/Date 12th December 2003

Smith Grant LLP
Croesnewydd Hall
Wrexham Technology Park
Wrexham
LL13 7YP

Dear Mr Smith

I am writing in response to your letter dated the 3rd November 2003 regarding the Brymbo Steelworks Reclamation.

The information concerning the classification of material has been considered also taking account of related documents and data on this topic that have been previously submitted.

There is no objection to be made regarding this updated engineering type specification.

Yours sincerely

ANGELA ROBERTS
Environment Officer

Asiantaeth yr Amgylchedd Cymru
Ffordd Caer, Bwcle, Sir y Fflint CH7 3AJ
Ffôn 01244 550124 Ffacs 01244 550144

Environment Agency Wales
Clwyd Road, Buckley, Flintshire CH7 3AJ
Tel 01244 550124 Fax 01244 550144

Our ref: R175-L48/KEH
Your ref: BRY CB00016

8 October 2004

Ms Angela Thompson
Environmental Protection Department
Wrexham CBC
Crown Buildings
PO Box 1297
Wrexham
LL13 8ZE

Dear Angela

**Former Brymbo Steelworks
Validation Testing of Completed Development Modules**

With reference to our earlier letter dated 21 September 2004 (ref: R175-L46) we have outlined below our proposed site specific acceptance criteria (SSAC) for the contamination assessments of the completed development modules.

The approach will follow the standard Tier 1- 3 approach. All the residential development areas include gardens and hence, where available, CLEA SGVs ('residential with plant uptake' scenario) will be referred to. The principal contaminant noted within the fill materials across the site in the original investigations was chromium, for which an SGV has been published. Other principal contaminants noted were cadmium, lead, arsenic and nickel, all for which SGVs are available and will be referred to.

Copper and zinc were also principal contaminants across the site. SGVs are not available for either of these contaminants as they do not pose a significant risk to human health. Although the ICRC Guidance Note 59/83 (2nd Edition) has been officially withdrawn by DEFRA, it is considered that the information used to derive the guideline values for the protection of landscaping areas from phytotoxic contaminants remains valid. On this basis it is proposed to refer to the ICRC guidelines for copper and zinc.

CLEA SGVs are currently unavailable for any organic contaminants. However, organic contaminants were generally not detected across the site in significant quantities and hence quantitative derivation of appropriate SSACs is not considered necessary at this stage. The United Utilities action values for phenols, PAHs and mineral oils (hydrocarbons) in soils where water pipes to be laid will be used as an initial risk screening value. In addition, to assess the more general risk to the residential occupants the screening values published by the Total Petroleum Hydrocarbons Criteria Working Group (TPHCWG) for extractable petroleum hydrocarbons and PAHs will also be referred to.

Toxicological data has been published by DEFRA/EA for naphthalene and benzo(a)pyrene. The CLEA model is not recommended for assessing risks from volatile substances. However, BaP has a Henry's Law constant that is very substantially below 10^{-3} and hence the volatile pathway does not need to be considered. Naphthalene is volatile, however SGP has previously modelled naphthalene vapour migration risks for residential properties using BP RISC 3; a soil target concentration of 50 mg/kg at 1m depth below unprotected buildings gave a human health risk (0-6 year old female) of 4.2×10^{-2} compared to an acceptable hazard index of 1. The proposed CLEA target based on soil



ingestion, also protects against vapour inhalation risks. Hence, for these contaminants SSACs have been generated by SGP utilising the CLEA model (see attached).

The proposed values are listed on the attached sheet. It should be borne in mind however that as stated previously the current development surface being handed over to the residential developer is expected to be used as the formation level for the houses with raft foundations. The developer is to be responsible for the importation of topsoil and we would anticipate at least 350mm of clean topsoil to be provided for gardens and landscaping areas.

The proposed standards are therefore highly protective of human health and potential pathways between the engineered cover and the future residents will be accordingly limited. However, adoption of these standards will avoid issues of cross-contamination/disposal of spoil for service trench excavations etc.

Alternative values will be proposed for other industrial/commercial/school development areas on the site as necessary.

I look forward to seeing you next Wednesday when we can discuss any queries regarding the above.

Yours sincerely
for: Smith Grant LLP

A handwritten signature in black ink, appearing to read 'KH', is located below the typed name.

Katrina Hawkins

cc: Bob Sheffield (WCBC, Planning)
Andrew Foster (BDL, Site Manager)

FORMER BRYMBO STEELWORKS
RESIDENTIAL DEVELOPMENT AREAS

PROPOSED SITE-SPECIFIC ACCEPTANCE CRITERIA

Contaminant	Guideline Value (mg/kg unless stated otherwise)	Justification
Arsenic	20	CLEA SGV 'residential with plant uptake'
Cadmium	1	CLEA SGV 'residential with plant uptake'
Chromium	130	CLEA SGV 'residential with plant uptake'
Mercury	8	CLEA SGV 'residential with plant uptake'
Nickel	50	CLEA SGV 'residential with plant uptake'
Lead	450	CLEA SGV 'residential with plant uptake'
Selenium	35	CLEA SGV 'residential with plant uptake'
PH	<4, >10	United Utilities
Copper	130	ICRCL Plants
Zinc	300	ICRCL Plants
Total Phenols	10	United Utilities Action Value
EPH (extractable petroleum hydrocarbons)	4,000	TPHCWG
	500	United Utilities Action
Total PAH	1,000	TPHCWG
	5	United Utilities Action
Naphthalene	9.7	CLEA SS
Benzo(a)pyrene	0.9	CLEA SS

Summary of Results

Contaminant : Napthalene

User Name:

Super User

Report Date: 06/09/04

Simulation Date: 06/09/04

Soil Concentration (mg/Kg): 9.658

Chemical Type : Organic / Threshold

Health Criteria Value: TDI
(mg/Kg bw / day): 0.02

Details: New Simulation

Background (mg/day): Not Applicable

Model Parameters

Entry Route: Oral

Applied Dose Data To: All Routes

No. of Iterations: 5000

Scenario Type : Residential

Receptor Used : Female height / weight database

Age Class:

1 To 6

Averaging Method : Elapsed exposure time

Soil Type :

Sandy

Dermal Uptake Routine : US EPA Model (1992)

Soil PH :

7

Plant Uptake Routine : Briggs-Ryan

Soil Organic Matter (%):

5

Building Type : Ground Bearing Slab

Molecular Weight (g) :

128

Flow Type: Pressure Driven Flow In Winter

Air Diffusivity (m² / s) :

5.9E-6

Exposure Routes Analysis

Route 1 : Soil ingestion pathway

Route 2 : Ingestion of indoor dust

Route 3 : Consumption of contaminated homegrown garden vegetables pathway

Route 4 : Ingestion of soil attached to vegetables pathway

Route 5 : Outdoor exposure to soil through skin contact pathway

Route 6 : Indoor exposure to dust through skin contact pathway

Route 7 : Outdoor inhalation of fugitive dust pathway

Route 8 : Indoor inhalation of fugitive dust pathway

Route 9 : Outdoor inhalation of soil vapour pathway

Route 10 : Indoor inhalation of soil vapour pathway

Average Contribution of Each Exposure Route to ADE

Exposure route	Contributions for each exposure route			
	Mean (%)	Standard Dev (%)	Minimum (%)	Maximum (%)
1	0.3	0.2	0.1	2.5
3	4.7	1.6	1.4	13.3
4	0.0	0.0	0.0	0.1
5	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0
10	94.9	0.8	86.4	98.3

Summary of Results

Contaminant : Napthalene

Report Date: 06/09/04

Simulation Date: 06/09/04

Total Average Daily Exposure (mg/Kg bodyweight / day)

Ratio of ADE/TDI at 95th percentile : 1.001

Ageclass	Percentiles			
	99 th	95 th	90 th	50 th
1	3.76E-3	3.56E-3	3.47E-3	3.24E-3
2	7.33E-3	7.04E-3	6.91E-3	6.61E-3
3	1.09E-2	1.05E-2	1.04E-2	9.98E-3
4	1.44E-2	1.39E-2	1.38E-2	1.33E-2
5	1.76E-2	1.73E-2	1.71E-2	1.66E-2
6	2.04E-2	2.00E-2	1.98E-2	1.94E-2

Table	Record	Field	Initial Value	New Value	User	Date
Reason						
Chemical Benzene	Dair	1E-5	8.8E-6			17/05/04
TPHCWG Vol 3 gives values						
Chemical Benzene	DermalCPS	-999	0.00029			14/07/04
As per Oral setting from TOX11						
Chemical Benzene	Dwater	1E-5	9.8E-10			14/07/04
TPWCWG Vol 3 gives values						
Chemical Benzene	InhalCPS	0.91	0.00091			14/07/04
CLEA TOX 1 Benzene						
Chemical Benzene	LogKOW	-999	3.53			14/07/04
TPHCWG Vol 3 gives value						
Chemical Benzene	MI	92	78			17/05/04
fate and transport properties TPHCWG						
Chemical Benzene	OralCPS	0.29	0.00029			14/07/04
CLEA TOX 1 Benzene						
Chemical Benzene	SPIAM	0.008	0.14			17/05/04
www.rsc.org/pdf/general/dosesample.pdf						
Chemical BENZO(A)PYRENE	LogKOW	6.06	3.66			14/07/04
TPHCWG Vol 3 gives value						
Chemical Ethylbenzene	Dair	5E-5	7.5E-6			14/07/04
TPHCWG Vol 3 gives value						
Chemical Ethylbenzene	Dwater	9E-9	7.8E-10			14/07/04
TPHCWG Vol 3 Gives value						
Chemical Napthalene	DermalTDI	-999	0.02			14/07/04
As per Oral from Tox 20						
Chemical Napthalene	DHLC	0.0198	0.14			04/08/04
TPHCWG V3 gives value						
Chemical Napthalene	Dwater	5.7E-10	7.5E-10			14/07/04
TPHCWG Vol 3 gives value						
Chemical Napthalene	LogKOW	6.06	3.58			14/07/04
TPHCWG Vol 3 gives value						
Chemical Napthalene	Solubility	31	25			14/07/04
TPHCWG Vol 3 gives value						
Chemical PHENOL	DermalBA	-999	1E-5			29/01/04
Adding data from TOX09						
Chemical PHENOL	DermalCPS	-999	0.7			29/01/04
Add data from TOX9						
Chemical PHENOL	DermalTDI	-999	0.7			29/01/04
Add data from TOX9						

Table	Record	Field	Initial Value	New Value	User	Date
Reason						
Chemical PHENOL	InhalBA	-999	0.039			29/01/04
Adding data from TOX9						
Chemical PHENOL	InhalCPS	-999	0.7			29/01/04
Add data from TOX9						
Chemical PHENOL	InhalTDI	-999	0.7			29/01/04
Add data from TOX9						
Chemical PHENOL	OralBA	-999	0.601			29/01/04
Adding data from TOX9						
Chemical PHENOL	OralCPS	-999	0.7			29/01/04
Add data from TOX9						
Chemical PHENOL	OralTDI	-999	0.7			29/01/04
Add data from TOX9						
Chemical Toluene	Dair	0.1	8.7E-6			14/07/04
TPHCWG Vol 3 gives value						
Chemical Toluene	DermalTDI	-999	0.2			14/07/04
Same as Oral taken from Tox 14						
Chemical Toluene	Dwater	1E-5	8.6E-10			14/07/04
TPHCWG Vol 3 gives value						
Chemical Toluene	LogKOW	-999	3.54			14/07/04
TPHCWG Vol 3 gives value						

Contaminant Napthalene

Report Date: 06/09/04

Simulation Date: 06/09/04

Oral Settings

Tolerable Daily Intake (mg.kg-1.bw.day-1)	0.02
Index Dose (mg.kg-1.bw.day-1)	N/A
Adult Background Value (mg.day-1)	N/A

Inhalation Settings

Tolerable Daily Intake (mg.kg-1.bw.day-1)	0.00086
Index Dose (mg.kg-1.bw.day-1)	N/A
Adult Background Value (mg.day-1)	N/A

Dermal Settings

Tolerable Daily Intake (mg.kg-1.bw.day-1)	0.02
Index Dose (mg.kg-1.bw.day-1)	N/A
Adult Background Value (mg.day-1)	N/A

Miscellaneous Settings

Skin Permeability (cm.hr-1)	0.108
Air Diffusion Coefficient (m2.s-1)	5.9E-6
Water Diffusion Coefficient (m2.s-1)	7.5E-10
Water Solubility (mg.l-1)	25
Experimental Organic Carbon Distribution Coefficient (l.kg-1)	2000
Experimental Octanol-Water Partition Coefficient (log, dimensionless)	3.58
Relative Molecular Weight (g.mol-1)	128
Vapour Pressure at 20°C (Pa)	66.5
Henry's Constant (Pa.m3.mol-1)	0.157
Henry's Constant (Dimensionless)	0.14
Experimental Soil Water Distribution Coefficient (l.kg-1)	N/A

Table	Record	Field	Initial Value	New Value	User	Date
	Reason					
Chemical PHENOL	InhalBA	-999	0.039			29/01/04
Adding data from TOX9						
Chemical PHENOL	InhalCPS	-999	0.7			29/01/04
Add data from TOX9						
Chemical PHENOL	InhalTDI	-999	0.7			29/01/04
Add data from TOX9						
Chemical PHENOL	OralBA	-999	0.601			29/01/04
Adding data from TOX9						
Chemical PHENOL	OralCPS	-999	0.7			29/01/04
Add data from TOX9						
Chemical PHENOL	OralTDI	-999	0.7			29/01/04
Add data from TOX9						
Chemical Toluene	Dair	0.1	8.7E-6			14/07/04
TPHCWG Vol 3 gives value						
Chemical Toluene	DermalTDI	-999	0.2			14/07/04
Same as Oral taken from Tox 14						
Chemical Toluene	Dwater	1E-5	8.6E-10			14/07/04
TPHCWG Vol 3 gives value						
Chemical Toluene	LogKOW	-999	3.54			14/07/04
TPHCWG Vol 3 gives value						

Contaminant **BENZO(A)PYRENE**

Report Date: 06/09/04

Simulation Date: 06/09/04

Oral Settings

Tolerable Daily Intake (mg.kg ⁻¹ .bw.day ⁻¹)	N/A
Index Dose (mg.kg ⁻¹ .bw.day ⁻¹)	2E-5
Adult Background Value (mg.day ⁻¹)	N/A

Inhalation Settings

Tolerable Daily Intake (mg.kg ⁻¹ .bw.day ⁻¹)	N/A
Index Dose (mg.kg ⁻¹ .bw.day ⁻¹)	N/A
Adult Background Value (mg.day ⁻¹)	N/A

Dermal Settings

Tolerable Daily Intake (mg.kg ⁻¹ .bw.day ⁻¹)	N/A
Index Dose (mg.kg ⁻¹ .bw.day ⁻¹)	N/A
Adult Background Value (mg.day ⁻¹)	N/A

Miscellaneous Settings

Skin Permeability (cm.hr ⁻¹)	0.108
Air Diffusion Coefficient (m ² .s ⁻¹)	5E-6
Water Diffusion Coefficient (m ² .s ⁻¹)	5E-10
Water Solubility (mg.l ⁻¹)	0.0038
Experimental Organic Carbon Distribution Coefficient (l.kg ⁻¹)	1140000
Experimental Octanol-Water Partition Coefficient (log, dimensionless)	3.66
Relative Molecular Weight (g.mol ⁻¹)	252.3
Vapour Pressure at 20°C (Pa)	7E-7
Henry's Constant (Pa.m ³ .mol ⁻¹)	0.157
Henry's Constant (Dimensionless)	6.46E-5
Experimental Soil Water Distribution Coefficient (l.kg ⁻¹)	N/A

Chief Planning Officer/Pri F Swyddog Cynllunio
Lawrence Isted

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28 OCT 2004



Ms Katrina Hawkins
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Your Ref/Eich Cyf	R175-L46/KEH
Our Ref/Iwys	RABS/LJ/CB00016
Date/Dyddiad	26 October 2004
Ask for/Gofynner am	B Sheffield
Direct Dial/Rhif Union	(01978) 292474
E-mail/E-bost	

Dear Ms Hawkins

Brymbo Steelworks Reclamation: Validation testing of completed development modules

Thank you for your letter of 21 September 2001 regarding the proposed change of criterion in Condition 42 (a) of the planning permission CB00016, relating to contamination assessments of each completed development module of the site. I must apologise for the delay in my response.

The withdrawal in December 2002 by DEFRA of the ICRCL Guidance Note 59/83 effectively invalidates any submission made under Condition 42(a) as it is currently worded. Advice from DEFRA confirms that the CLEA package, issued by DEFRA and the Environment Agency in 2002 is the guidance which replaces ICRCL Guidance Note 59/83.

In principle your proposed changes are acceptable although there are certain minor changes which I consider are required and I set these out below in the form of a full amended condition. Condition 42 a) A survey shall be carried out of the levels of contamination of the surface material in accordance with DEFRA Guidance Notes CLAN 1/01 and CLAN 3/02 and Environment Agency Guidance Note CLR7, according to a methodology to be agreed beforehand with the Local Planning Authority, within a month of the completion of reclamation of each module of the site. The results of the survey shall be submitted to the Local Planning Authority within a further seven working days following completion of the survey of each module of the site. Such a survey shall be carried out:

- i) where a residential after-use is proposed, of soil within 1.0 metre of the surface, inclusive of turf where existing; and
- ii) in any other case, other than hard surfaces, of soil within 0.5 m of the surface, inclusive of turf where existing.

42 b) The notification of completion of each module of the site shall be given in writing within seven working days. If the levels of contamination (expressed as the upper 95th percentile of the measured mean concentration) found by such a survey required by a) above, exceed the CLEA guidelines or such site specific assessment criteria in respect of individual contaminants as may have previously been agreed in writing with the Local Planning Authority, then a programme of further action shall be agreed in writing with the Local Planning Authority and carried out within six months of the receipt of such agreement in writing.



UNITED KINGDOM OF GREAT
BRITAIN

Yours sincerely

Sheffield

For Chief Planning Officer

Our ref: R175-L59/KEH
Your ref: BRY CB00016

23 December 2004

Mr R Sheffield
Minerals Planning Officer
Wrexham CBC
P O Box 1290
Lampit Street
Wrexham

Dear Bob

**Brymbo Steelworks, Condition No 25
Central Development Area (CDA)**

The CDA is now complete and hence we have undertaken validation testing of the final surface fill as undertaken previously on the SDA and WDA earlier this year (ref: our faxes R175-F19/R175-F22). As required under condition 42(a) of the planning permission (ref: CB00016) outlined below is the proposed sampling strategy.

As previously the sampling will be based on one composite sample per 2,500m² of the finished surface (50m square grid, 0-2m depth) as shown on the enclosed plan.

The samples will be analysed for the following determinands:

ICRCL metals: Ar, Cd, Cr, Cu, Ni, Zn, Pb, Hg, B, Se, hex Cr.
Total and free cyanide, sulphate, sulphide, free sulphur, pH, PAH (16 speciated), phenols, EPH.

In addition every fourth sample will undergo the NRA leach test for the above determinands.

As for the SDA and WDA, the fill material comprises compacted layers of locally sourced mudstones and sandstones. Sampling of the initial baseline material and intermediate fill has been previously undertaken and I can forward these results if required.

I trust this is satisfactory and I would be grateful if you could confirm this in writing. However, please do not hesitate to contact either myself or Simon Dennis if you require any further information.

Kind regards



Katrina Hawkins

Our ref: R175-L60/KEH
Your ref: BRY CB00016

14 January 2005

Ms Angela Thompson
Environmental Protection Department
Wrexham CBC
Crown Buildings
PO Box 1297
Wrexham
LL13 8ZE

Dear Angela

**Former Brymbo Steelworks
Validation Testing of Completed Development Modules**

With reference to our earlier letter dated 8 October 2004 (ref: R175-L48) it has now been agreed that the batters on the edges of the housing development plateaux are to be included within the Completion Reports. These batters have been provided with in the order 0.3m of topsoil collected from elsewhere on the site, overlying at least 0.5m of mudstone/sandstone overburden. Any footpaths created are to be provided with 1.0m of overburden. The topsoil has been sampled by SGP on a 50m grid spacing as for the formation surfaces. The batters are to effectively form Public Open Space (POS) and will be landscaped with grass, shrub and tree vegetation, traversed by access routes.

There are currently no guidelines or SGVs provided for POS landuse. It has been previously agreed with WCBC to utilise the CLEA SGVs for 'residential with plant uptake' landuse for assessment of the formation surfaces. However, the closest, but more conservative appropriate landuse for POS would be 'residential without plant uptake' and it is proposed to refer to these SGVs for the Tier 1 assessment where available. As for the formation surfaces SSACs for this landuse have been calculated using the CLEA model for naphthalene and benzo(a)pyrene as attached.

The US95 for the majority of potential contaminants for which CLEA SGVs are available were not exceeded in the results obtained for the batter samples from the WDA using the 'residential without plant uptake' scenario and hence, more detailed risk assessment is not necessary for these contaminants (arsenic, mercury, lead, selenium and cadmium). However, the initial Tier 1 screening SGVs has identified the US95 of the chromium and nickel results to be in exceedance of the CLEA SGVs.

It is likely that these SGVs provide an overly conservative value for POS landuse and the results are discussed in greater detail below.

Chromium

The SGV for chromium does not distinguish between Cr (III) and Cr(VI) as outlined in the EA/DEFRA publication SGV 4, but relates to the measurement of 'total chromium', due to reported difficulties in analytical measurements. As outlined in the accompanying EA/DEFRA publication 'Contaminants in Soil: Collation of Toxicological Data and Intake Values for Humans: Chromium' the most prevalent natural form of chromium is as Cr(III), Cr(VI) only being present due to anthropogenic sources. The two oxidation states are in dynamic equilibrium, but in most cases Cr(VI) is converted to Cr(III) in the natural environment. The toxicity of chromium is dependant upon its oxidation state, Cr(VI) being both

of greater toxicity and more readily absorbed by both the inhalation and oral routes. In fact SGV4 states that there do not appear to be any published reports of adverse effects in humans resulting from ingested Cr(III) and toxicological opinion is that Cr(III) compounds are of low oral toxicity.

The SGV for chromium is based on the calculated oral TDSI value, the dermal and inhalation routes having been excluded, which is calculated from the adult oral TDI and adult MDI (amended for female child of 0-6 years). The adult oral TDI is based on the USEPA RfD of $3 \text{ ugkg}^{-1} \text{ bw day}^{-1}$ which has been established for Cr(VI). The adult MDI used in the SGV calculation is $0.2 \text{ ugkg}^{-1} \text{ bw}$, which based on an assumption that no more than 10% of the chromium intake via food and water is in the hexavalent form, the total chromium MDI being $127 \text{ ugkg}^{-1} \text{ bw}$.

A SSAC for Cr(III) for the 'residential without plant uptake' scenario can therefore be generated through the CLEA model using the quoted USEPA RfD of $1500 \text{ ugkg}^{-1} \text{ bw day}^{-1}$ which has been established for Cr(III) and the MDI for total chromium. The resultant SSAC for Cr (III) is 114,185 mg/kg (11.4%). Of interest this is equivalent to the Health Investigation Criteria (12%) cited by the Department of Environment, Western Australia as a screening value for Cr(III) in soils for residential use.

Cr(VI) has not been detected in any of the samples obtained from the WDA, indicating all chromium present is in the less toxic form. Geochem have confirmed that their analytical technique for Cr(III) uses an alkaline extraction. It has reported that high pH may result in the conversion of Cr(III) to Cr(VI) over a period of time (Gochfeld M, 1991, Panel discussion: Analysis of Chromium: Methodologies and Detection Levels and Behaviour of Chromium in Environmental Media, Environmental Health Perspectives Vol 92) and hence this technique is more likely to report an elevated Cr(VI) result. On this basis, it is not considered that the levels of chromium encountered in the topsoil on the batters poses a risk to the future use of the area for POS.

Taking the above into account, it is proposed to use a SSAC of 5,000 mg/kg to provide an appropriately conservative guideline value for the presence of Cr(III) in POS near residential properties. This value is equivalent to the SGV for industrial use of 5,000 mg/kg for total chromium.

Nickel

It is noted that the US95 for nickel on the batters also slightly exceeds the SGV (88 mg/kg compared to 75 mg/kg).

As outlined in the EA/DEFRA publications SGV 4 the SGV for nickel is based on considering the oral exposure pathways only, dermal and inhalation pathways being excluded. For the standard 'residential without plant uptake' scenario these pathways are based 100% on ingestion of soil and indoor dust with the key receptor being a female child of 0-6 years.

Calculation of the SGVs for nickel within the CLEA model is therefore based on the equation (ref: EA/DEFRA publication CLR 10):

$\text{ADE/HCV} = 1$ where

ADE – Average daily human exposure
HCV – Health Critical Value

For nickel the ADE is calculated on:

$$\text{ADE} = \frac{\text{IR}_{\text{oral}} \times \text{EF}_{\text{oral}} \times \text{ED}_{\text{oral}}}{\text{BW} \times \text{AT}}$$

Where:

IR – chemical exposure rate
EF – exposure frequency
ED – exposure duration
BW – human body weight
AT – averaging time

For consideration of potential exposures for use of the batters for POS the key receptor would remain a female child with the key exposure route for nickel remaining via the oral pathway. The principal differences between the conceptual models for 'residential without plant uptake' and 'public open space' would be in the exposure frequency and duration outside the home on the POS. Tracking back of contaminated soil and dust from the POS into the home would remain a possibility, albeit small compared to direct exposure on the POS. For comparison, CLR 10 (table 5.3) assumes that for allotment land-use the fraction of locally derived soil in indoor dust is 0.375, and it would be reasonable to assume a similar or lower value in the case of POS where soil will generally be covered by vegetation and leaf litter. Due to the absence of reliable data on the relative ingestion rates of external soil and internal household dust CLEA specifies a single combined rate.

The CLEA model does not enable alteration of the exposure time inputs and hence it is not possible to specifically model POS landuse using CLEA.

The exposure frequency for calculation of the 'residential scenario' SGV is based on 180 days per year for ages 0-1 and 365 days per year ages 1-6. For young children up to the age of 6 years it would be a reasonable assumption to reduce the exposure frequency to 3.5 days a week (52 days a year). Since the above equation is linear this would effectively increase the allowed daily exposure by a factor of 2. Hence the proposed SSAC for nickel for POS would be 150 mg/kg.

Attached is a summary of the proposed Tier 1 criteria for the batters of the development areas. For your information I have also attached a summary of the results received for the soil sampling of the WDA batters. The results for the SDA were lower with the values generally being below the assessment criteria agreed for the formation surface. It is noted that the US95 for copper and zinc are also above the ICRL guidelines however the risks to vegetation growth is likely to be minimal, and liming and fertilisation of the slopes is likely to mitigate any potential phytotoxicity.

I trust this is acceptable, however, if you have any queries please do not hesitate to contact me.

Yours sincerely
for: Smith Grant LLP



Katrina Hawkins

cc: Bob Sheffield (WCBC, Planning)
Andrew Foster (BDL, Site Manager)

**TABLE 1: RESIDENTIAL DEVELOPMENT AREAS – BATTERS
PROPOSED GENERIC AND SITE-SPECIFIC ACCEPTANCE CRITERIA**

Contaminant	Guideline Value (mg/kg unless stated otherwise)	Justification
Arsenic	20	CLEA SGV 'residential without plant uptake'
Cadmium	30	CLEA SGV 'residential without plant uptake'
Chromium (III)	5000	POS SSAC
Mercury	15	CLEA SGV 'residential without plant uptake'
Nickel	150	POS SSAC
Lead	450	CLEA SGV 'residential without plant uptake'
Selenium	280	CLEA SGV 'residential without plant uptake'
PH	<4, >10	United Utilities
Copper	130	ICRCL Plants
Zinc	300	ICRCL Plants
Total Phenols	10	United Utilities Action Value
EPH (Extractable Petroleum Hydrocarbons)	4,000	TPHCWG
	500	United Utilities Action
Total PAH	1,000	TPHCWG
	5	United Utilities Action
Naphthalene	10.4	CLEA SSAC 'residential without plant uptake'
Benzo(a)pyrene	0.9	CLEA SSAC 'residential without plant uptake'

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04 February 2005
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Visit our website at:
www.wrexham.gov.uk

Dear Katrina

**FORMER BRYMBO STEELWORKS VALIDATION OF COMPLETED
DEVELOPMENT MODULES [Re: BATTERS]**

Thank you for your letter dated 14 January 2005 regarding the above. I can confirm that the use of the SGVs land use 'residential without plant uptake' is suitable for the assessment of public open space (POS) whilst no specific standard exists.

The section of the letter discussing the elevated chromium results has an incorrect fact which should alter the assessment - on p8 of the SGV 4 report for Chromium, Note 2 beneath Table 3.2 states that it is assumed that all chromium present in the soil is chromium (VI). Despite this please could you provide the calculations for the SSAC for chromium (III) and also a reason as to why you believe the elevated concentrations are present since I understood that final near surface soils are supposed to be 'clean/uncontaminated' on site source.

The assessment for a SSAC for nickel appears to be logical in terms of revising the fraction of locally derived soil in indoor dust and the exposure frequency. However, I find the second to last paragraph of the letter regarding exposure frequency confusing, therefore please could you provide a clearer explanation of the determination of the final value of 150mg/kg.

In Table 1 of the letter, the acceptance criteria for phenols is stated as being 10mg/kg, however, the table attached to the letter showing the lab analysis results states that it is 1mg/kg - this should be clarified. In addition, the criteria for naphthalene is different in both tables and should be clarified too.

The assessment of the results for EPH and total 16 PAHs is not clear. Two acceptance criteria values are provided, however it appears that for EPH the TPHCWG value has been used but for the PAHs, the United Utilities value has been used. Further clarification on the assessment of both sets of results should be provided.



Unfortunately I can not confirm our satisfaction of the details in the letter to the Planning Department until a response to my queries on these issues has been provided. I look forward to hearing from you.

Yours sincerely



Angela Thompson
Contaminated Land Officer



BIDDISODDWYR MEWN FOLL
INVESTORS IN PEOPLE

Our ref: R175-L64/KEH
Your ref: BRY CB00016

8 February 2005

Ms Angela Thompson
Environmental Protection Department
Wrexham CBC
Crown Buildings
PO Box 1297
Wrexham
LL13 8ZE

Dear Angela

**Former Brymbo Steelworks
Validation Testing of Completed Development Modules (Batters)**

Thank you for your letter of the 4th February, our responses to which are discussed below.

Chromium

Although the SGV 4 report for chromium states that derivation of the SGV for chromium is based on the assumption that all chromium in the soil is Cr(VI), paragraph 3.10 of the report also states that the SGV should be compared to 'total chromium' analysis. This is highlighted as being due to potential interconversion of Cr(III) and Cr(VI) during sampling and analytical procedures.

However, as stated in our letter, we consider that the Cr(VI) analysis undertaken by Geochem provides additional information on the site and demonstrates the absence of the more toxic form of chromium.

Attached are the CLEA model sheets for the calculation of the SSAC of 114,000 mg/kg for Cr(III) based on using a TDI of $1500 \text{ ugkg}^{-1} \text{ bw day}^{-1}$ and MDI of $127 \text{ ugkg}^{-1} \text{ bw}$ taken from TOX 5. As stated in our letter we have, however, elected to use a more conservative value of 5,000 mg/kg as an SSAC for chromium (III).

The material in question is soil which has been sourced from a number of locations across the main site and used to provide topsoil on the batters of the housing development areas. This material has only been used on the batters. The development areas themselves (and underlying batters) have been constructed utilising at least 3m of uncontaminated overburden excavated from the main site void. This will form the formation level for the houses and the developers will be responsible for the importation of topsoil for use in gardens and landscaping areas. The only area where it is not anticipated the developers will import topsoil is on the batters.

Nickel

The paragraph should have read '....For young children up to the age of 6 years it would be a reasonable assumption to reduce the exposure frequency to 3.5 days a week (182 days a year)'.... Comparing to the exposure frequency of 365 days per year used for the calculation of the 'residential scenario' SGV, this effectively increases the safe daily exposure by a factor of 2 and results in a proposed SSAC for nickel for POS of 150 mg/kg.

Phenol, EPH and PAH

The acceptance criteria for phenol is 10 mg/kg as outlined in our letter of the 8th October 2004, which equates to the United Utilities Action value for the laying of water pipes. The value of 1 mg/kg phenol is the United Utilities Trigger value and the summary of soil analysis results has been amended accordingly.

The values of EPH and PAH for the topsoil on the batters have been compared to the United Utilities Action values for the laying of water pipes as well as the TPHCWG values for the protection of human health to provide consistency with the formation layer results. However, these are purely provided for information as any water pipes will be laid within the underlying mudstone/sandstone overburden and the levels within the topsoil do not affect the overall assessment.

None of the WDA batter samples contain EPH or PAHs in exceedance of the TPHCWG values, indicating that the determinands are not present at concentrations that would pose a risk to human health.

Naphthalene

The summary table has been amended to reflect the correct SSAC of 10.4 mg/kg for naphthalene for 'residential without plant uptake' end-use scenario.

I trust this is of assistance, however, if you have any queries please do not hesitate to contact me.

Yours sincerely
for Smith Grant LLP



Katrina Hawkins

cc: Bob Sheffield (WCBC, Planning)
Andrew Foster (BDL, Site Manager)

Chief Public Protection Officer/Prif Swyddog Gwarchod y Cyhoedd
Andy Lewis

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21 February 2005

Angela Thompson

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Dear Katrina

**FORMER BRYMBO STEELWORKS VALIDATION OF COMPLETED
DEVELOPMENT MODULES [Re: BATTERS]**

Thank you for your letter dated 08 February 2005 regarding the above. I am now satisfied that the approach used to assess the batters is satisfactory, including the SSACs that have been developed.

Yours sincerely

Angela Thompson
Contaminated Land Officer

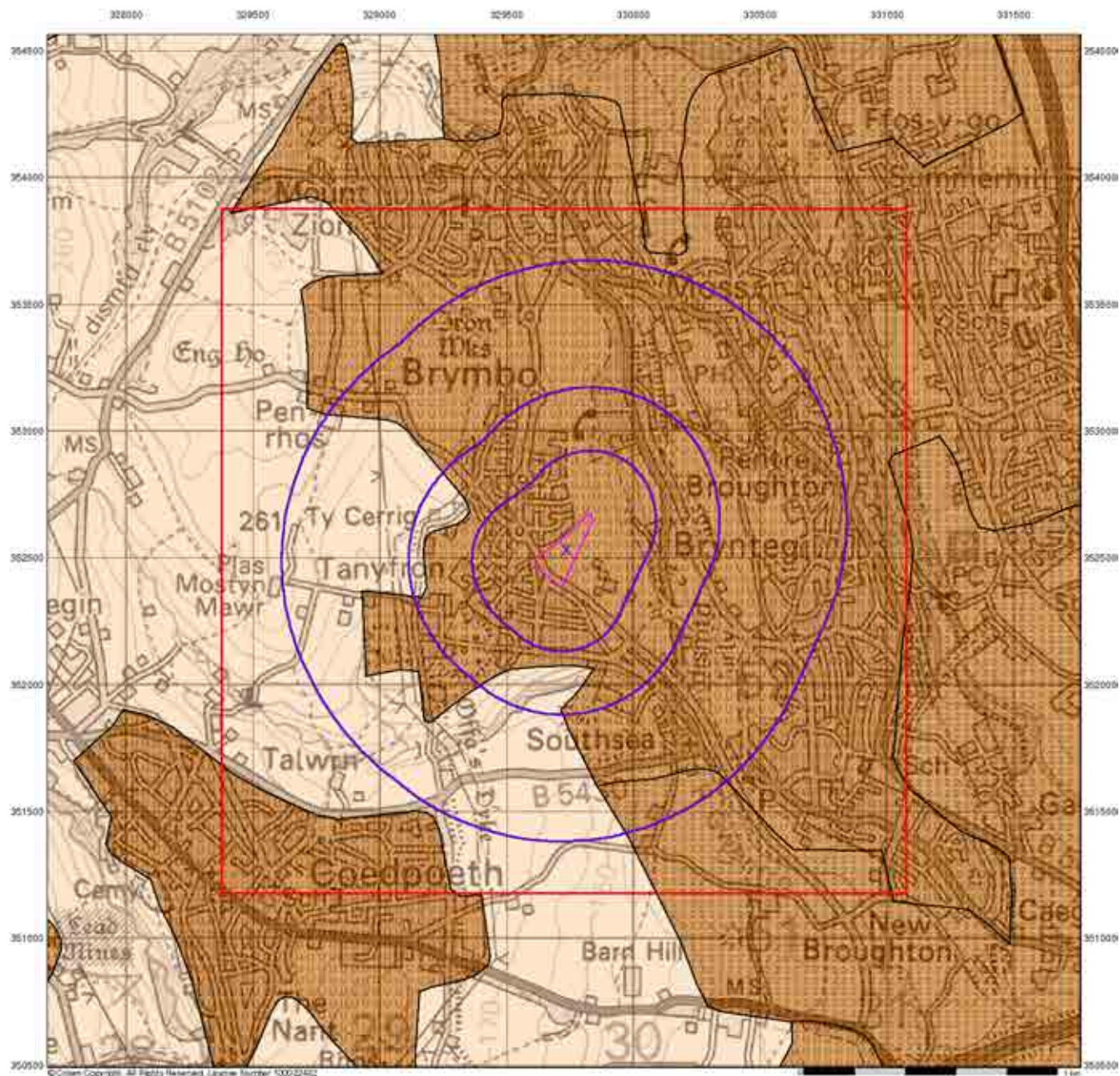
cc Bob Sheffield, Planning Department



BUDDIADDEBWYB MENN FOM
OWNSTORS BY PEOPLE

APPENDIX 3

Envirocheck Report



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Groundwater Vulnerability

General

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

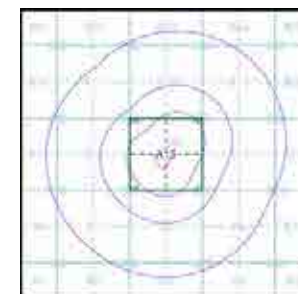
Agency and Hydrological

Geological Classes

- Major Aquifer (Highly Permeable)**
 - High (H) 1, 2, 3, U
 - Intermediate (I) 1, 2
 - Low
- Minor Aquifer (Variably Permeable)**
 - High (H) 1, 2, 3, U
 - Intermediate (I) 1, 2
 - Low
- Non Aquifer (Negligibly Permeable)**
 -
- Water or Sea**
 -
- Drift Deposit**
 -

Soil Classes

Site Sensitivity Context Map - Slice A



Order Details

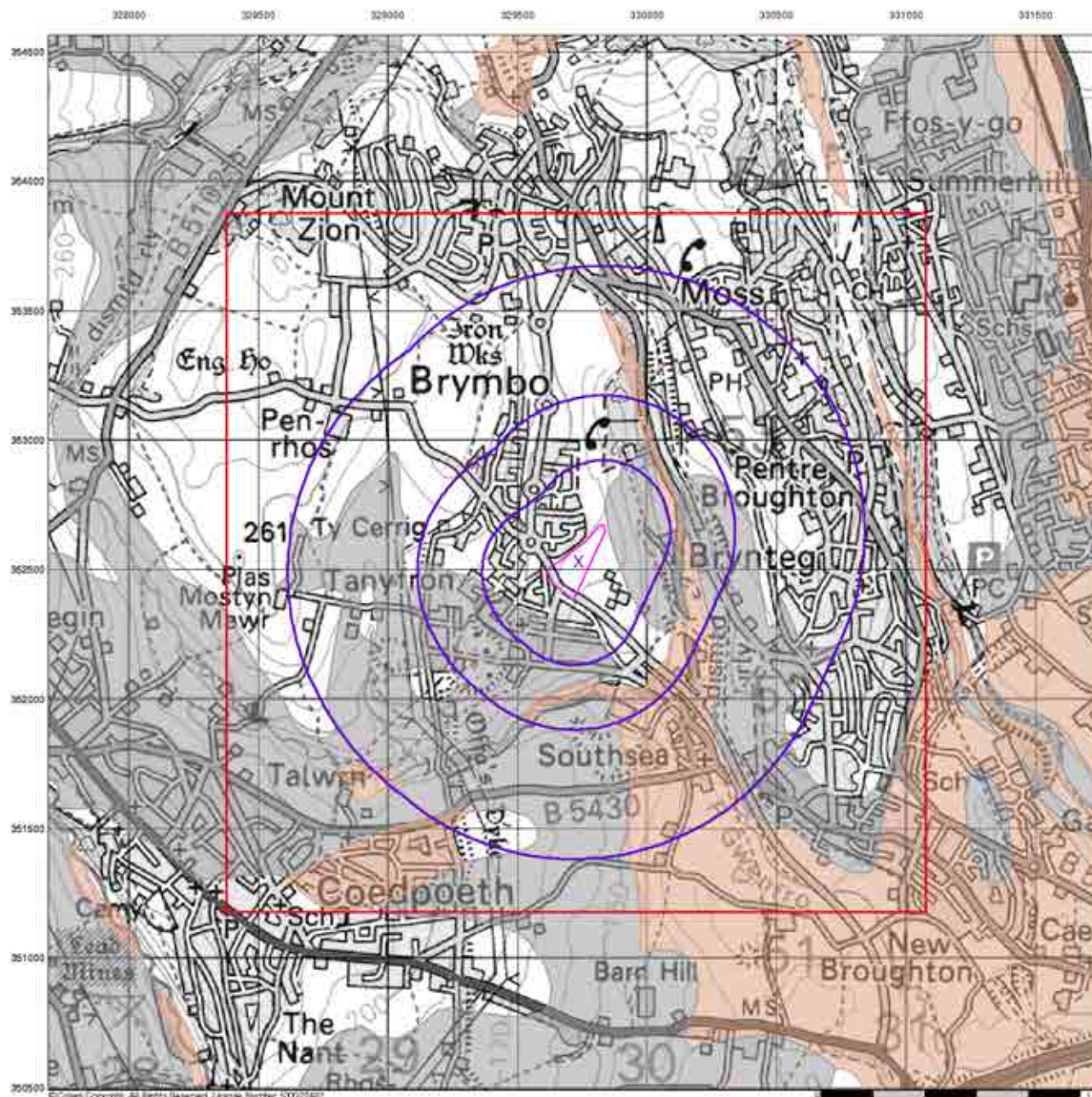
Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



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 Web: www.envirocheck.co.uk



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Superficial Aquifer Designation

General

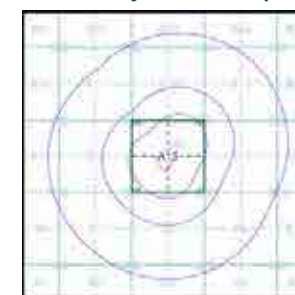
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Site
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Un differentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

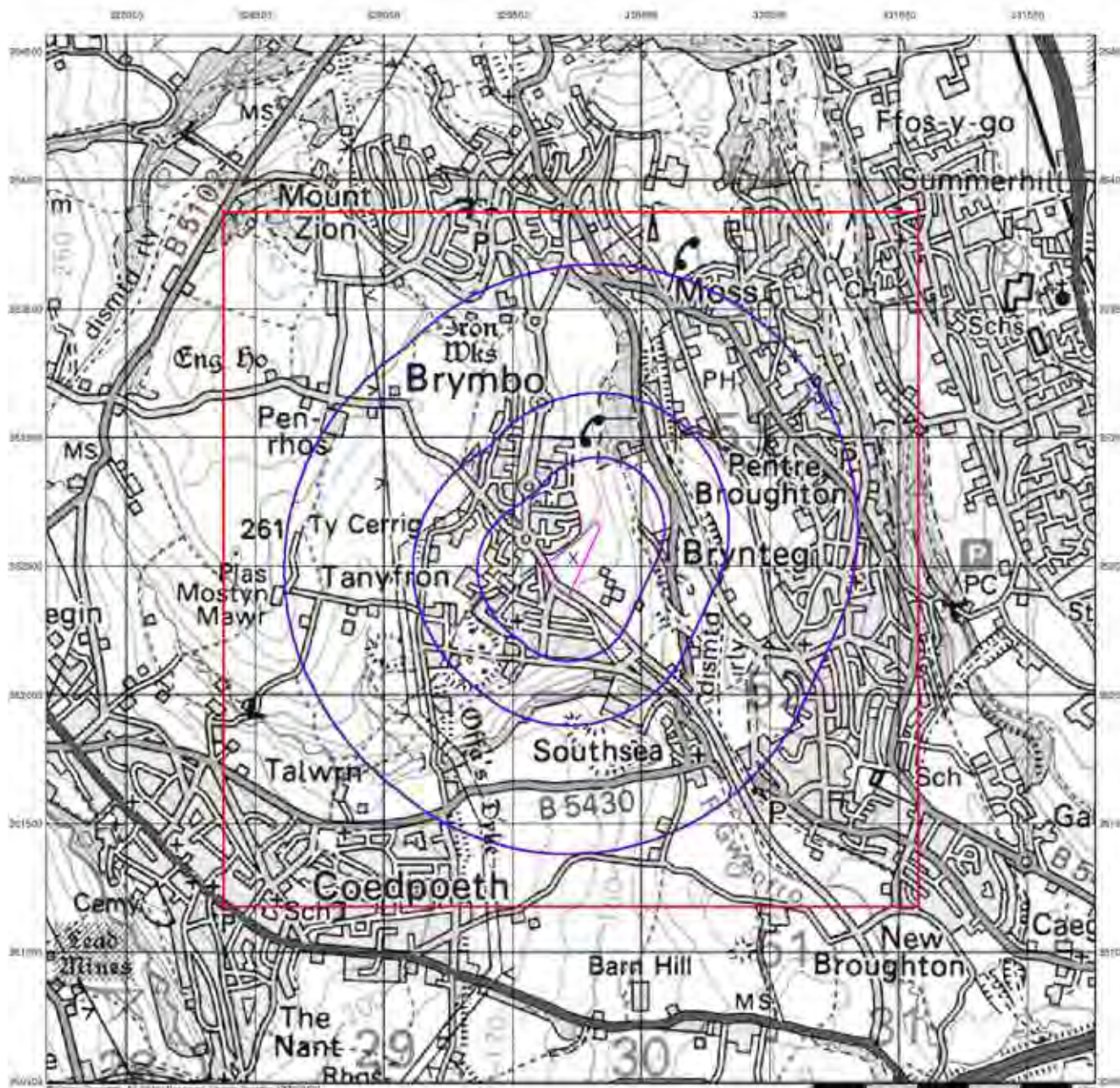
Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



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Source Protection Zones

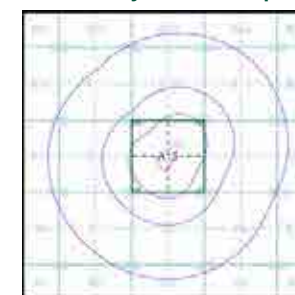
General

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

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



Order Details

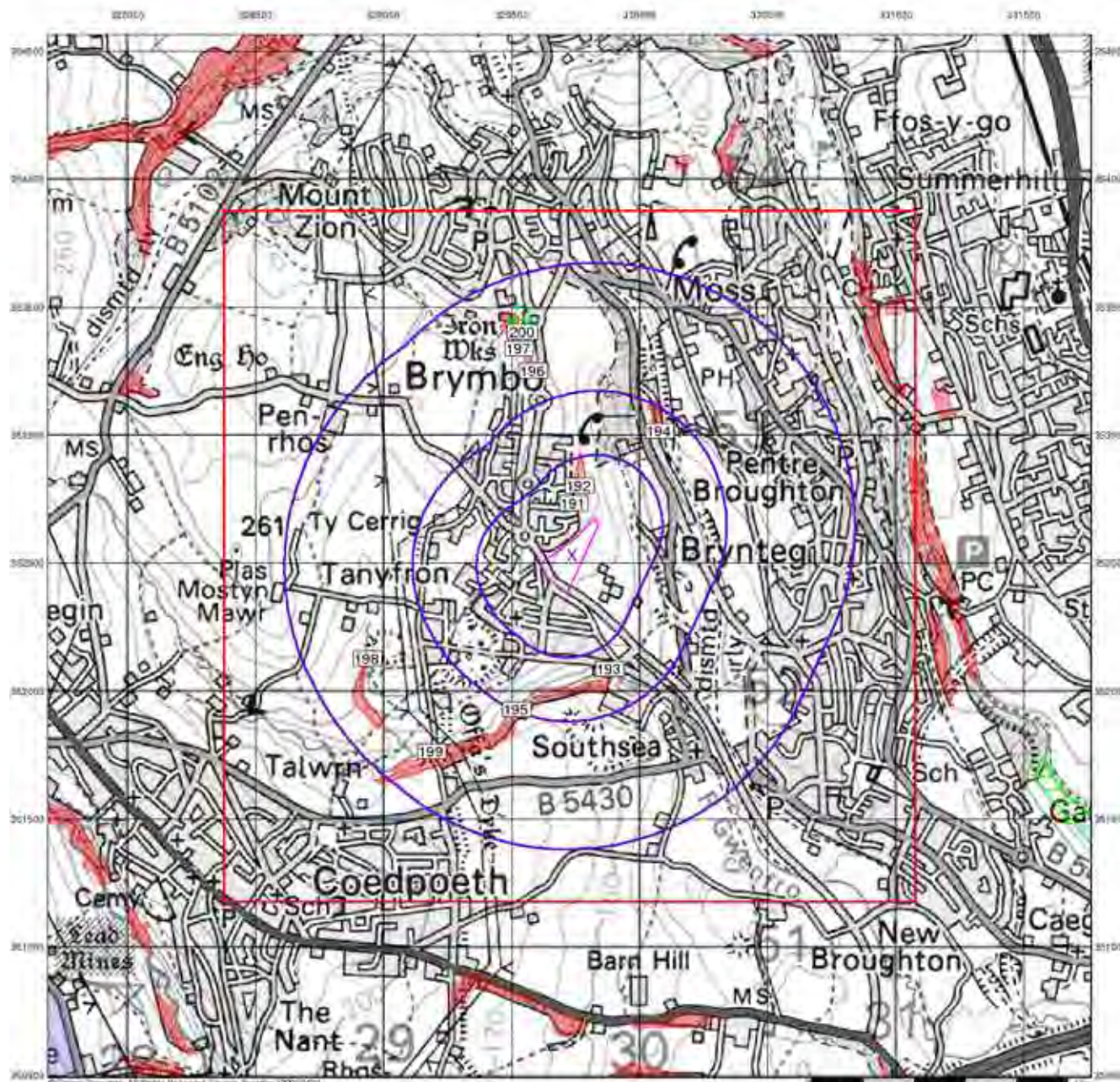
Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500

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Sensitive Land Uses

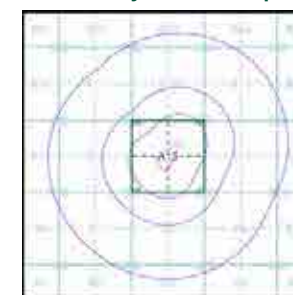
General

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

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

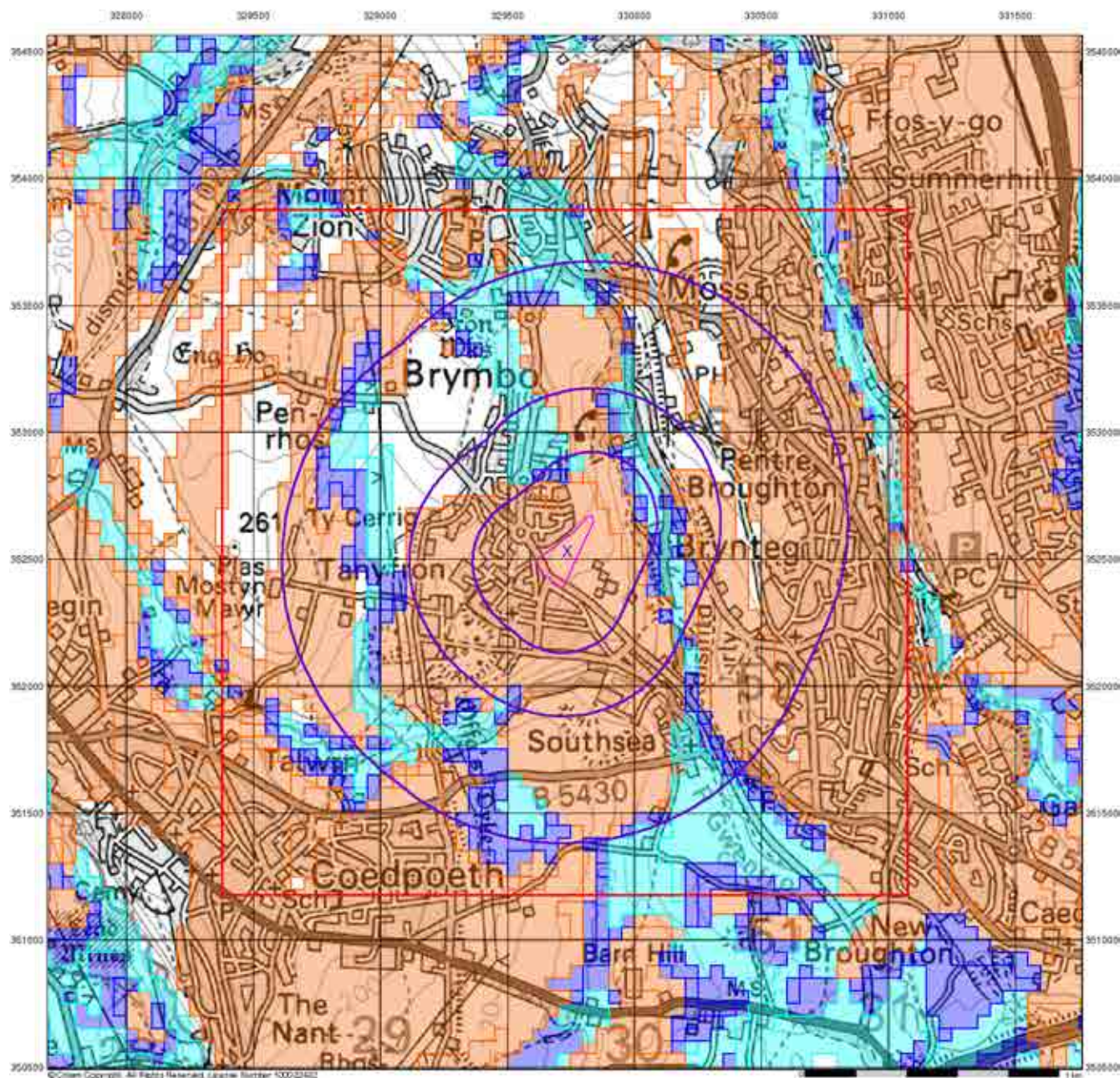
Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500

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BGS Flood GFS Data

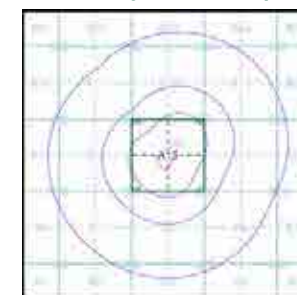
General

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

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500

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Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

173223486_1_1

Customer Reference:

ST16882

National Grid Reference:

329740, 352530

Slice:

A

Site Area (Ha):

2.5

Search Buffer (m):

1000

Site Details:

Site at 329700, 353500

Client Details:

Mr J Sines
Wardell Armstrong LLP
Sir Henry Doulton House
Forge Lane
Etruria
Stoke on Trent
ST1 5BD

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	14
Hazardous Substances	-
Geological	20
Industrial Land Use	30
Sensitive Land Use	37
Data Currency	38
Data Suppliers	43
Useful Contacts	44

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/Natural Resources Wales 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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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 3	1		2	9
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 5			1	2
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 6		Yes		
Pollution Incidents to Controlled Waters	pg 6			5	4
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 7				1
River Quality Biology Sampling Points	pg 8				1
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions					
Water Industry Act Referrals					
Groundwater Vulnerability	pg 8	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 8	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 8		2	12	25

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 14	1		1	2
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)	pg 14	1			
Licensed Waste Management Facilities (Locations)	pg 15		1	3	
Local Authority Landfill Coverage	pg 15	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 15				1
Potentially Infilled Land (Non-Water)	pg 16		1	10	11
Potentially Infilled Land (Water)	pg 17		3	2	4
Registered Landfill Sites	pg 18			2	1
Registered Waste Transfer Sites	pg 19			1	
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 20	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 20	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 21		1	17	26
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 28	Yes	n/a	n/a	n/a
Mining Instability	pg 28	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 28		Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 28	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 28	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 29	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 29	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 29		Yes	n/a	n/a
Radon Potential - Radon Affected Areas	pg 29	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 29	Yes	n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 30		2	6	27
Fuel Station Entries					
Points of Interest - Commercial Services	pg 33		2	6	8
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 34			3	5
Points of Interest - Public Infrastructure	pg 35			3	7
Points of Interest - Recreational and Environmental	pg 35		1	3	2
Gas Pipelines					
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 37		2	3	4
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest	pg 37				1
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (SW)	0	1	329737 352531
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	34	1	329900 352600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (N)	110	1	329700 352700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	132	1	329750 352800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	142	1	329950 352750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	148	1	329737 352800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (E)	161	1	330000 352600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	161	1	330000 352650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (E)	168	1	330000 352531
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	170	1	330000 352700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (N)	181	1	329750 352850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (E)	186	1	330050 352600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	194	1	329737 352850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	214	1	329950 352850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	216	1	330050 352531
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	216	1	329600 352800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	228	1	330000 352450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (NE)	238	1	329900 352900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	249	1	330000 352400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (NE)	257	1	329950 352900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	267	1	330100 352700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	286	1	329900 352950

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	295	1	330050 352400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	311	1	330150 352600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	311	1	330150 352650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	316	1	330050 352350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	316	1	330150 352700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	326	1	330150 352531
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	328	1	330150 352750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	335	1	329900 353000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (NE)	349	1	329950 353000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	364	1	330200 352531
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	378	1	329850 353050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (SE)	382	1	330100 352300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	390	1	330200 352500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	400	1	329600 352000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	410	1	330200 352450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (S)	417	1	329550 352000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	428	1	329850 353100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	431	1	330200 352400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	437	1	330250 352500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (SW)	438	1	329500 352000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	478	1	329850 353150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NW (S)	483	1	329500 351950

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	Discharge Consents Operator: Brymbo Developments Ltd Property Type: Not Supplied Location: Former Brymbo Steelworks Site Brymb, Brymbo, Wrexham, Wales Authority: Natural Resources Wales Catchment Area: GWENFRO Reference: CG0371101 Permit Version: 1 Effective Date: 14th April 1997 Issued Date: 14th April 1997 Revocation Date: 27th March 2018 Discharge Type: Trade And Other Matter Discharge Discharge: Freshwater Stream/River Environment: Receiving Water: River Gwenfro Status: Revoked Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	0	2	329690 352430
2	Discharge Consents Operator: Brymbo Developments Ltd Property Type: Not Supplied Location: Former Brymbo Steelworks Site Brymb, Brymbo, Wrexham, Wales Authority: Natural Resources Wales Catchment Area: GWENFRO Reference: CG0371001 Permit Version: 1 Effective Date: 14th April 1997 Issued Date: 14th April 1997 Revocation Date: 27th March 2018 Discharge Type: Trade And Other Matter Discharge Discharge: Freshwater Stream/River Environment: Receiving Water: River Gwenfro Status: Revoked Positional Accuracy: Located by supplier to within 100m	A18SE (NE)	403	2	329970 353050
3	Discharge Consents Operator: Pimbrook (Leicester) Ltd Property Type: Coal Extraction, Surface Location: Southsea Plas Power Colliery Reclam, Plas Power Colliery Reclamatio Authority: Natural Resources Wales Catchment Area: River Dee Reference: Cm0093001 Permit Version: 1 Effective Date: 19th May 1982 Issued Date: 19th May 1982 Revocation Date: 2nd February 1994 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Gwenfro Status: Consent expired Positional Accuracy: Located by supplier to within 100m	A8NE (S)	424	2	329900 352000
4	Discharge Consents Operator: Brymbo Developments Ltd Property Type: Iron & Steel Industries Location: Former Brymbo Steelworks Site Brymb, Brymbo, Wrexham, Wales Authority: Natural Resources Wales Catchment Area: River Dee Reference: CM0100901 Permit Version: 3 Effective Date: 28th August 1991 Issued Date: 28th August 1991 Revocation Date: 18th September 2003 Discharge Type: Trade Effluent Discharge: Freshwater Stream/River Environment: Receiving Water: Un-Named Stream Lead To River Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A18SE (N)	541	2	329950 353200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	Discharge Consents Operator: Brymbo Developments Ltd Property Type: Iron & Steel Industries Location: Former Brymbo Steelworks Site Brymb, Brymbo, Wrexham, Wales Authority: Natural Resources Wales Catchment Area: River Dee Reference: Cm0100901 Permit Version: 2 Effective Date: 30th September 1985 Issued Date: 21st July 1972 Revocation Date: 27th August 1991 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: Un-Named Stream Lead To River Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m	A18SE (N)	541	2	329950 353200
5	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewage Disposal Works Location: Southsea Rollers Arms - Cso, Tanfyfron Road, Southsea, Wrexham, LI11 5sa Authority: Natural Resources Wales Catchment Area: GWENFRO Reference: Cm0176501 Permit Version: 2 Effective Date: 31st March 2005 Issued Date: 25th November 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Gwenfro Status: Effective Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	671	2	330180 351896
5	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewage Disposal Works - Water Company Location: Southsea Rollers Arms - Cso, Tanfyfron Road, Southsea, Wrexham, LI11 5sa Authority: Natural Resources Wales Catchment Area: River Dee Reference: CM0176501 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 30th March 2005 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Gwenfro Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	682	2	330200 351900
6	Discharge Consents Operator: Miss Sheryl Rawstron Property Type: Domestic Property (Multiple) Location: Vron Farm, Llewelyn Road, Tan Y Fron, Wrexham, Wales, LI11 5tw Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Cg0419401 Permit Version: 1 Effective Date: 2nd April 2004 Issued Date: 2nd April 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Gwenfro Via Seasoanl Soakaway Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	680	2	329355 351804

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	Discharge Consents Operator: Brymbo Developments Ltd Property Type: Iron & Steel Industries Location: Former Brymbo Steelworks Site Brymb, Brymbo, Wrexham, Wales Authority: Natural Resources Wales Catchment Area: River Dee Reference: Cm0100901 Permit Version: 1 Effective Date: 1st January 1973 Issued Date: 21st July 1972 Revocation Date: 29th September 1985 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: Un-Named Stream Lead To River Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	804	2	330250 351780
8	Discharge Consents Operator: Clay Colliery Co Ltd Property Type: Coal Extraction, Surface Location: Opencast Workings The Fron Tan Y F, Tan Y Fron Coadpath Wrexham Authority: Natural Resources Wales Catchment Area: River Dee Reference: Cg0324001 Permit Version: 2 Effective Date: 10th February 1993 Issued Date: 10th February 1993 Revocation Date: 11th October 1993 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Unnamed Trib Of Afon Gwenfro Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	878	2	328950 351900
8	Discharge Consents Operator: Clay Colliery Co Ltd Property Type: Coal Extraction, Surface Location: Opencast Workings The Fron Tan Y F, Tan Y Fron Coadpath Wrexham Authority: Natural Resources Wales Catchment Area: River Dee Reference: Cg0324001 Permit Version: 1 Effective Date: 22nd January 1992 Issued Date: 22nd January 1992 Revocation Date: 9th February 1993 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Unnamed Trib Of Afon Gwenfro Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	878	2	328950 351900
9	Discharge Consents Operator: Manweb Plc Property Type: SUB-STATION/ELECTRICITY/GAS/AIR CONDITIONING SUPPLY Location: Brymbo Penrhos Sub-Station Authority: Natural Resources Wales Catchment Area: GWENFRO Reference: CM0004301 Permit Version: 1 Effective Date: 6th November 1967 Issued Date: 6th November 1967 Revocation Date: Not Supplied Discharge Type: Not Supplied Discharge: Freshwater Stream/River Environment: Receiving Water: Un-Named Trib.Of Gwenfro Status: Effective Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	934	2	329000 353200
10	Local Authority Pollution Prevention and Controls Name: Brymbo Developments Ltd Location: Former Brymbo Steelworks Site, Brymbo, WREXHAM, Clwyd, LL11 5BT Authority: Wrexham County Borough Council, Environmental Health Department Permit Reference: Wcbc/Pg3/1(7)V1 Dated: 19th September 2002 Process Type: Local Authority Air Pollution Control Description: Part B - General Mineral Process (No Specific Reference) Status: Authorised Positional Accuracy: Manually positioned to the address or location	A18SW (N)	385	3	329678 353027

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	Local Authority Pollution Prevention and Controls Name: K Jones Mot Centre Location: Unit 8 Two Mile Industrial, Quarry Road, Brynteg, Wrexham, LL11 6ab Authority: Wrexham County Borough Council, Environmental Health Department Permit Reference: WCBC/PG1/1/KJM Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input Status: Permitted Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	755	3	330528 352961
12	Local Authority Pollution Prevention and Controls Name: Clay Colliery Ltd Location: The Smelt, Brymbo, WREXHAM, Clwyd, LL13 Authority: Wrexham County Borough Council, Environmental Health Department Permit Reference: WMBC/HJB/02/046 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes Status: Authorisation revoked Positional Accuracy: Manually positioned to the address or location	A23SW (N)	964	3	329497 353578
	Nearest Surface Water Feature	A13SW (S)	189	-	329702 352194
13	Pollution Incidents to Controlled Waters Property Type: Council Premises Location: Location Description Not Available Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Blocked Sewer Incident Date: 26th May 1992 Incident Reference: 4379 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	294	4	329800 352100
14	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: Location Description Not Available Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: Weather Incident Date: 25th May 1995 Incident Reference: 24167 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	336	4	329900 352100
15	Pollution Incidents to Controlled Waters Property Type: Waste Handling Facilities Location: Turning Up Stream Of, Southsea Church, TANYFRON Authority: Environment Agency, Welsh Region Pollutant: Farm Land Run-Off Note: Deliberate Act Incident Date: 16th May 1996 Incident Reference: 28413 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	436	4	330001 352051
15	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Near Tanyfron Turning, Upstream Of Gwyn Hotel Authority: Environment Agency, Welsh Region Pollutant: Farm Land Run-Off Note: Deliberate Act Incident Date: 16th May 1996 Incident Reference: 28413 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	440	4	330001 352046

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	Pollution Incidents to Controlled Waters Property Type: Not Given Location: 22 Pleasant View, Pentre Broughton, WREXHAM Authority: Environment Agency, Welsh Region Pollutant: Oils - Petrol Note: River Gwenfro; Direct Introduction Incident Date: 26th October 1997 Incident Reference: 33935 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	475	4	330001 352001
16	Pollution Incidents to Controlled Waters Property Type: Council Premises Location: Rollers Arms, SOUTHSEA Authority: Environment Agency, Welsh Region Pollutant: Oils - Other Oil Note: Accidental Spillage/Leakage Incident Date: 16th August 1991 Incident Reference: 3128 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	686	4	330200 351895
17	Pollution Incidents to Controlled Waters Property Type: Not Given Location: 6 Penybryn, Hill Street, Pentre Broughton, WREXHAM Authority: Environment Agency, Welsh Region Pollutant: Farm Effluent/Slurry Note: River Gwenfro; Overflow Incident Date: 13th October 1997 Incident Reference: 34062 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Inadequate Design/Capacity Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	744	4	330300 353250
18	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Pool Road, Brown Heath Farm, WREXHAM Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: Natural Causes Incident Date: 31st May 1996 Incident Reference: 28617 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	896	4	329300 353400
19	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Penrhyncoch, BROUGHTON Authority: Environment Agency, Welsh Region Pollutant: Farm Effluent/Slurry Note: Vandalism Incident Date: 25th October 1996 Incident Reference: 30284 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A20SW (E)	946	4	330750 352900
	River Quality Name: Gwenfro GQA Grade: River Quality B Reach: Hospital - Conf. Trib. Nr. South Sea Estimated Distance (km): 3.2 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A9SW (SE)	749	4	330226 351833

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	River Quality Biology Sampling Points Name: Gwenfro Reach: Hospital To Confluence Tributary Near South Sea Estimated Distance: 3.20 Positional Accuracy: Located by supplier to within 100m Year: 1990 GQA Grade: River Quality Biology GQA Grade D - Fair Year: 1995 GQA Grade: River Quality Biology GQA Grade D - Fair Year: 2000 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2002 GQA Grade: River Quality Biology GQA Grade Not Supplied Year: 2003 GQA Grade: River Quality Biology GQA Grade Not Supplied Year: 2004 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2005 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2006 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2007 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2008 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2009 GQA Grade: River Quality Biology GQA Grade C - Fairly Good	A9SW (SE)	756	4	330200 351800
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 16 West Cheshire Scale: 1:100,000	A13NE (SW)	0	4	329737 352531
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NE (SW)	0	1	329737 352531
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
21	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 109.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A13SW (S)	189	5	329702 352194
22	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 121.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A8NE (S)	243	5	329801 352154

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 159.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A14NW (NE)	260	5	330097 352692
24	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 2	A14NW (NE)	261	5	330095 352692
25	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 35.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A14NW (E)	262	5	330103 352657
26	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 30.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A14NW (E)	265	5	330109 352631
27	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A14NW (E)	265	5	330104 352654
28	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A13NE (NE)	280	5	330052 352844
29	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 54.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A13NE (NE)	282	5	330049 352851
30	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1027.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A8NE (S)	346	5	329891 352072
31	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 352.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A8NE (S)	355	5	329891 352072

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
32	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 41.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A8NE (S)	407	5	329794 351983
33	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 80.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A14SW (SE)	431	5	330159 352311
34	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 154.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A14SW (SE)	498	5	330180 352197
35	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 20.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A9NW (SE)	646	5	330161 351913
36	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 11.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A9NW (SE)	666	5	330174 351897
37	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 174.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A9NW (SE)	678	5	330184 351890
38	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 585.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A12SW (W)	739	5	328927 352210
39	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 78.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A17SW (NW)	756	5	328982 352907
40	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A17SW (NW)	788	5	328997 352983

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
41	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 131.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A17SW (NW)	790	5	328997 352987
42	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 56.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A12SW (W)	831	5	328782 352453
43	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 230.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A8SW (S)	842	5	329610 351547
44	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 630.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A9SW (SE)	851	5	330284 351748
45	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 55.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A12SW (W)	885	5	328728 352464
46	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 110.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A7SE (SW)	889	5	329111 351726
47	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 162.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A3NW (S)	897	5	329573 351496
48	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 120.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A3NW (S)	905	5	329580 351488
49	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 102.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A3NW (S)	919	5	329413 351514

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
50	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 13.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A3NW (S)	919	5	329426 351510
51	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A11SE (W)	935	5	328678 352469
52	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 557.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A3NW (S)	935	5	329711 351447
53	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A11SE (W)	937	5	328676 352468
54	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A3NW (S)	960	5	329522 351442
55	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 85.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A3NW (S)	961	5	329518 351442
56	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 4.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A2NE (S)	969	5	329312 351501
57	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 73.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A2NE (SW)	971	5	329308 351501
58	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 259.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Dee Primacy: 1	A7SW (SW)	983	5	329015 351682

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
59	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 229.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Gwenfro Catchment Name: Dee Primacy: 1	A7SW (SW)	983	5	329015 351682

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
60	Historical Landfill Sites Licence Holder: Brymbo Steel Works Ltd Location: Brymbo, Lodge, Wrexham Name: Works Bank Operator Location: Parkhill House, Newport, 133 High Street, Shropshire Boundary Accuracy: As Supplied Provider Reference: EAHLD35604 First Input Date: 30th December 1899 Last Input Date: Not Supplied Specified Waste: Deposited Waste included Industrial Waste Type: EA Waste Ref: 37002 Regis Ref: WU1/L/BRI001 WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: Not Supplied	A13NE (SW)	0	2	329737 352531
61	Historical Landfill Sites Licence Holder: Mr P Dempsey Location: Peniel, Wrexham, Fron Name: Peniel House Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14781 First Input Date: 31st December 1980 Last Input Date: 28th February 1982 Specified Waste: Deposited Waste included Inert Waste Type: EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6955/0067 BGS Ref: Not Supplied Other Ref: WMBC L/27	A7NE (SW)	500	2	329224 352165
62	Historical Landfill Sites Licence Holder: Not Supplied Location: Brymbo Name: Bryn Malley Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14244 First Input Date: 31st December 1890 Last Input Date: 31st December 1920 Specified Waste: Deposited Waste included Inert Waste Type: EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6955/0014 BGS Ref: Not Supplied Other Ref: Not Supplied	A19NW (NE)	896	2	330184 353496
63	Historical Landfill Sites Licence Holder: Brymbo Steel Works Limited Location: Wrexham, Brymbo Name: Brymbo Steelworks Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14760 First Input Date: 31st December 1940 Last Input Date: 31st December 1985 Specified Waste: Deposited Waste included Industrial and Special Waste, and Liquid Sludge Type: EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6955/0061 BGS Ref: Not Supplied Other Ref: WMBC L/11	A17NE (NW)	948	2	329074 353278
64	Licensed Waste Management Facilities (Landfill Boundaries) Name: Works Bank Licence Number: 37002 Location: Brymbo Steel Works, Lodge, Brymbo, Wrexham, LL11 5BT Licence Holder: Brymbo Steel Works Limited Authority: Natural Resources Wales Site Category: Industrial Waste Landfills Max Input Rate: Not Supplied Licence Status: Inactive Issued: 19th July 1977 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A13NE (SW)	0	2	329737 352531

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
65	Licensed Waste Management Facilities (Locations) Licence Number: 37002 Location: Brymbo Steel Works, Lodge, Brymbo, Wrexham, LL11 5BT Operator Name: Brymbo Steel Works Ltd Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Industrial Waste Landfills Licence Status: Surrendered Issued: 19th July 1977 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 19th May 2008 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13SW (W)	8	2	329641 352527
66	Licensed Waste Management Facilities (Locations) Licence Number: LP3794FM Location: Solway Bank Civic Amenity Site, Wrexham, Clwyd, Wrexham, LL11 5NR Operator Name: 3 C Waste Ltd Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Not Supplied Licence Status: Revoked Issued: 1st October 1992 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: 16th January 2015 Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14SW (E)	353	2	330141 352458
66	Licensed Waste Management Facilities (Locations) Licence Number: NP3395EQ Location: Brymbo Household Waste Recycling Centre, Off Solway Road, Wrexham Road, Wrexham, Clwyd, Wrexham, LL11 5NR Operator Name: F C C Recycling (U K) Limited Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Not Supplied Licence Status: Effective Issued: 23rd October 2007 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14SW (E)	355	2	330141 352454
66	Licensed Waste Management Facilities (Locations) Licence Number: 100080 Location: Off Solway Road, Wrexham Road, Wrexham, LL11 5NR Operator Name: F C C Recycling (U K) Limited Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Household Waste Amenity Sites Licence Status: Modified Issued: 23rd October 2007 Last Modified: 22nd August 2012 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14SW (E)	355	2	330141 352454
	Local Authority Landfill Coverage Name: Wrexham County Borough Council - Has supplied landfill data		0	6	329737 352531
67	Local Authority Recorded Landfill Sites Location: Bryn Malley, Station Road, Brymbo, Wrexham Reference: 6955/0014 Authority: Wrexham County Borough Council Last Reported Status: Closed Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A19NW (NE)	905	6	330179 353507

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
68	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A13NE (NE)	133	-	329948 352735
69	Potentially Infilled Land (Non-Water) Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A14NW (E)	277	-	330094 352540
70	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A18SE (N)	292	-	329859 352962
71	Potentially Infilled Land (Non-Water) Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A14SW (E)	307	-	330078 352432
72	Potentially Infilled Land (Non-Water) Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A14NW (E)	311	-	330148 352680
73	Potentially Infilled Land (Non-Water) Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A14SW (E)	317	-	330126 352509
74	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19SW (NE)	322	-	330086 352868
75	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A18SE (NE)	340	-	329994 352971
76	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19SW (NE)	390	-	330080 352972
77	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19SW (NE)	439	-	330162 352960
78	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A18SE (N)	492	-	329804 353163
79	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A18NE (N)	616	-	329900 353284
80	Potentially Infilled Land (Non-Water) Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A8SW (S)	633	-	329440 351811
81	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19NW (NE)	710	-	330088 353334
82	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19SE (NE)	774	-	330563 352922
83	Potentially Infilled Land (Non-Water) Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A12SW (W)	835	-	328784 352388

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
84	Potentially Infilled Land (Non-Water) Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A14NE (E)	843	-	330654 352862
85	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19NW (N)	854	-	330100 353483
86	Potentially Infilled Land (Non-Water) Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A12SW (W)	864	-	328755 352382
87	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19NW (NE)	899	-	330151 353512
88	Potentially Infilled Land (Non-Water) Bearing Ref: NW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A17NE (NW)	902	-	329071 353218
89	Potentially Infilled Land (Non-Water) Bearing Ref: NW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1991	A17SW (NW)	964	-	328863 353098
90	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1938	A13NW (NW)	173	-	329650 352740
91	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1879	A13SW (S)	196	-	329631 352204
92	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1963	A13SW (SW)	223	-	329568 352212
93	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1963	A8NE (S)	265	-	329828 352141
94	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1879	A13SW (SW)	273	-	329442 352255
95	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1879	A12SW (W)	679	-	328940 352396
96	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1938	A14SE (SE)	741	-	330456 352216
97	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1963	A17NE (NW)	857	-	329186 353250
98	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1879	A7SE (SW)	902	-	329268 351598

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	Registered Landfill Sites Licence Holder: Brymbo Steel Works Ltd Licence Reference: NOW-525-L (L11) Site Location: Works Bank Lodge, Brymbo, Wrexham, Clwyd Licence Easting: 329800 Licence Northing: 353050 Operator Location: As Site Address Authority: Environment Agency Wales, North Area Site Category: Landfill Max Input Rate: Undefined Waste Source: Waste produced/controlled by licence holder Restrictions: Status: Licence has completion certificateSurrendered Dated: 19th July 1977 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: General Factory Waste(Inc. Sweepings) Pelletised Arc Furnace Fume Dust Waste Ex Blast Furnace Process	A18SE (N)	379	4	329800 353050
99	Registered Landfill Sites Licence Holder: Brymbo Steel Works Ltd Licence Reference: NOW-525-L (L11) Site Location: Wonder Bank, Brymbo, Wrexham, Clwyd Licence Easting: 329800 Licence Northing: 353050 Operator Location: As Site Address Authority: Environment Agency Wales, North Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source: Waste produced/controlled by licence holder Restrictions: Status: Licence has completion certificateSurrendered Dated: 19th July 1977 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Thickened Gas Washing Slurry	A18SE (N)	379	4	329800 353050
100	Registered Landfill Sites Licence Holder: Peter Dempsey Licence Reference: L27 Site Location: Peniel House, Fron, Tanyfron, Wrexham, Clwyd Licence Easting: 329150 Licence Northing: 352130 Operator Location: As Site Address Authority: Environment Agency Wales, North Area Site Category: Landfill Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st February 1980 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Brick Rubble Topsoil	A7NE (SW)	580	4	329150 352130

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
101	Registered Waste Transfer Sites Licence Holder: Sita Wastecare Ltd Licence Reference: NOW-505-L (L71) Site Location: Brymbo-Solvay Bank C.A.Site, Brynteg, Clwyd Operator Location: The Pickeridge, Stoke Common Road, FULMER, Buckinghamshire, SL3 6HA Authority: Environment Agency Wales, North Area Site Category: Civic Amenity Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Operational as far as is knownOperational Dated: 1st October 1992 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste Household & Commercial Waste Max.Waste Permitted By Licence Waste Lub'N Oil From Petrol/Diesel Eng Prohibited Waste Agricultural Wastes Ammonia Animal Carcasses, Offal Cadmium Compounds Carcinogenic/Mutagenic/Teratogenic Sub Clinical - As In Control.Waste Regs'92 Cyanide Compounds Drummed Waste Fluorine Compounds Industrial Wastes Likely Danger Arise Combust'N/Fume/Gas Liquid Waste N.O.S. List I Substances In Eec Dir. 80/68 Mercury Compounds Nitrate Compounds Organohalogens Organometallic Cpds Organophosphorus Cmpds Organosilicon Cpds Organosulphur Cmpds Pcbs/Pcts/Naphthalenes Percussive/Explosive/Similar Waste Poisonous, Noxious, Polluting Wastes Pressurised/Liquified Gas Spec.Waste (Epa'90:S62/1996 Regs)N.O.S Special Forms Of Asbestos Sub'S Control. Radioactive Subs Act'60 Sub'S Deleterious To Groundwater Sub'S In E.P(Prosc.Proc/Subs) Regs '91 Sulphide Compounds Waste N.O.S. Waste With Viable Pathogenic Organisms	A14SW (E)	395	4	330170 352420

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pennine Middle Coal Measures Formation And South Wales Middle Coal Measures Formation (Undifferentiated)	A13NE (SW)	0	1	329737 352531
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: 100 - 200 mg/kg Nickel <15 mg/kg Concentration:	A13NE (SW)	0	1	329737 352531
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: 100 - 200 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NE (NE)	60	1	329921 352624
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: 100 - 200 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NW (E)	301	1	330150 352655
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: 100 - 200 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SE (N)	328	1	329737 353000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: 100 - 200 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (NW)	431	1	329541 353000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil and Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: 100 - 200 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (W)	511	1	329115 352370

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
102	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198560 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Crank Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	131	1	329945 352737
103	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198557 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Crank Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	251	1	330034 352819
104	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198558 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14NW (E)	261	1	330075 352535
105	BGS Recorded Mineral Sites Site Name: The Lodge Pit Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198566 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SE (N)	296	1	329866 352966
106	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198559 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14SW (E)	305	1	330078 352436
107	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 138263 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14NW (E)	309	1	330143 352698

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
108	BGS Recorded Mineral Sites Site Name: Vron Colliery Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198574 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12SE (W)	311	1	329302 352497
108	BGS Recorded Mineral Sites Site Name: Vron Colliery Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198575 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12SE (W)	320	1	329293 352505
109	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198562 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Crank Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SE (NE)	313	1	329989 352942
110	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198561 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Crank Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	328	1	330089 352875
111	BGS Recorded Mineral Sites Site Name: Vron Colliery, No. 1 Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198568 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	376	1	329370 352180
112	BGS Recorded Mineral Sites Site Name: The Lodge Pit Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198565 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	391	1	330083 352971

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
113	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198563 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14SW (E)	410	1	330231 352527
114	BGS Recorded Mineral Sites Site Name: Cefn Pit Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198564 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	434	1	330158 352958
115	BGS Recorded Mineral Sites Site Name: Vron Colliery, No 8 Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 184978 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	463	1	329430 352015
116	BGS Recorded Mineral Sites Site Name: Vron Tip Occs Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 4791 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Surface Mined Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	468	1	329320 352100
117	BGS Recorded Mineral Sites Site Name: Vron Colliery No. 3 Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198570 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	486	1	329247 352156
117	BGS Recorded Mineral Sites Site Name: Vron Colliery No. 2 Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198569 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	492	1	329252 352140

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
118	BGS Recorded Mineral Sites Site Name: Lodge Drift Mine Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 4740 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	505	1	330100 353100
119	BGS Recorded Mineral Sites Site Name: Plas Power Colliery, No. 2 Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198567 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (S)	514	1	329980 351941
119	BGS Recorded Mineral Sites Site Name: Plas Power Colliery, No 1 Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 14095 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	534	1	330008 351934
120	BGS Recorded Mineral Sites Site Name: Plas Power Colliery Tip Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 14096 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Coal - Surface Mined Positional Accuracy: Located by supplier to within 10m	A8SE (S)	585	1	329880 351820
121	BGS Recorded Mineral Sites Site Name: Vron Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198571 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	593	1	329106 352179
122	BGS Recorded Mineral Sites Site Name: Brymbo Steelworks Occs Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 13210 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Coal - Surface Mined Positional Accuracy: Located by supplier to within 10m	A18NW (N)	605	1	329650 353250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
123	BGS Recorded Mineral Sites Site Name: Cefn Quarry Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198534 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14NE (NE)	688	1	330493 352860
124	BGS Recorded Mineral Sites Site Name: Vron Brick & Coal Works Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198576 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A12SW (W)	696	1	328926 352375
124	BGS Recorded Mineral Sites Site Name: Vron Brick & Coal Works Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198576 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Quaternary Geology: Till, Devensian Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A12SW (W)	696	1	328926 352375
125	BGS Recorded Mineral Sites Site Name: Cross Lane Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198535 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	702	1	330474 352953
126	BGS Recorded Mineral Sites Site Name: Cefn Quarry Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 13010 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14NE (E)	708	1	330530 352800
127	BGS Recorded Mineral Sites Site Name: Pen-Y-Bryn Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 138303 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	713	1	330123 353323

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
128	BGS Recorded Mineral Sites Site Name: Vron Tunnel Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198572 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12SW (W)	714	1	328918 352320
128	BGS Recorded Mineral Sites Site Name: Vron Brick Works Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 138286 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A12SW (W)	726	1	328915 352285
129	BGS Recorded Mineral Sites Site Name: Rockwood Farm Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198551 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14SE (E)	724	1	330517 352395
130	BGS Recorded Mineral Sites Site Name: Cross Lane Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198542 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	753	1	330445 353107
131	BGS Recorded Mineral Sites Site Name: Broughton Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198556 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Main Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	757	1	330450 352163
132	BGS Recorded Mineral Sites Site Name: Quarry Road Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198536 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	774	1	330565 352916

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
133	BGS Recorded Mineral Sites Site Name: High Street Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198541 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	809	1	330443 353201
134	BGS Recorded Mineral Sites Site Name: Brynteg Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 15645 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14NE (E)	848	1	330677 352775
135	BGS Recorded Mineral Sites Site Name: Vron Colliery, No 6 Shaft Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198573 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Powell Coal (North Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12SW (W)	856	1	328762 352393
136	BGS Recorded Mineral Sites Site Name: High Street Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198539 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19NE (NE)	879	1	330443 353303
137	BGS Recorded Mineral Sites Site Name: Black Lane Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 138262 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A24SW (N)	947	1	330160 353560
138	BGS Recorded Mineral Sites Site Name: Brymbo Colliery Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 14112 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	959	1	329330 353495

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
139	BGS Recorded Mineral Sites Site Name: Gwalia Road Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 198540 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Cefn Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19NE (NE)	963	1	330437 353421
140	BGS Recorded Mineral Sites Site Name: Pinfold Location: Not Supplied Source: British Geological Survey, National Geoscience Information Service Reference: 138264 Type: Underground Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	995	1	328833 353110
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13NE (SW)	0	7	329737 352531
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13NE (SW)	0	-	329737 352531
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	60	1	329921 352624
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	161	1	330000 352531
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	161	1	330000 352531
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A14NW (E)	243	1	330094 352647
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	329635 352462
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	82	1	329921 352624
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	161	1	330000 352531
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	210	1	330000 352494

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A14NW (E)	243	1	330094 352647
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	161	1	330000 352531
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	161	1	330000 352531
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	329635 352462
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	102	1	329658 352294
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	161	1	330000 352531
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A14NW (E)	243	1	330094 352647
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	13	1	329872 352576
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	102	1	329658 352294
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	161	1	330000 352531
	Radon Potential - Radon Affected Areas Affected Area: The property is an Intermediate probability radon area (3 to 5% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531
	Radon Potential - Radon Protection Measures Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NE (SW)	0	1	329737 352531

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
141	Contemporary Trade Directory Entries Name: Daves Land Rovers Location: 3, Bryn Gwenfro, Tanyfron, Wrexham, Clwyd, LL11 5SW Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (SW)	42	-	329589 352443
142	Contemporary Trade Directory Entries Name: The Leather Medics Location: 16, Park Road, Tanyfron, Wrexham, Clwyd, LL11 5SG Classification: Leather Goods - Cleaning Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (S)	171	-	329617 352241
143	Contemporary Trade Directory Entries Name: W R G Location: Orchard Cottage, Lodge, Wrexham, Clwyd, LL11 5NR Classification: Recycling Centres Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (E)	266	-	330102 352606
144	Contemporary Trade Directory Entries Name: Marks Motors Location: Cambrian House, Broughton Road, Lodge, Wrexham, LL11 5NG Classification: Mot Testing Centres Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	298	-	329972 352935
144	Contemporary Trade Directory Entries Name: Williams Garage Location: Cambrian House, Broughton Road, Lodge, Wrexham, LL11 5NG Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	298	-	329972 352935
145	Contemporary Trade Directory Entries Name: K C Graphics & Printers Location: The Croft, Broughton Road, Lodge, WREXHAM, Clwyd, LL11 5NG Classification: Printers Status: Active Positional Accuracy: Automatically positioned to the address	A14NW (E)	374	-	330212 352641
146	Contemporary Trade Directory Entries Name: Aquaflow Plumbing Location: 29, Lamberton Drive, Brymbo, Wrexham, Clwyd, LL11 5FN Classification: Gas Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NW (NW)	386	-	329391 352813
147	Contemporary Trade Directory Entries Name: All Italia Location: Paxton Garage, Llewelyn Road, Vron, Tanyfron, Wrexham, LL11 5TL Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A12SE (SW)	462	-	329195 352290
148	Contemporary Trade Directory Entries Name: Crystal Cleaning Location: 5, Golau Fryn, Tanyfron, Wrexham, Clwyd, LL11 5TU Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NE (SW)	558	-	329178 352128
149	Contemporary Trade Directory Entries Name: Triplan Location: Glanrafon, Southsea, Southsea, Wrexham, Clwyd, LL11 5NS Classification: Kitchen Furniture Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	566	-	330123 351987
150	Contemporary Trade Directory Entries Name: Derek Jones Cars Location: 3, Temperance Road, Southsea, Wrexham, Clwyd, LL11 5NT Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A9NW (SE)	629	-	330111 351891
150	Contemporary Trade Directory Entries Name: Derek Jones Location: 3, Temperance Road, Southsea, Wrexham, Clwyd, LL11 5NT Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	629	-	330111 351891

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
151	Contemporary Trade Directory Entries Name: Ideal Motors Location: 1, Broughton Road, Lodge, Wrexham, LL11 5NF Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A14SW (E)	661	-	330393 352270
152	Contemporary Trade Directory Entries Name: Star Press Location: 32, High Street, Coedpoeth, Wrexham, Clwyd, LL11 3SB Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	698	-	330189 351868
153	Contemporary Trade Directory Entries Name: Paragon Trade Pvcu Location: Shamba, Llewelyn Road, Vron, Tanyfron, Wrexham, Clwyd, LL11 5TL Classification: Fascias and Soffits Status: Inactive Positional Accuracy: Automatically positioned to the address	A12SW (W)	749	-	328878 352339
154	Contemporary Trade Directory Entries Name: Greelight Triumph Ltd Location: Unit 7, Two Mile Ind Est, Quarry Rd, Brynteg, Wrexham, Clwyd, LL11 6AB Classification: Classic Car Specialists Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A19SE (NE)	754	-	330518 352983
154	Contemporary Trade Directory Entries Name: M A F Engineering Location: Unit 7 Two Mile Indust Est, Quarry Rd, Brynteg, Wrexham, Clwyd, LL11 6AB Classification: Mechanical Engineers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	772	-	330549 352954
154	Contemporary Trade Directory Entries Name: K Jones Location: Unit 8 Two Mile Ind Est Quarry rd, Brynteg, Wrexham, Clwyd, LL11 6AB Classification: Mot Testing Centres Status: Active Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	772	-	330550 352954
154	Contemporary Trade Directory Entries Name: Slc Care Ltd Location: Unit 7, Two Mile Ind Est, Quarry Road, Wrexham, Clwyd, LL11 6AB Classification: Medical Equipment Maintenance & Repairs Status: Inactive Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	772	-	330550 352954
154	Contemporary Trade Directory Entries Name: 2 Mile Tyres Location: Unit 7, Two Mile Industrial Estate, Quarry Road, Wrexham, LL11 6AB Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A19SE (NE)	774	-	330558 352938
154	Contemporary Trade Directory Entries Name: E W E Ltd Location: Unit 21, Two Mile Industrial Estate, Quarry Road, Brynteg, Wrexham, LL11 6AB Classification: Fork Lift Trucks Status: Active Positional Accuracy: Automatically positioned to the address	A19SE (NE)	787	-	330546 353000
155	Contemporary Trade Directory Entries Name: Brian Hayes Auto Electrical Location: Unit 14, Two Mile Industrial Estate, Quarry Road, Brynteg, Wrexham, LL11 6AB Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A19SE (NE)	762	-	330513 353011
156	Contemporary Trade Directory Entries Name: A C Domestic Services Location: Bod Awel, High Street, Pentre Broughton, Wrexham, LL11 6AG Classification: Cleaning Services - Domestic Status: Active Positional Accuracy: Automatically positioned to the address	A19SE (NE)	799	-	330527 353065

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
157	Contemporary Trade Directory Entries Name: B G S Damp Proofing Location: 1, Church Road, Southsea, Wrexham, Clwyd, LL11 5PG Classification: Damp & Dry Rot Control Status: Inactive Positional Accuracy: Automatically positioned to the address	A9SW (SE)	815	-	330238 351756
157	Contemporary Trade Directory Entries Name: Cureacoat Wallcoatings Location: 1, Church Road, Southsea, Wrexham, Clwyd, LL11 5PG Classification: Wallpapers & Wall Coverings Status: Inactive Positional Accuracy: Automatically positioned to the address	A9SW (SE)	815	-	330238 351756
158	Contemporary Trade Directory Entries Name: Photo Factory Location: 29, Brynteg Crescent, Brynteg, Wrexham, Clwyd, LL11 6NA Classification: Photographic Processors Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	828	-	330638 352433
159	Contemporary Trade Directory Entries Name: Super Gleam Location: Quarry Rd, Brynteg, Wrexham, Clwyd, LL11 6AB Classification: Wheelie Bin Cleaning Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A14NE (E)	829	-	330660 352760
160	Contemporary Trade Directory Entries Name: B & D Electrical Services Location: Unit 9, Quarry Rd, Brynteg, Wrexham, Clwyd, LL11 6AB Classification: Electricity Companies Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A14NE (E)	851	-	330688 352706
161	Contemporary Trade Directory Entries Name: Chipsaway Location: 24, Vale View, Pysgaw Hill, Pentre Broughton, Wrexham, Clwyd, LL11 6DB Classification: Car Body Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SE (NE)	871	-	330624 353033
162	Contemporary Trade Directory Entries Name: Jag Craft Location: 1, Quarry Road, Brynteg, Wrexham, LL11 6PE Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NE (E)	903	-	330735 352537
163	Contemporary Trade Directory Entries Name: Web Oil Location: Bryn Haul, Black Lane Road, Pentre Broughton, Wrexham, LL11 6BB Classification: Central Heating Supplies & Equipment Status: Active Positional Accuracy: Automatically positioned to the address	A19NW (NE)	943	-	330337 353468
163	Contemporary Trade Directory Entries Name: Web Oil Location: Bryn Haul, Black Lane Road, Pentre Broughton, Wrexham, LL11 6BB Classification: Oil Fuel Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A19NW (NE)	943	-	330337 353468
163	Contemporary Trade Directory Entries Name: E Cunnah & Son Ltd Location: Bryn Haul, Black Lane Road, Pentre Broughton, Wrexham, Clwyd, LL11 6BB Classification: Oil Fuel Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A19NW (NE)	944	-	330337 353469
164	Contemporary Trade Directory Entries Name: Quick 'N' Clean Location: 15, Broughton Heights, Pentre Broughton, Wrexham, Clwyd, LL11 6BX Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Automatically positioned to the address	A24SW (N)	957	-	330149 353574
165	Contemporary Trade Directory Entries Name: N R Distribution Location: 26, Darby Road, Brynteg, Wrexham, Clwyd, LL11 6RW Classification: Distribution Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (E)	976	-	330688 352156

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
166	Points of Interest - Commercial Services Name: Daves Land Rovers Location: 3 Bryn Gwenfro, Tanyfron, Wrexham, LL11 5SW Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13SW (SW)	42	8	329589 352443
167	Points of Interest - Commercial Services Name: M G Site Services Ltd Location: 5 College Hill, Tanyfron, Wrexham, LL11 5TF Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A13SE (S)	111	8	329787 352296
168	Points of Interest - Commercial Services Name: Marks Motors Location: Cambrian House, Broughton Road, Lodge, Wrexham, LL11 5NG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SE (NE)	298	8	329972 352935
168	Points of Interest - Commercial Services Name: Williams Garage Location: Cambrian House, Broughton Road, Lodge, Wrexham, LL11 5NG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SE (NE)	298	8	329972 352935
168	Points of Interest - Commercial Services Name: J D Williams Location: Wrexham Road, Lodge, Wrexham, LL11 5NH Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SE (NE)	319	8	330015 352933
169	Points of Interest - Commercial Services Name: W R G Recycling Centres Location: Lodge Road, Lodge, Wrexham, Clwyd, LL11 5NR Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A14SW (E)	384	8	330168 352444
170	Points of Interest - Commercial Services Name: All Italia Location: Paxton Garage Llewelyn Road, Vron, Tanyfron, Wrexham, LL11 5TL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SE (SW)	462	8	329196 352287
170	Points of Interest - Commercial Services Name: All Italia Ltd Location: Paxton House Llewelyn Road, Vron, Tanyfron, Wrexham, LL11 5TL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SE (SW)	497	8	329171 352260
171	Points of Interest - Commercial Services Name: Derek Jones Location: 3 Temperance Road, Southsea, Wrexham, LL11 5NT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A9NW (SE)	629	8	330111 351891
171	Points of Interest - Commercial Services Name: Derek Jones Cars Location: 3 Temperance Road, Southsea, Wrexham, LL11 5NT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A9NW (SE)	629	8	330110 351891
172	Points of Interest - Commercial Services Name: Brian Hayes Auto Electrical Location: Unit 14 Two Mile Industrial Estate, Quarry Road, Brynteg, Wrexham, LL11 6AB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A19SE (NE)	761	8	330513 353010
172	Points of Interest - Commercial Services Name: K Jones Motor Repairs Location: Unit 8 Two Mile Industrial Estate, Quarry Road, Brynteg, Wrexham, LL11 6AB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A19SE (NE)	771	8	330550 352951

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
172	Points of Interest - Commercial Services Name: K Jones Location: Unit 8 Two Mile Industrial Estate, Quarry Road, Brynteg, Wrexham, LL11 6AB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A19SE (NE)	772	8	330549 352954
172	Points of Interest - Commercial Services Name: K Jones Location: Unit 8, Two Mile Ind Est, Quarry Rd, Brynteg, Wrexham, Clwyd, LL11 6AB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A19SE (NE)	772	8	330550 352954
173	Points of Interest - Commercial Services Name: D J Surveying Location: 16 Brynteg Crescent, Brynteg, Wrexham, LL11 6NA Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A14SE (E)	850	8	330651 352397
173	Points of Interest - Commercial Services Name: D J Surveying Location: 16 Brynteg Crescent, Brynteg, Wrexham, LL11 6NA Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A14SE (E)	850	8	330651 352396
174	Points of Interest - Manufacturing and Production Name: Shaft Location: LL11 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to address or location	A8NW (SW)	465	8	329424 352017
175	Points of Interest - Manufacturing and Production Name: Shaft Location: LL11 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to address or location	A7NE (SW)	486	8	329247 352156
175	Points of Interest - Manufacturing and Production Name: Shaft Location: LL11 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to address or location	A7NE (SW)	492	8	329252 352140
176	Points of Interest - Manufacturing and Production Name: Opencast Workings (Coal) Location: LL11 Category: Extractive Industries Class Code: Coal Mining Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	699	8	329052 352062
177	Points of Interest - Manufacturing and Production Name: Quarry (Disused) Location: LL11 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A19SE (NE)	700	8	330502 352870
178	Points of Interest - Manufacturing and Production Name: Two Mile Industrial Estate Location: LL11 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A19SE (NE)	781	8	330548 352980
179	Points of Interest - Manufacturing and Production Name: Mine (Disused) Location: LL11 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A24SW (NE)	944	8	330166 353555
180	Points of Interest - Manufacturing and Production Name: Moss Quarry (Disused) Location: LL11 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to address or location	A19SE (NE)	986	8	330708 353122

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
181	Points of Interest - Public Infrastructure Name: W R G Location: Orchard Cottage, Lodge, Wrexham, LL11 5NR Category: Infrastructure and Facilities Class Code: Recycling Centres Positional Accuracy: Positioned to address or location	A14NW (E)	266	8	330102 352606
182	Points of Interest - Public Infrastructure Name: Civic Amenity Site Location: LL11 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	400	8	330176 352422
183	Points of Interest - Public Infrastructure Name: Filter Bed Location: LL11 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A18SE (N)	467	8	329927 353129
184	Points of Interest - Public Infrastructure Name: Graveyard Location: LL11 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A9SW (SE)	842	8	330254 351733
184	Points of Interest - Public Infrastructure Name: Graveyard Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A9SW (SE)	892	8	330271 351683
185	Points of Interest - Public Infrastructure Name: Burial Ground Location: LL11 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A19NE (NE)	869	8	330515 353208
185	Points of Interest - Public Infrastructure Name: Burial Ground Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A19NE (NE)	874	8	330522 353207
185	Points of Interest - Public Infrastructure Name: Cemetery Location: LL11 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A19NE (NE)	935	8	330573 353241
185	Points of Interest - Public Infrastructure Name: Cemetery Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A19NE (NE)	945	8	330585 353242
186	Points of Interest - Public Infrastructure Name: Refuse Tip (Disused) Location: LL11 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A24SW (NE)	963	8	330218 353554
187	Points of Interest - Recreational and Environmental Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	227	8	329386 352493
188	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SW (SW)	289	8	329391 352293

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
188	Points of Interest - Recreational and Environmental Name: Playground Location: (Cae Merfyn), LL11 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A12SE (SW)	325	8	329351 352289
189	Points of Interest - Recreational and Environmental Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18SE (NE)	303	8	330024 352906
190	Points of Interest - Recreational and Environmental Name: Play Area Location: Forge Road, LL11 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A9NE (SE)	803	8	330472 352103
190	Points of Interest - Recreational and Environmental Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9NE (SE)	820	8	330494 352108

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
191	Ancient Woodland Name: Not Supplied Reference: 49550 Area(m ²): 1235.97 Type: Ancient Woodland Site of Unknown Category	A13NE (N)	142	2	329743 352790
192	Ancient Woodland Name: Not Supplied Reference: 50191 Area(m ²): 2332.39 Type: Ancient Woodland Site of Unknown Category	A13NE (N)	144	2	329765 352802
193	Ancient Woodland Name: Not Supplied Reference: 33427 Area(m ²): 9771.59 Type: Ancient and Semi-Natural Woodland	A8NE (S)	340	2	329883 352086
194	Ancient Woodland Name: Not Supplied Reference: 29999 Area(m ²): 3261.39 Type: Ancient and Semi-Natural Woodland	A19SW (NE)	424	2	330078 353016
195	Ancient Woodland Name: Not Supplied Reference: 33426 Area(m ²): 17080.76 Type: Ancient and Semi-Natural Woodland	A8NW (S)	496	2	329519 351927
196	Ancient Woodland Name: Not Supplied Reference: 50192 Area(m ²): 6221.74 Type: Ancient Woodland Site of Unknown Category	A18NW (N)	627	2	329584 353251
197	Ancient Woodland Name: Not Supplied Reference: 49551 Area(m ²): 1355.11 Type: Ancient Woodland Site of Unknown Category	A18NW (N)	727	2	329529 353336
198	Ancient Woodland Name: Not Supplied Reference: 33428 Area(m ²): 9939.84 Type: Ancient and Semi-Natural Woodland	A7NW (SW)	767	2	328936 352126
199	Ancient Woodland Name: Not Supplied Reference: 33425 Area(m ²): 9843.33 Type: Ancient and Semi-Natural Woodland	A7SE (SW)	811	2	329189 351762
200	Sites of Special Scientific Interest Name: Coedwig Ffossil Brymbo Fossil Forest Multiple Areas: N Total Area (m ²): 5216.84 Source: Natural Resources Wales Reference: 296131wtg Designation Details: Not Supplied Designation Date: Not Supplied Date Type: Not Supplied	A18NW (N)	779	2	329543 353398

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Flintshire Council - Environmental Health Department Wrexham County Borough Council - Public Protection Department Denbighshire County Council - Public Protection Department	April 2014 April 2016 January 2015	Annual Rolling Update Annually Annual Rolling Update
Discharge Consents Natural Resources Wales Environment Agency - Welsh Region	April 2018 August 2014	Quarterly Quarterly
Enforcement and Prohibition Notices Environment Agency - Welsh Region	March 2013	As notified
Integrated Pollution Controls Environment Agency - Welsh Region	October 2008	Variable
Integrated Pollution Prevention And Control Environment Agency - Welsh Region Natural Resources Wales	April 2018 April 2018	Quarterly Quarterly
Local Authority Integrated Pollution Prevention And Control Wrexham County Borough Council - Environmental Health Department Flintshire Council - Environmental Health Department Denbighshire County Council - Environmental Health Department	April 2014 April 2016 March 2013	Variable Variable Variable
Local Authority Pollution Prevention and Controls Wrexham County Borough Council - Environmental Health Department Flintshire Council - Environmental Health Department Denbighshire County Council - Environmental Health Department	April 2014 April 2016 December 2014	Annual Rolling Update Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Wrexham County Borough Council - Environmental Health Department Flintshire Council - Environmental Health Department Denbighshire County Council - Environmental Health Department	April 2014 April 2016 December 2014	Variable Variable Variable
Nearest Surface Water Feature Ordnance Survey	September 2017	
Pollution Incidents to Controlled Waters Environment Agency - Welsh Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	As notified As notified
Prosecutions Relating to Controlled Waters Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	As notified As notified
Registered Radioactive Substances Natural Resources Wales Environment Agency - Welsh Region	January 2015 January 2015	As notified
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register Environment Agency Wales - North Area Natural Resources Wales	April 2018 April 2018	Quarterly Quarterly
Water Abstractions Environment Agency - Welsh Region Natural Resources Wales	April 2018 April 2018	Quarterly Quarterly
Water Industry Act Referrals Natural Resources Wales Environment Agency - Welsh Region	April 2018 October 2017	Quarterly Quarterly

Agency & Hydrological	Version	Update Cycle
Groundwater Vulnerability Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones Natural Resources Wales	November 2016	As notified
Extreme Flooding from Rivers or Sea without Defences Natural Resources Wales	February 2018	Quarterly
Flooding from Rivers or Sea without Defences Natural Resources Wales	February 2018	Quarterly
Areas Benefiting from Flood Defences Natural Resources Wales	February 2018	Quarterly
Flood Water Storage Areas Natural Resources Wales	February 2018	Quarterly
Flood Defences Natural Resources Wales	July 2017	Quarterly
OS Water Network Lines Ordnance Survey	May 2018	Quarterly
Surface Water 1 in 30 year Flood Extent Natural Resources Wales	October 2013	As notified
Surface Water 1 in 100 year Flood Extent Natural Resources Wales	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent Natural Resources Wales	October 2013	As notified
Surface Water Suitability Natural Resources Wales	October 2013	As notified
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Natural Resources Wales	April 2018	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Welsh Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency Wales - North Area Natural Resources Wales	April 2018 January 2018	Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency Wales - North Area Natural Resources Wales	April 2018 April 2018	Quarterly Quarterly
Local Authority Landfill Coverage Denbighshire County Council - Environmental Health Department Flintshire Council - Environmental Health Department Wrexham County Borough Council	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Wrexham County Borough Council Denbighshire County Council - Environmental Health Department Flintshire Council - Environmental Health Department	June 2003 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites Environment Agency Wales - North Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency Wales - North Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency Wales - North Area	March 2003	Not Applicable
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	September 2017	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Variable
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Denbighshire County Council - Planning Department Wrexham County Borough Council - Planning Department Flintshire Council	February 2016 February 2016 January 2016	Variable Variable Variable
Planning Hazardous Substance Consents Denbighshire County Council - Planning Department Wrexham County Borough Council - Planning Department Flintshire Council	February 2016 February 2016 January 2016	Variable Variable Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	May 2018	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	May 2018	Quarterly
Fuel Station Entries Catalist Ltd - Experian	April 2018	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Points of Interest - Commercial Services PointX	June 2018	Quarterly
Points of Interest - Education and Health PointX	June 2018	Quarterly
Points of Interest - Manufacturing and Production PointX	June 2018	Quarterly
Points of Interest - Public Infrastructure PointX	June 2018	Quarterly
Points of Interest - Recreational and Environmental PointX	June 2018	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural Resources Wales	October 2017	Bi-Annually
Areas of Outstanding Natural Beauty Natural Resources Wales	February 2018	Bi-Annually
Environmentally Sensitive Areas The National Assembly for Wales - GI Services (Department of Planning & Countryside)	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Denbighshire County Council Flintshire Council Wrexham County Borough Council	February 2018 February 2018 February 2018	Bi-Annually Bi-Annually Bi-Annually
Marine Nature Reserves Natural Resources Wales	October 2017	Bi-Annually
National Nature Reserves Natural Resources Wales	February 2018	Bi-Annually
National Parks Natural Resources Wales	February 2018	Annually
Nitrate Vulnerable Zones Natural Resources Wales The National Assembly for Wales - GI Services (Department of Planning & Countryside)	July 2017 October 2005	Bi-Annually
Ramsar Sites Natural Resources Wales	February 2018	Bi-Annually
Sites of Special Scientific Interest Natural Resources Wales	February 2018	Bi-Annually
Special Areas of Conservation Natural Resources Wales	February 2018	Bi-Annually
Special Protection Areas Natural Resources Wales	February 2018	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	Natural Resources Wales Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
3	Wrexham County Borough Council - Environmental Health Department Crown Buildings, P O Box 1297, Wrexham, Clwyd, LL13 8ZE	Telephone: 01978 297038 Fax: 01978 292502 Website: www.wrexham.gov.uk
4	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
5	Ordnance Survey Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	Wrexham County Borough Council Lampet Street, Guildhall, Wrexham, Clwyd, LL11 1WL	Telephone: 01978 292000 Fax: 01978 292502 Website: www.wrexham.gov.uk
7	The Coal Authority - Property Searches 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
8	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	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

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Not Supplied - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	GFSDD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	RTDU	River Terrace Deposits (Undifferentiated)	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CF	Cefn Rock	Sandstone	Not Supplied - Westphalian
	PLMC	Pennine Lower Coal Measures Formation and Pennine Middle Coal Measures Formation (Undifferentiated)	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	PLMC	Pennine Lower Coal Measures Formation and Pennine Middle Coal Measures Formation (Undifferentiated)	Sandstone	Not Supplied - Westphalian
	CFS	Cefn-Y-Fedw Sandstone Formation	Sandstone and [Subequal/subordinate] Argillaceous Rocks, Interbedded	Not Supplied - Visean
		Faults		
		Rock Segments		



Geology 1:50,000 Maps

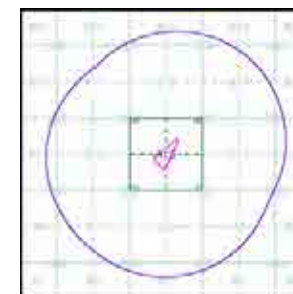
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1
Map Sheet No:	121
Map Name:	Wrexham
Map Date:	1993
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Available
Faults:	Not Supplied
Landslip:	Available
Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

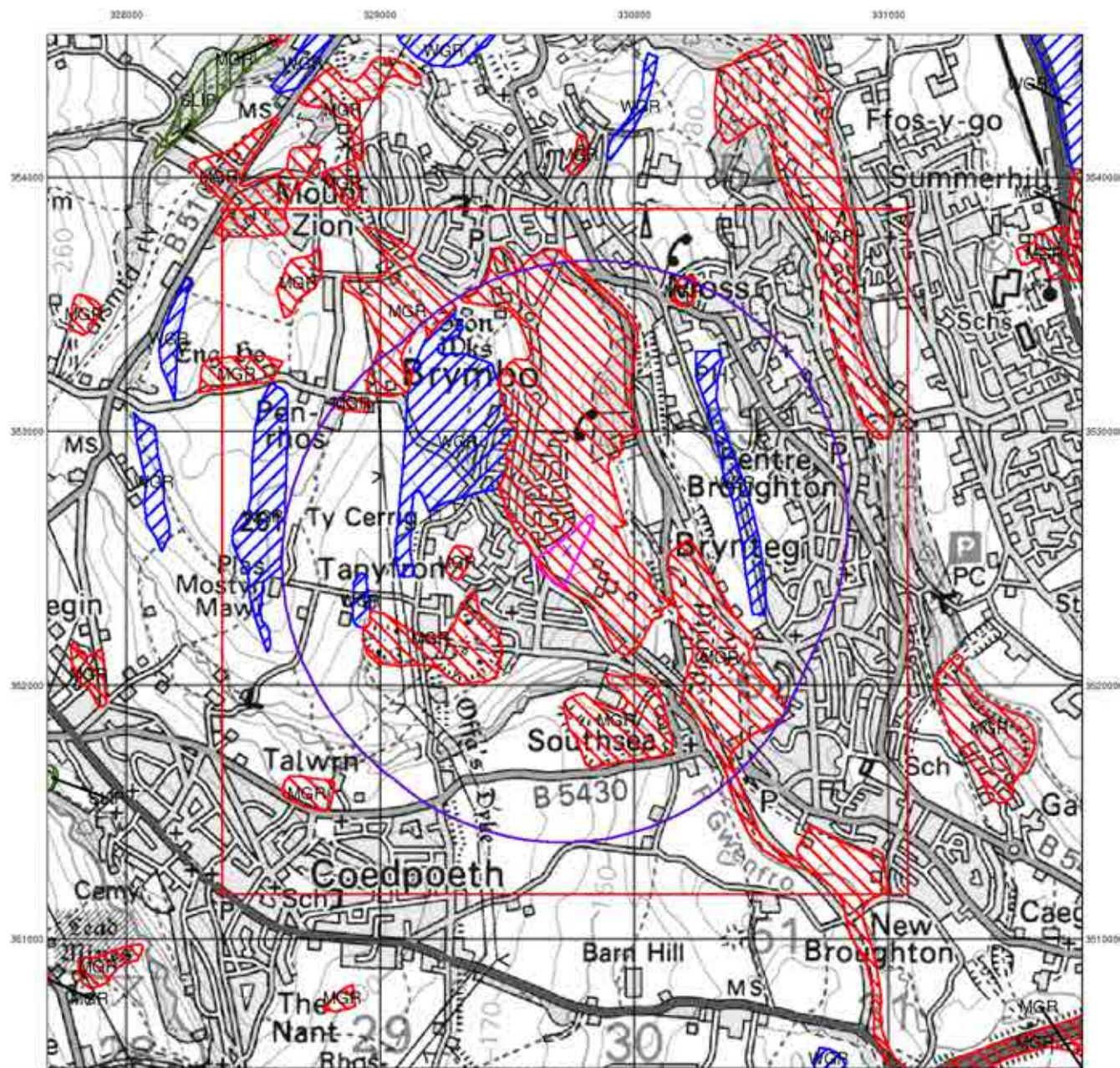
Order Number:	173223486_1_1
Customer Reference:	ST16882
National Grid Reference:	329740, 352530
Slice:	A
Site Area (Ha):	2.5
Search Buffer (m):	1000

Site Details:

Site at 329700, 353500



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Artificial Ground and Landslip

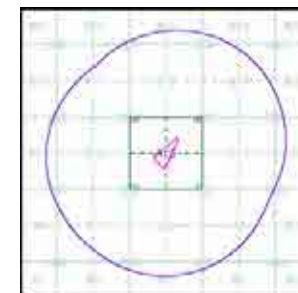
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

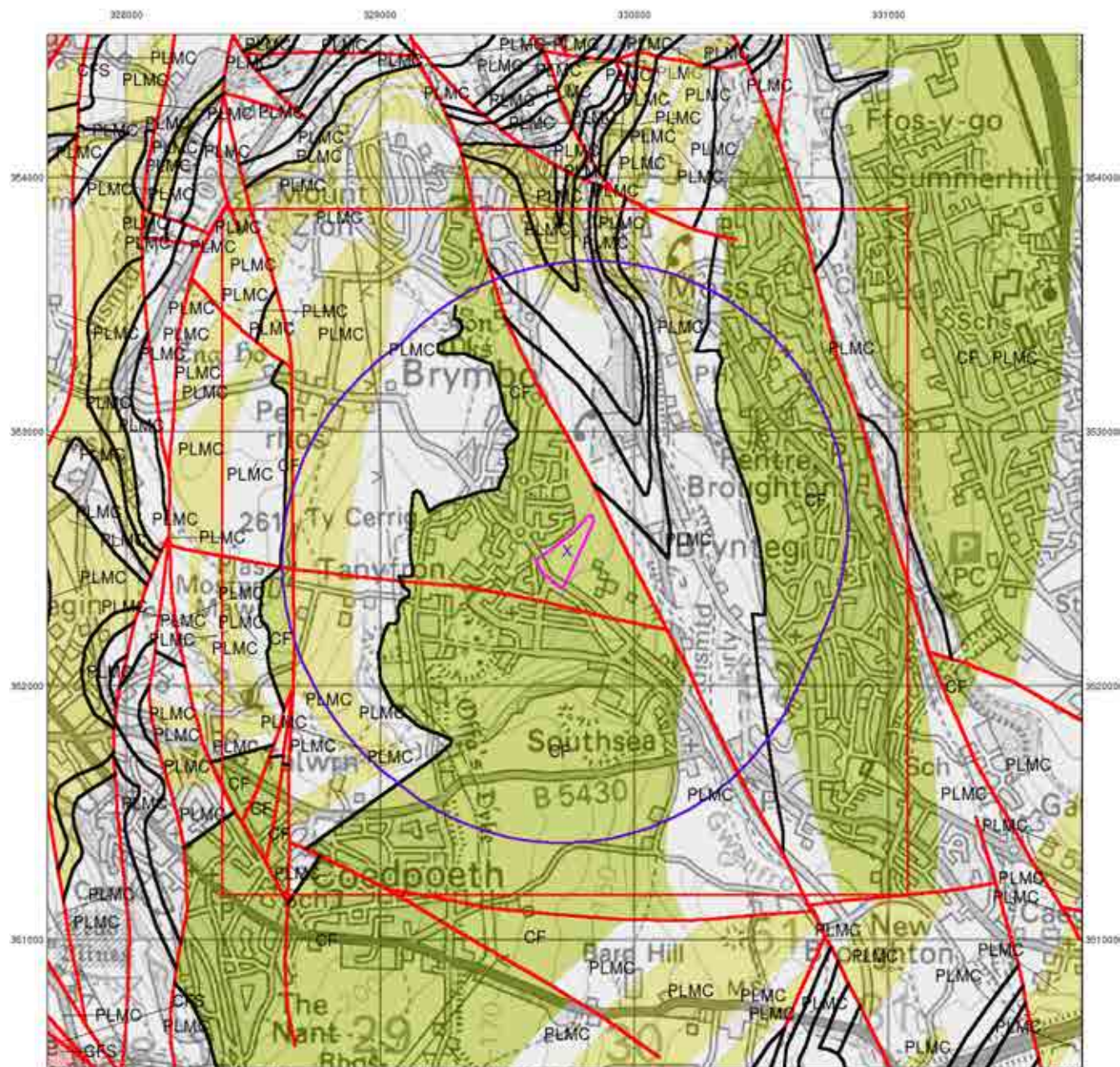
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 Customer Reference: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details:

Site at 329700, 353500

Landmark
 INFORMATION GROUP

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Bedrock and Faults

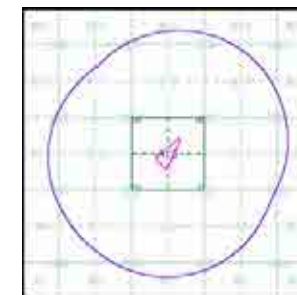
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

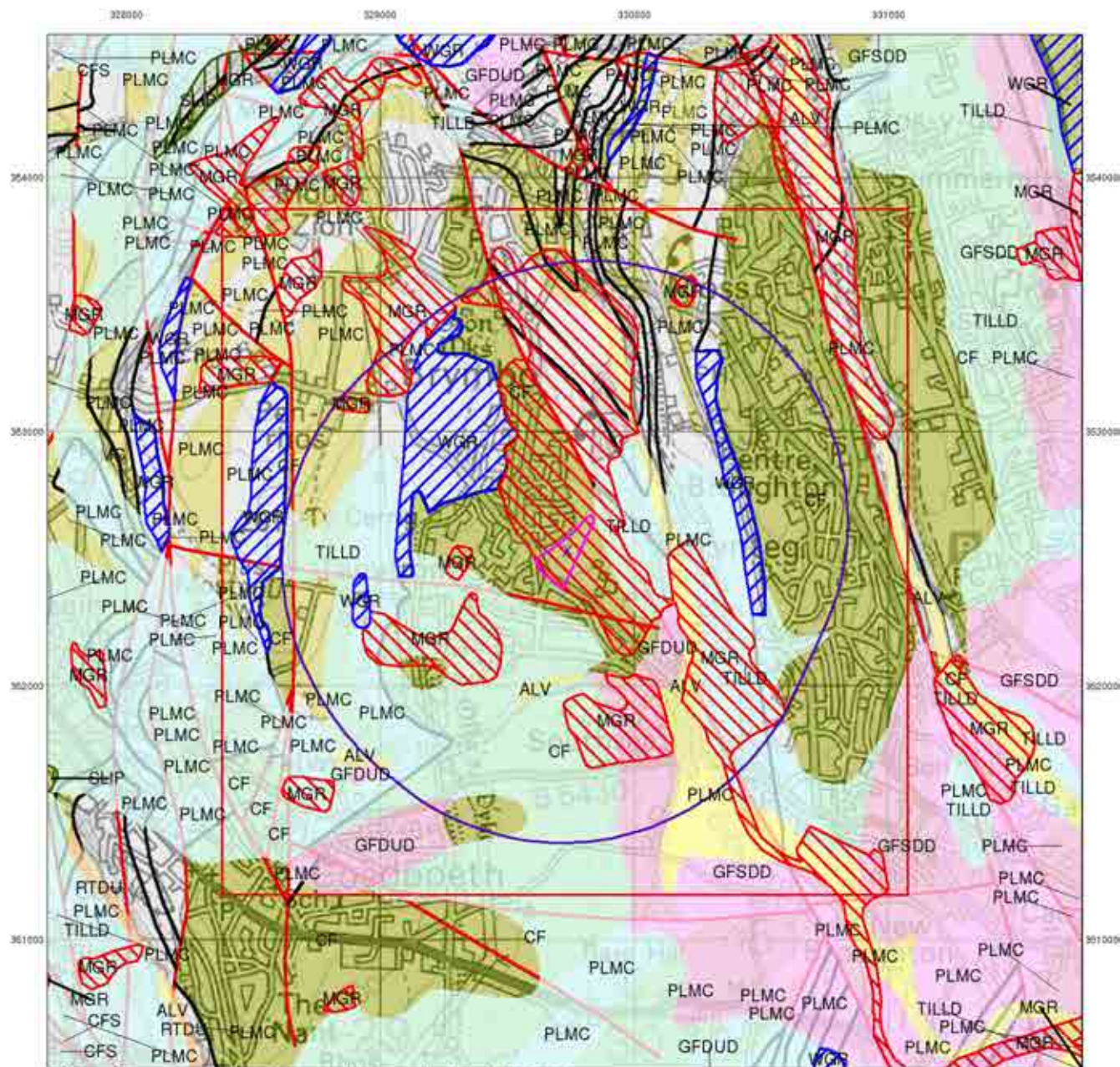
Order Number: 173223486_1_1
 Customer Reference: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

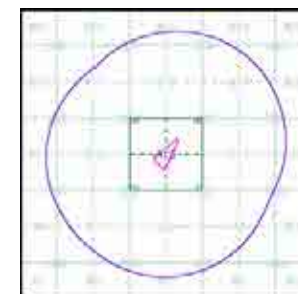
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 173223486_1_1
Customer Reference: ST16882
National Grid Reference: 329740, 352530
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Site Area (Ha): 2.5
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Site Details:

Site at 329700, 353500



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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	•285 Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
			Pole
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		
	Administrative County, County Borough or County of City		
	Municipal Borough, Urban or Rural District, Burgh or District Council		
	Borough, Burgh or County Constituency		
	Civil Parish		
	Shown alternately when coincidence of boundaries occurs		
	BP, BS Boundary Post or Stone		Police Station
	Ch Church		Post Office
	CH Club House		Public Convenience
	F E Sta Fire Engine Station		Public House
	FB Foot Bridge		Signal Box
	Fn Fountain		Spring
	GP Guide Post		Telephone Call Box
	MP Mile Post		Telephone Call Post
	MS Mile Stone		Well

1:10,000 Raster Mapping

	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, parish or community boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice or Osiers
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrows
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building

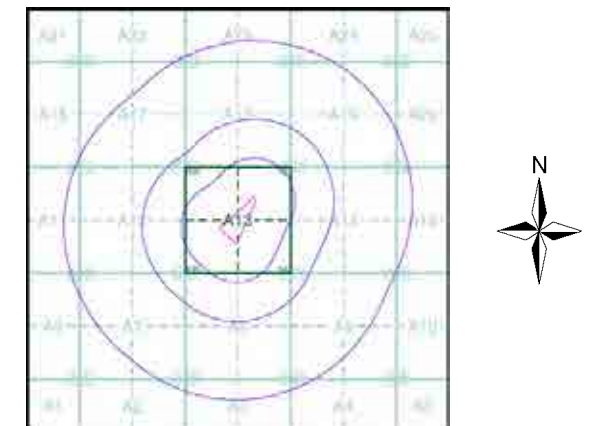


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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Denbighshire	1:10,560	1879	2
Flintshire	1:10,560	1900	3
Denbighshire	1:10,560	1900	4
Denbighshire	1:10,560	1914 - 1915	5
Denbighshire	1:10,560	1938	6
Denbighshire	1:10,560	1938 - 1954	7
Denbighshire	1:10,560	1954	8
Ordnance Survey Plan	1:10,000	1963 - 1964	9
Ordnance Survey Plan	1:10,000	1974 - 1976	10
Ordnance Survey Plan	1:10,000	1981 - 1987	11
Ordnance Survey Plan	1:10,000	1988	12
Ordnance Survey Plan	1:10,000	1990 - 1991	13
Ordnance Survey Plan	1:10,000	1992	14
10K Raster Mapping	1:10,000	2000	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2018	17

Historical Map - Slice A



Order Details

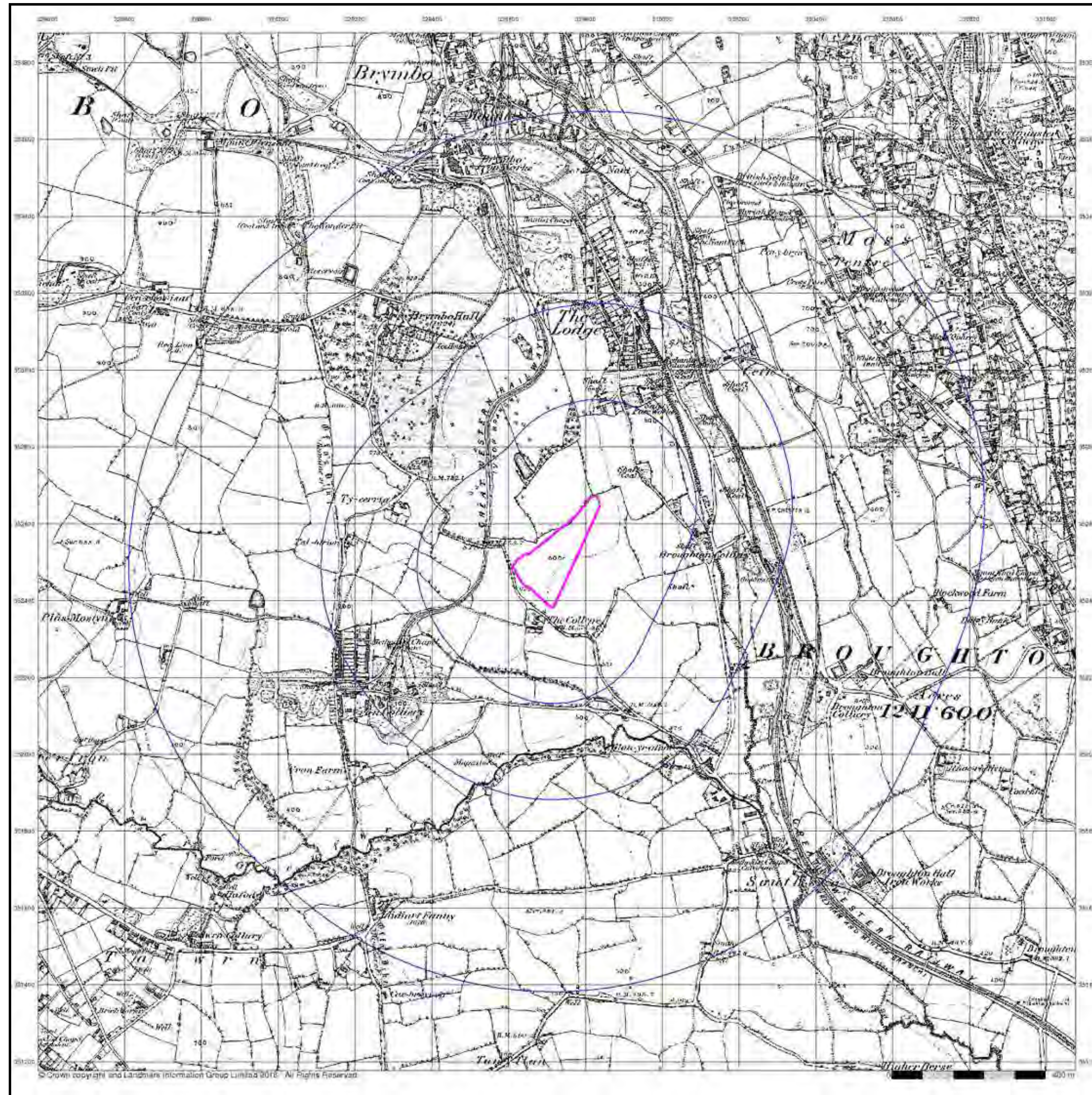
Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



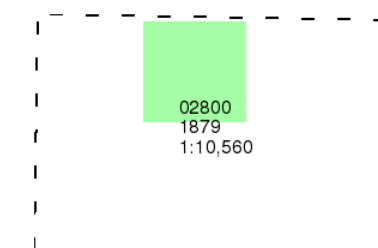
Denbighshire

Published 1879

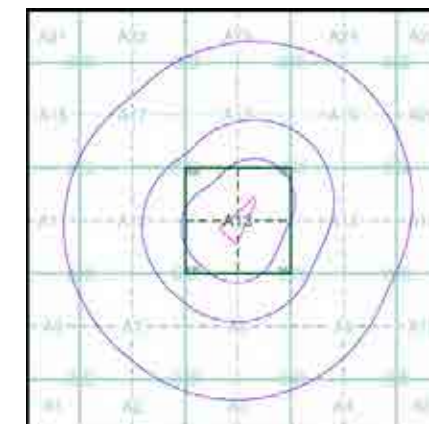
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500

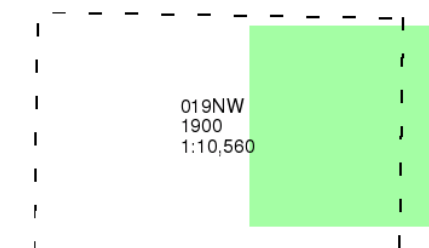
Flintshire

Published 1900

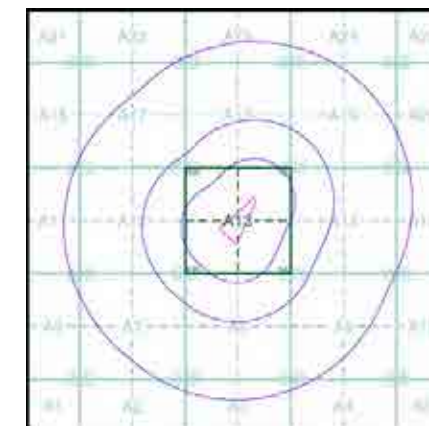
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

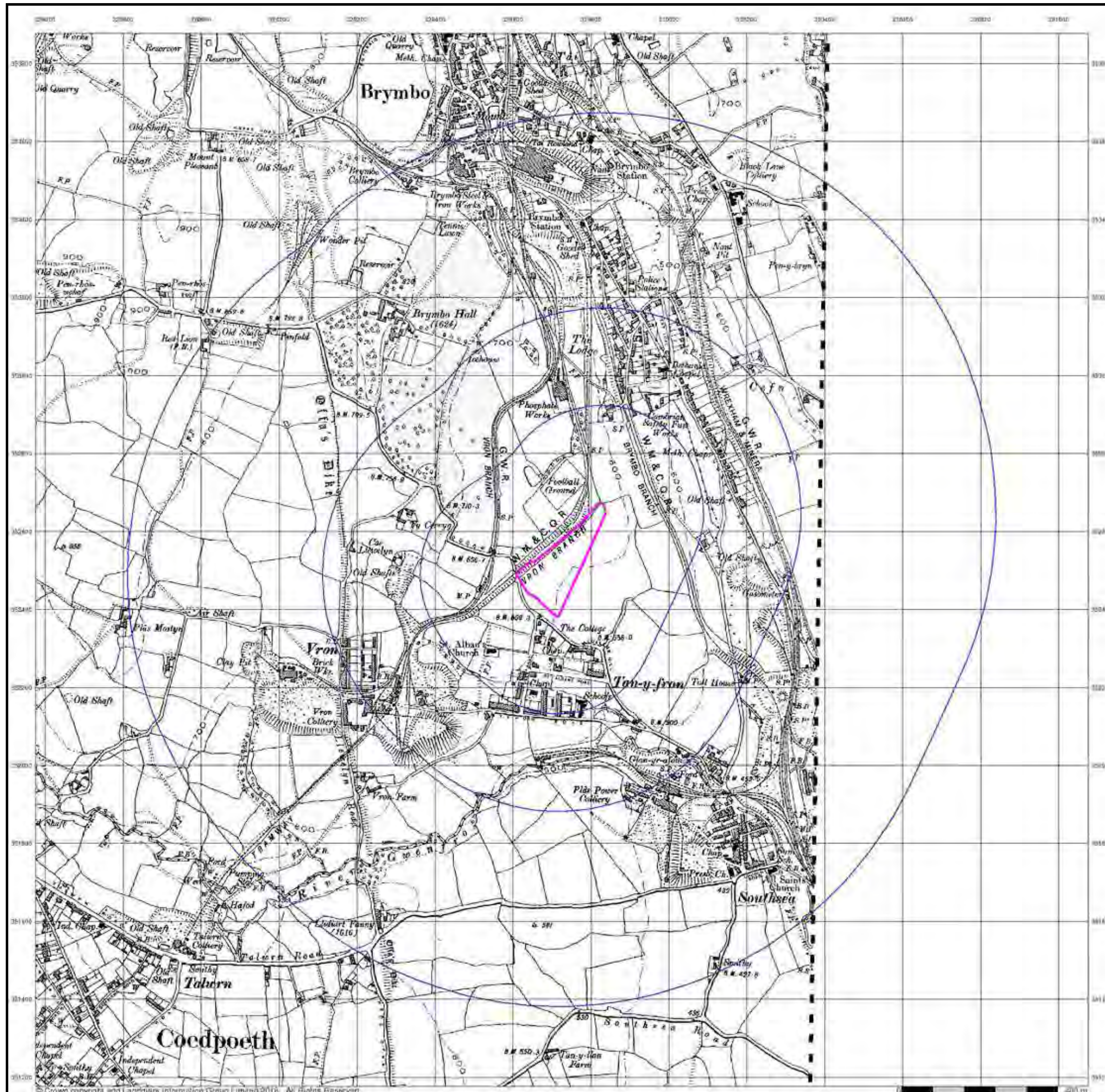


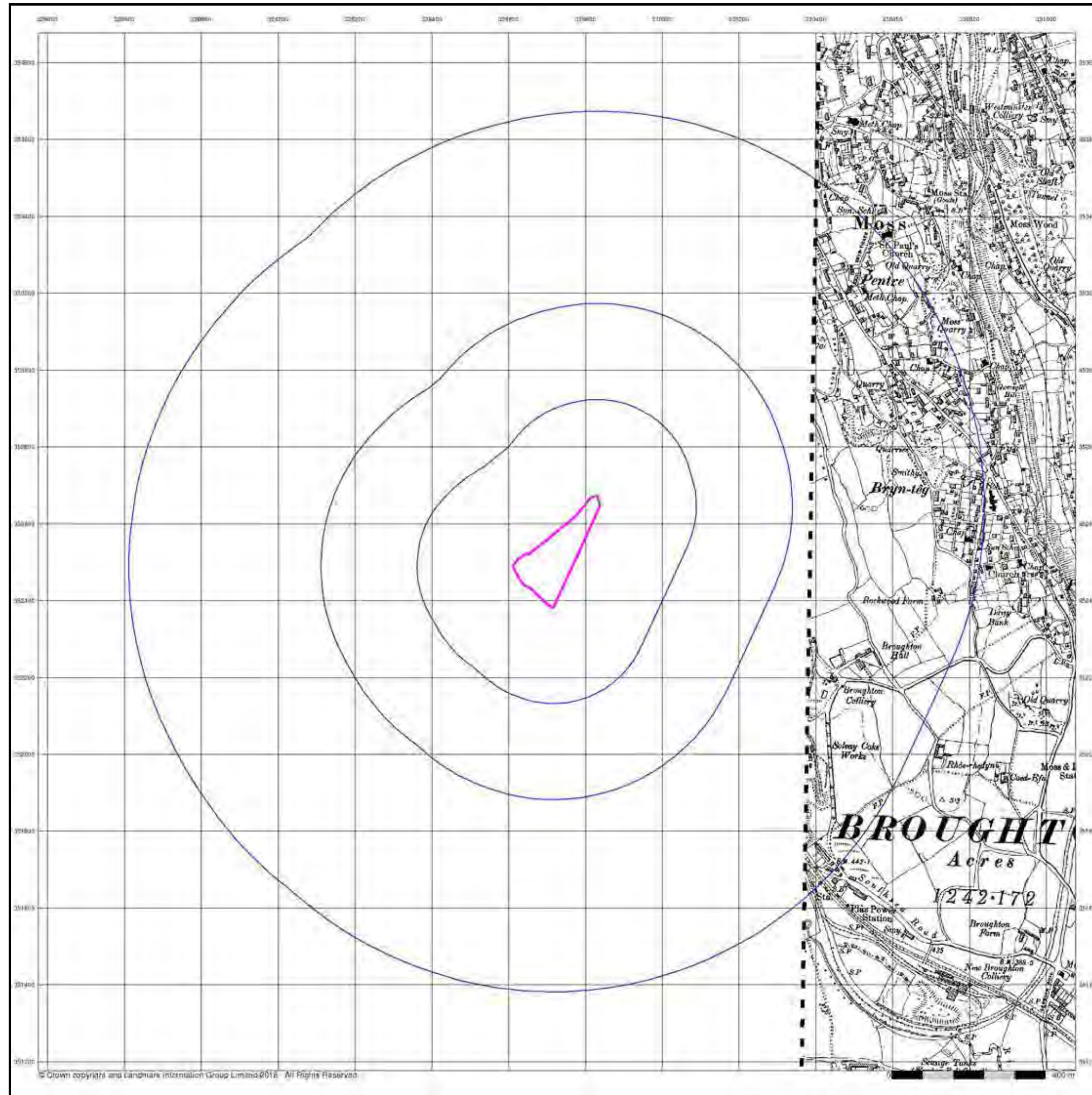
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Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500





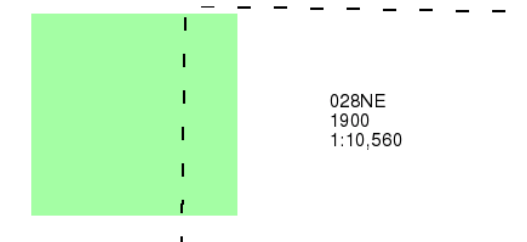
Denbighshire

Published 1900

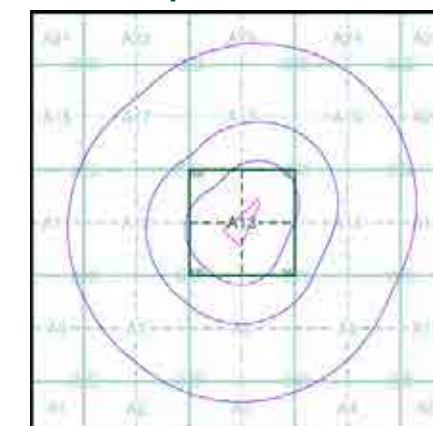
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

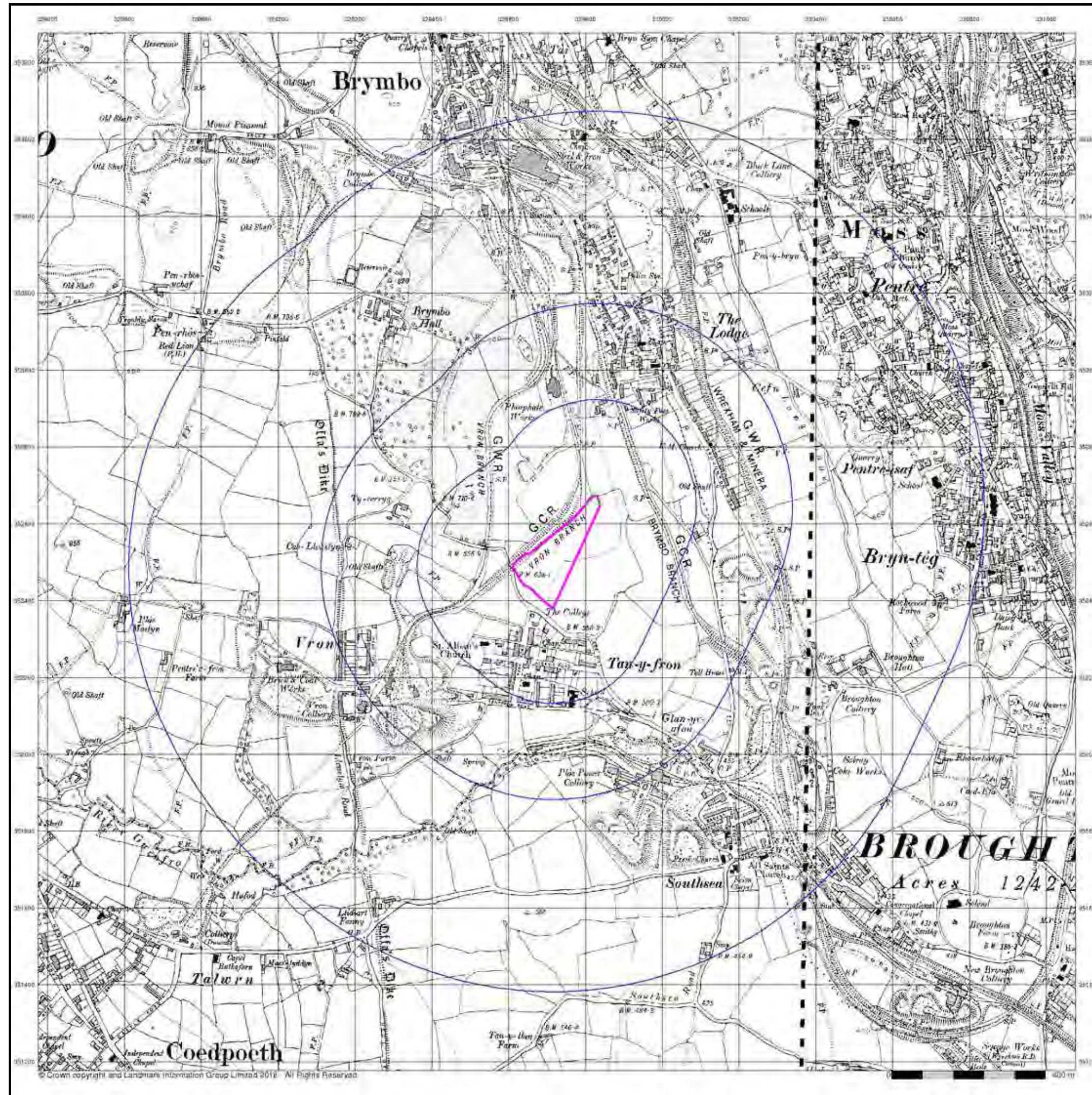
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Search Buffer (m): 1000

Site Details

Site at 329700, 353500



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Denbighshire

Published 1914 - 1915

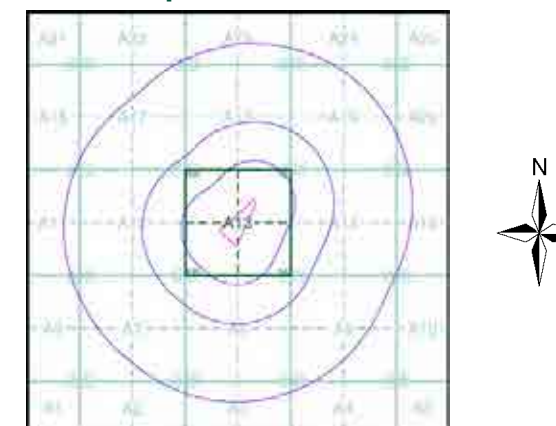
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Map Name(s) and Date(s)

028NW 1914 1:10,560	028NE 1915 1:10,560
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Historical Map - Slice A



Order Details

Order Number: 173223486_1_1
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Site Details

Site at 329700, 353500

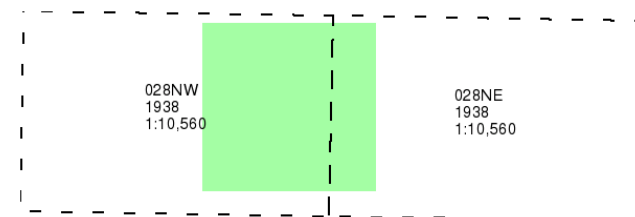


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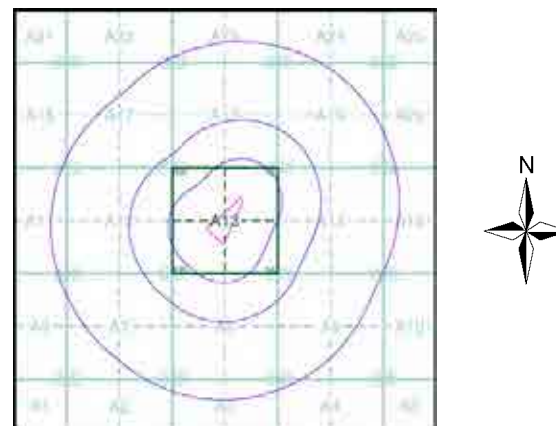


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

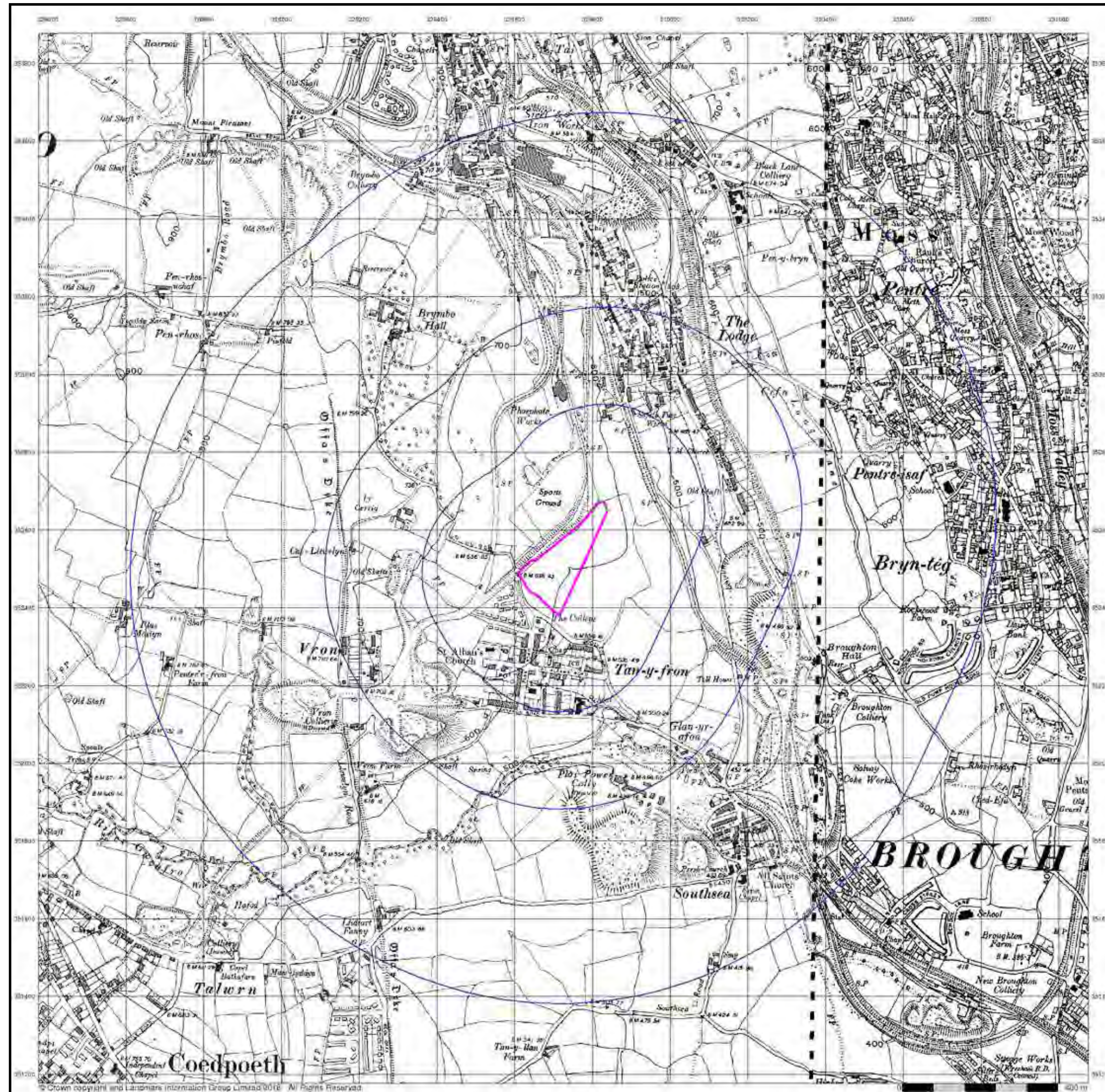
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National Grid Reference: 329740, 352530
Slice: A
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Search Buffer (m): 1000

Site Details

Site at 329700, 353500

Landmark
INFORMATION GROUP

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Denbighshire

Published 1938 - 1954

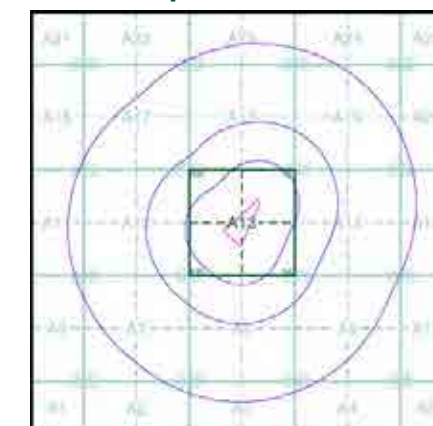
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

028NW 1954 1:10,560	028NE 1938 1:10,560
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Historical Map - Slice A

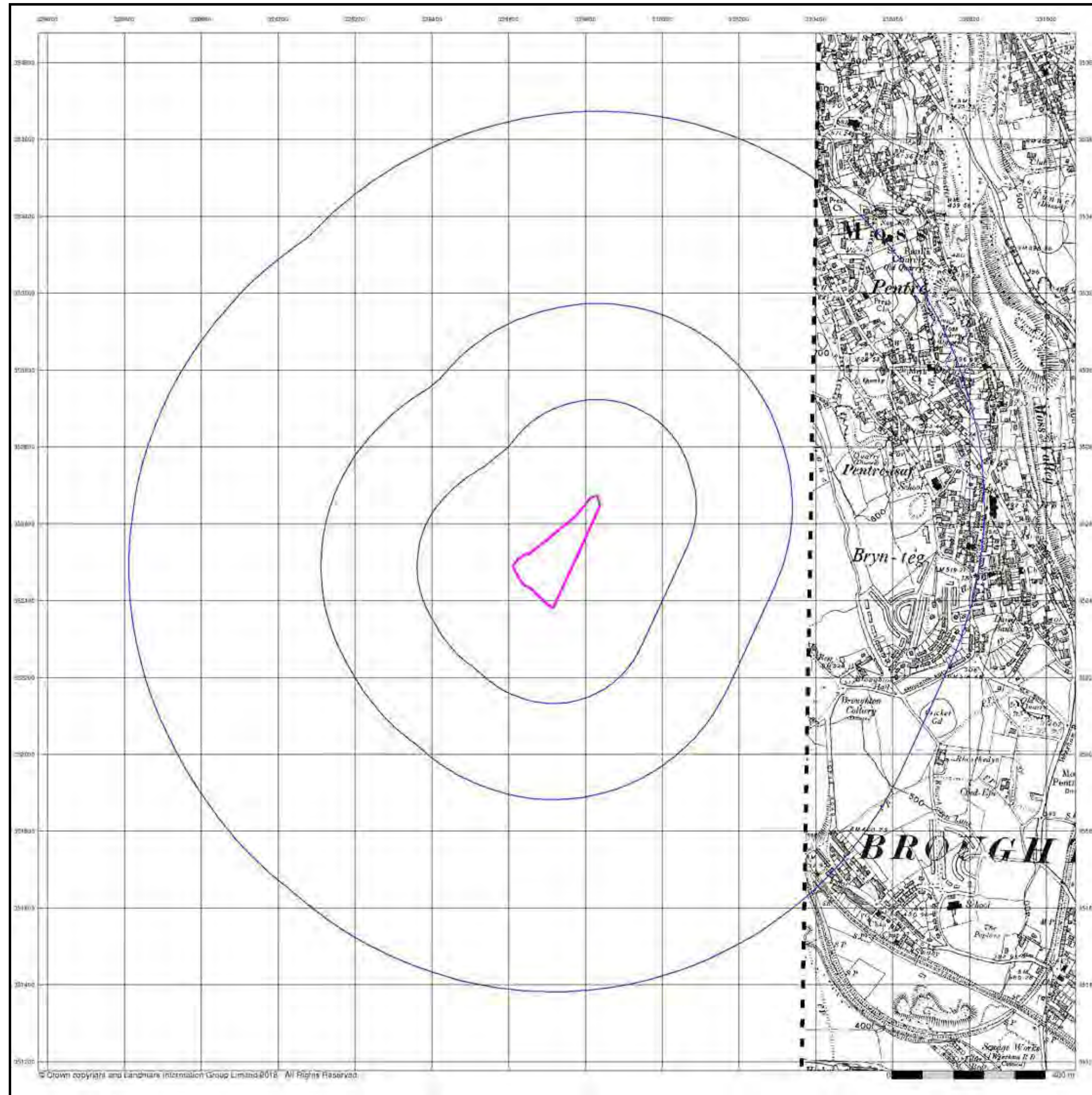


Order Details

Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500



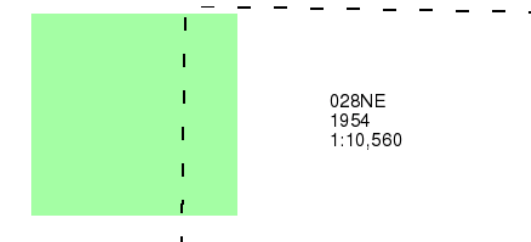
Denbighshire

Published 1954

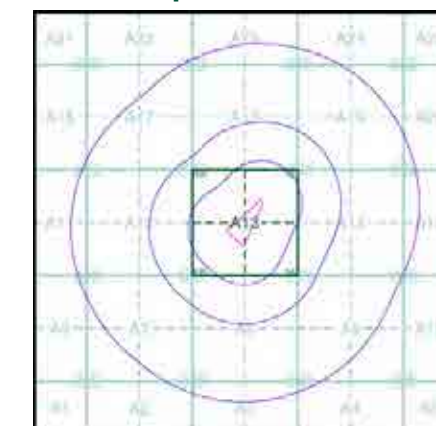
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

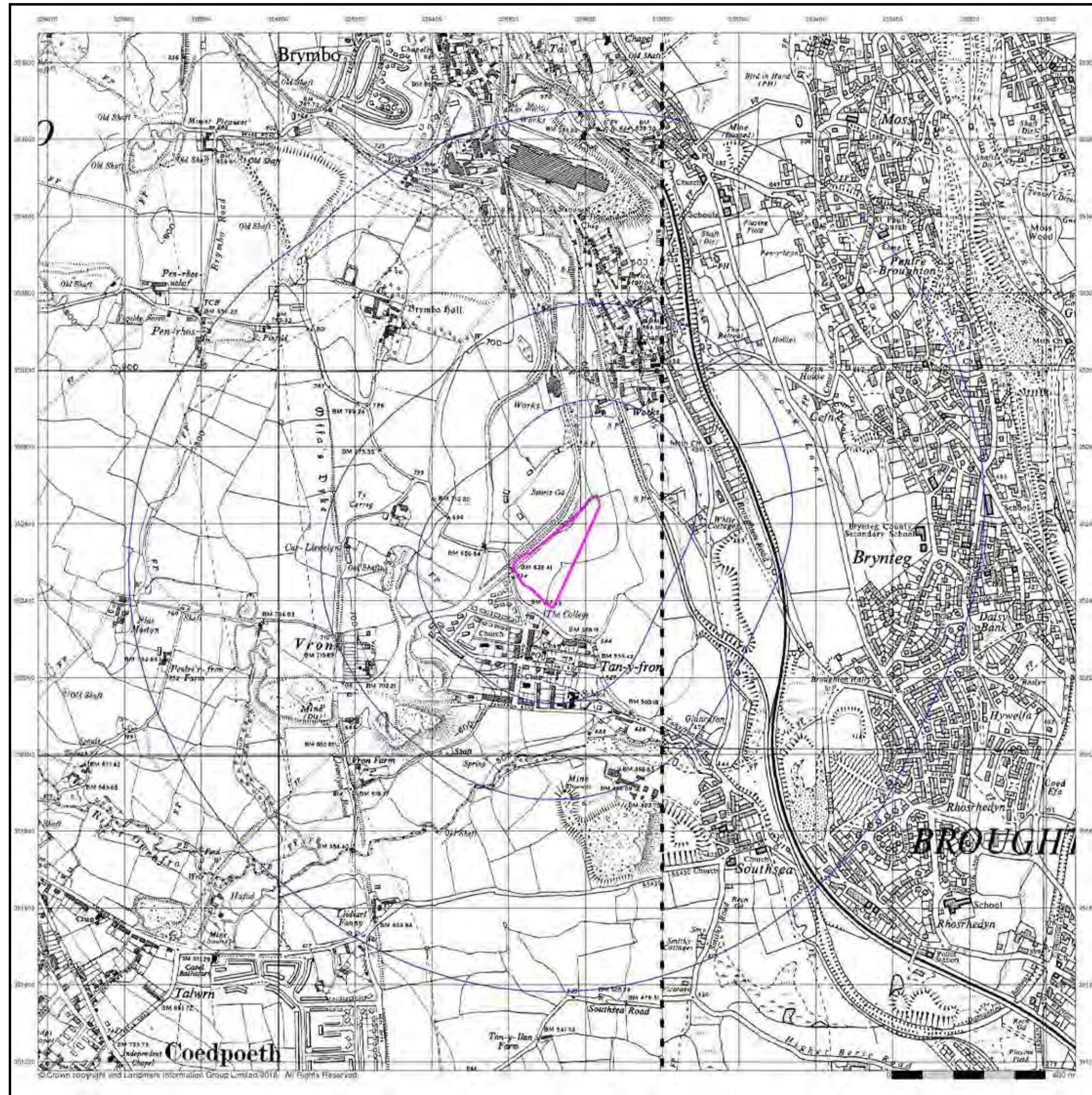
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National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

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Ordnance Survey Plan

Published 1963 - 1964

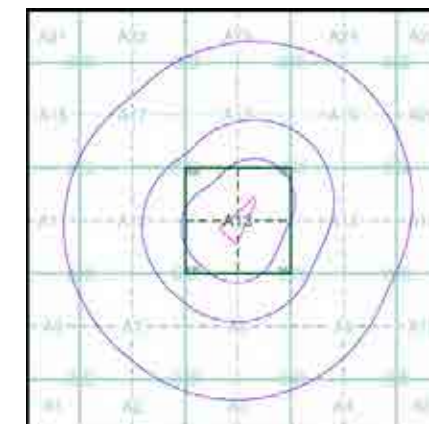
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SJ25SE 1963 1:10,560		SJ35SW 1964 1:10,560
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Historical Map - Slice A



Order Details

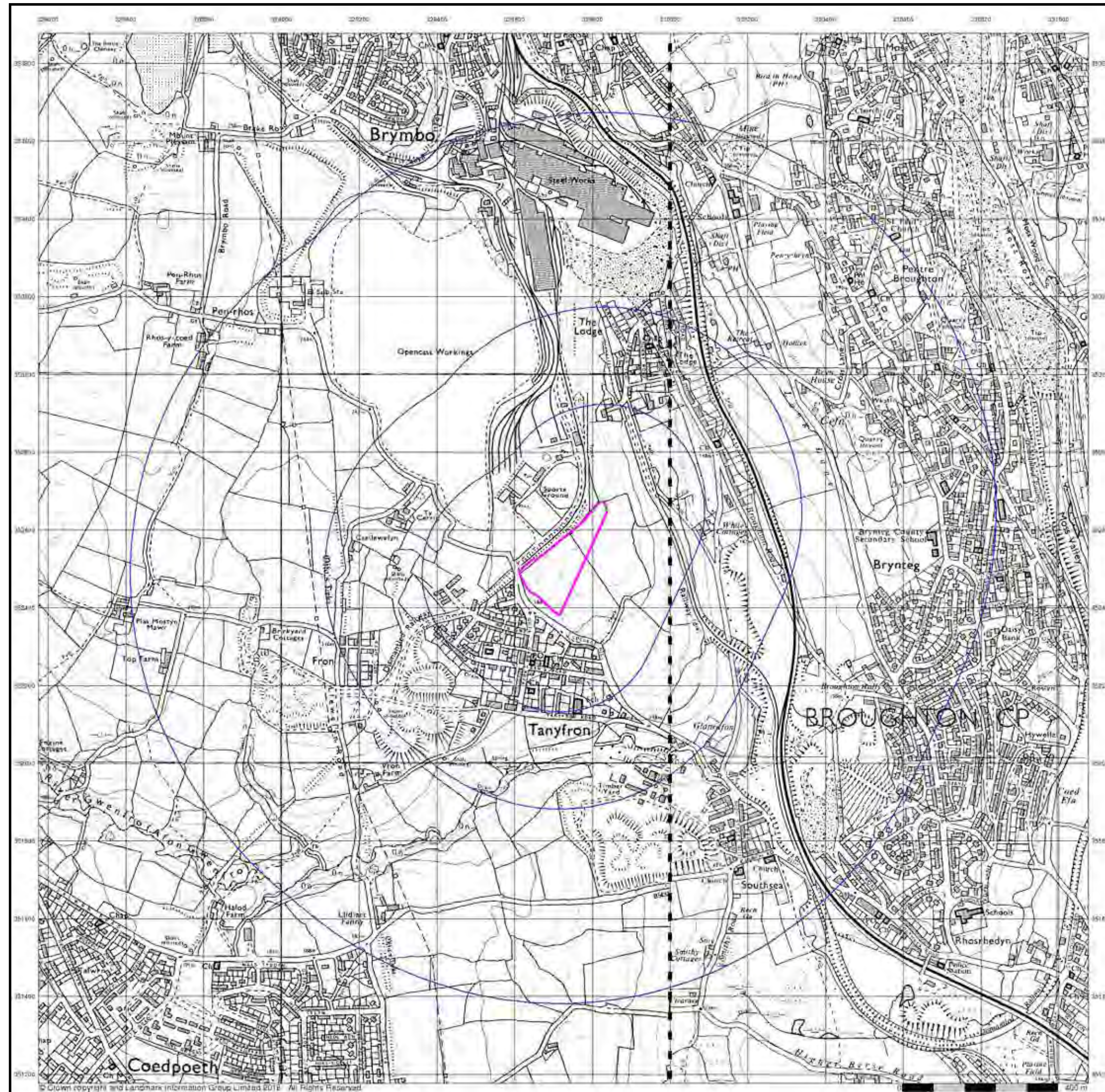
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National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

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Ordnance Survey Plan

Published 1974 - 1976

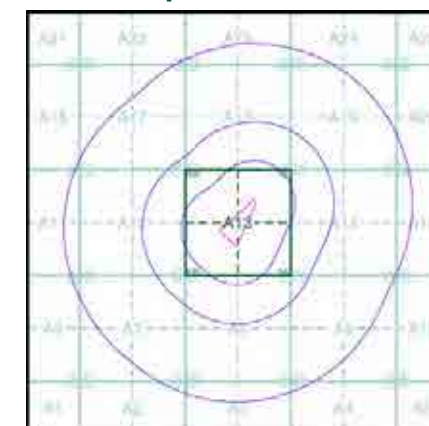
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SJ25SE 1976 1:10,000		SJ35SW 1974 1:10,000
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Historical Map - Slice A



Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



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Ordnance Survey Plan

Published 1981 - 1987

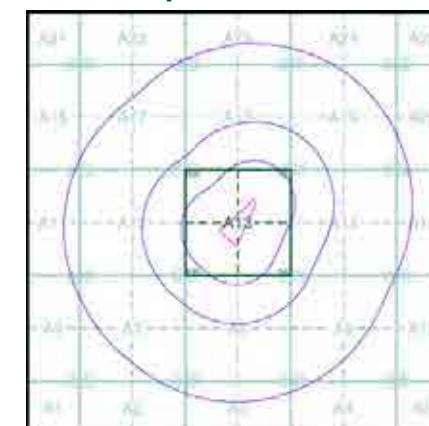
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SJ25SE 1987 1:10,000		SJ35SW 1981 1:10,000
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Historical Map - Slice A



Order Details

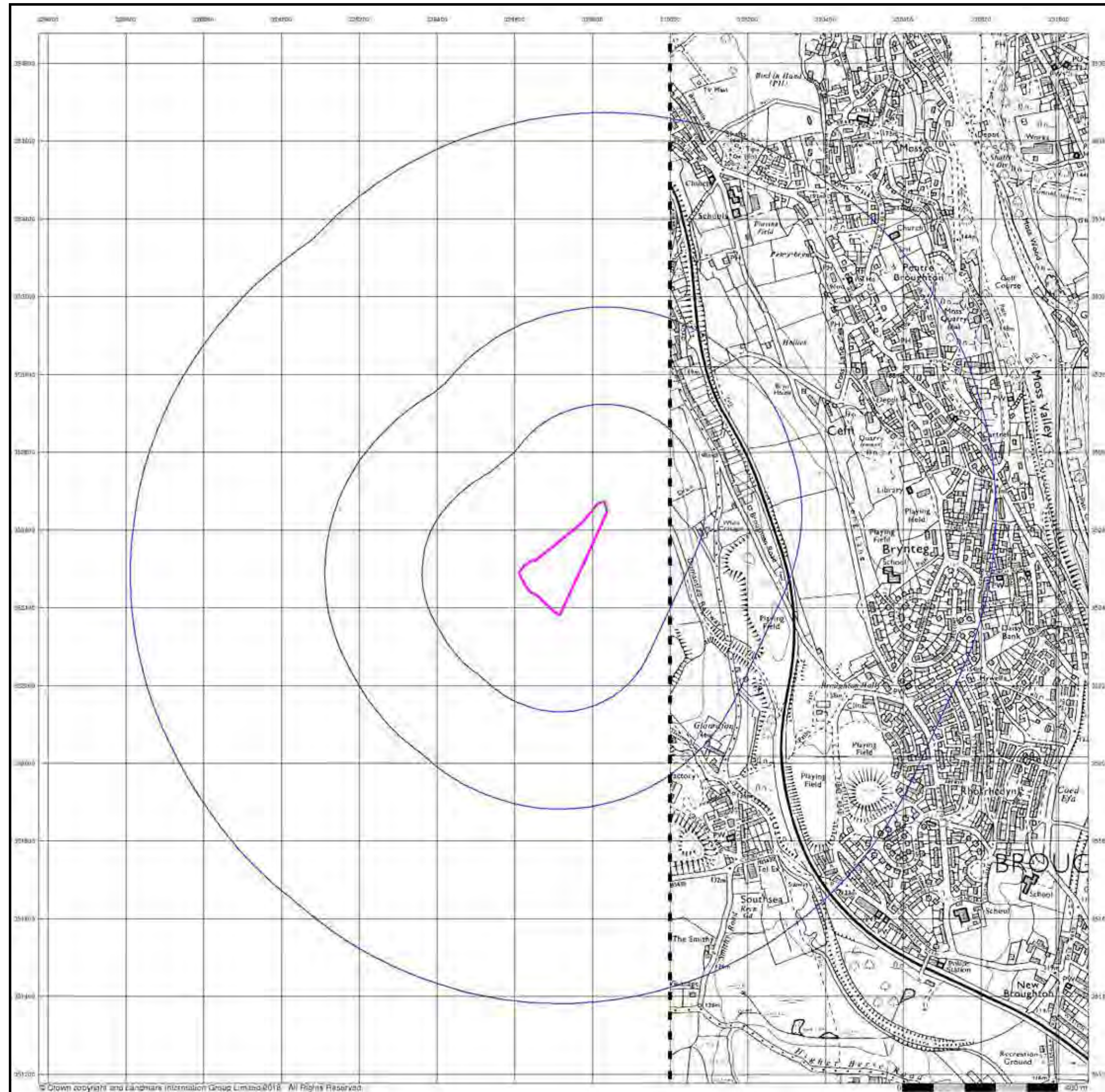
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Site Details

Site at 329700, 353500



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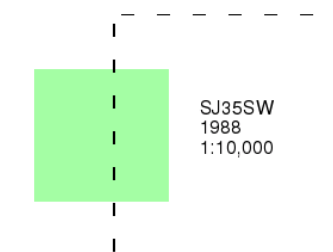
Ordnance Survey Plan

Published 1988

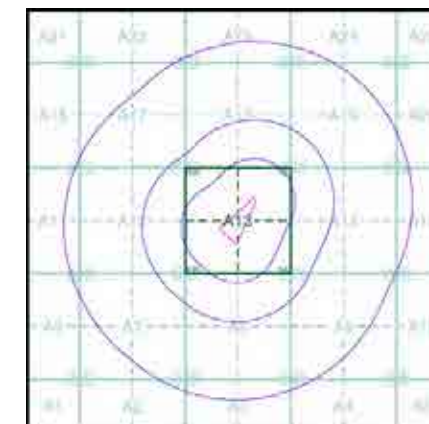
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500



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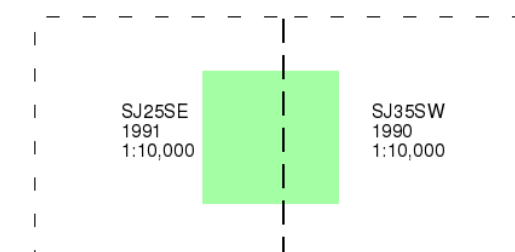
Ordnance Survey Plan

Published 1990 - 1991

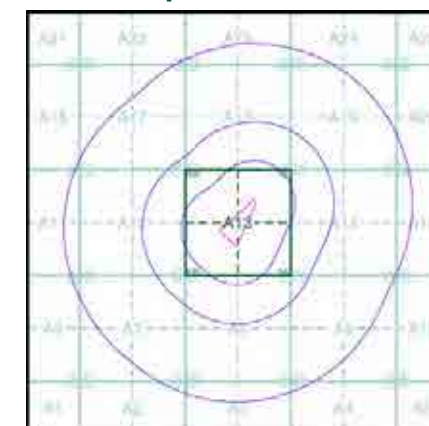
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

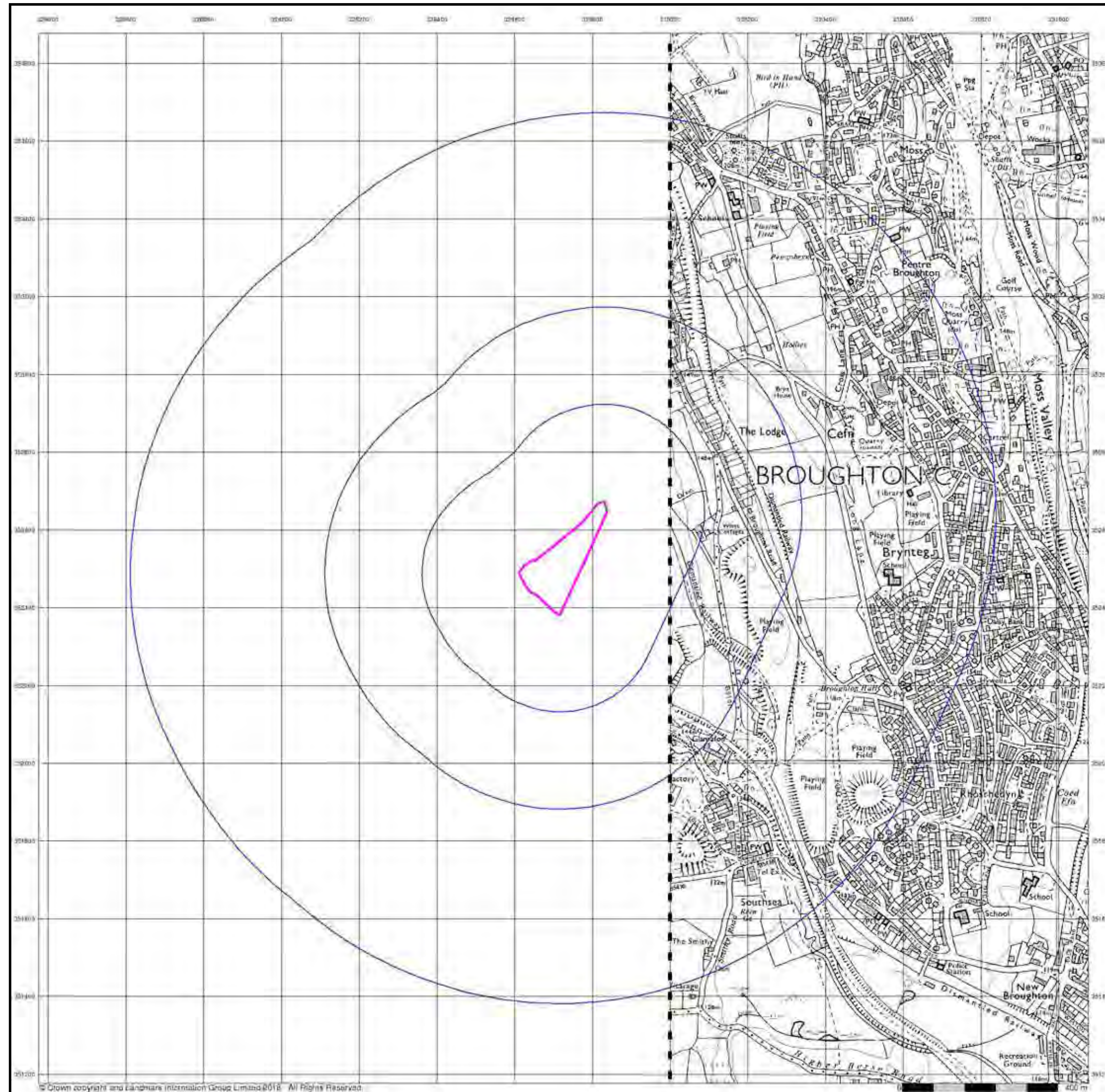
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Site Details

Site at 329700, 353500



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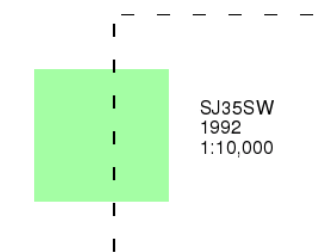
Ordnance Survey Plan

Published 1992

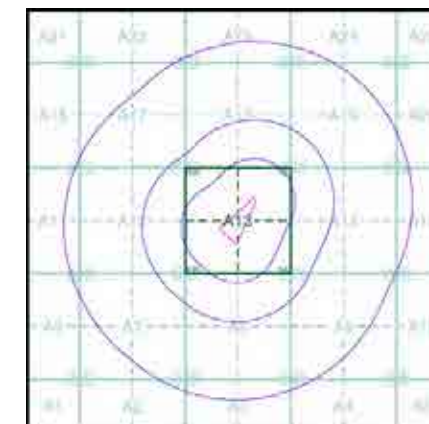
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

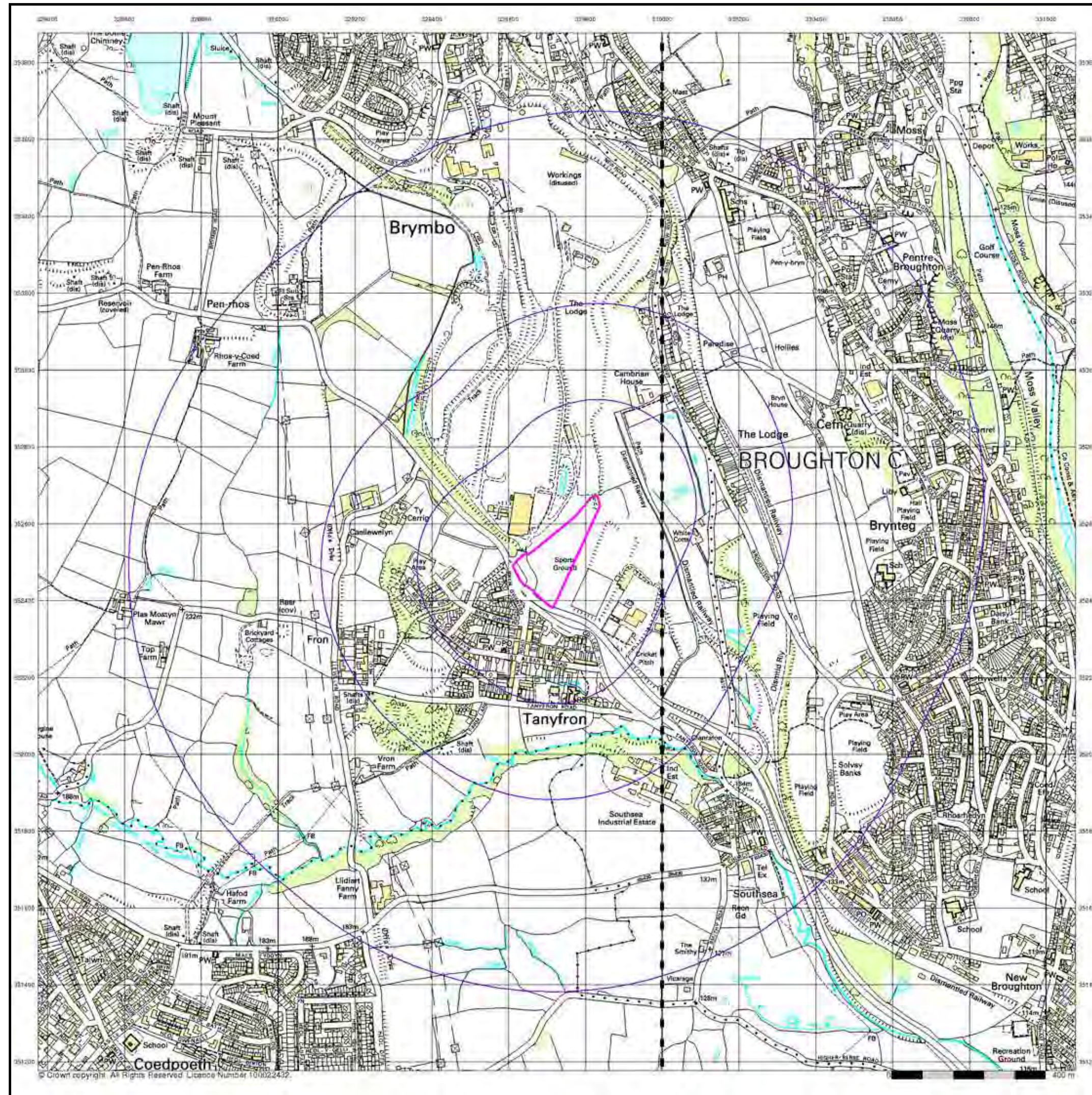
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Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500



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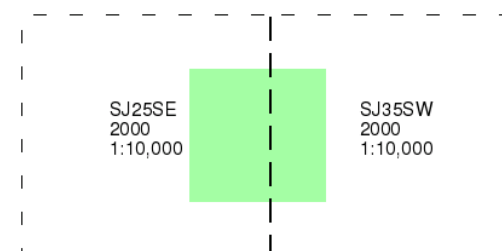
10k Raster Mapping

Published 2000

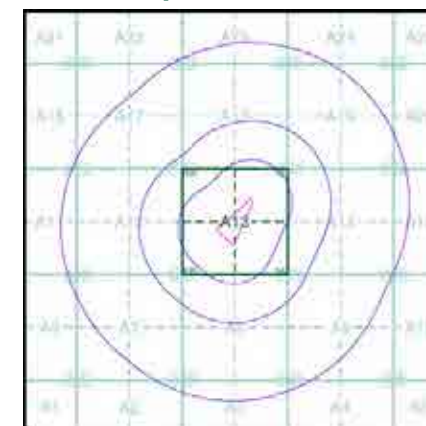
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

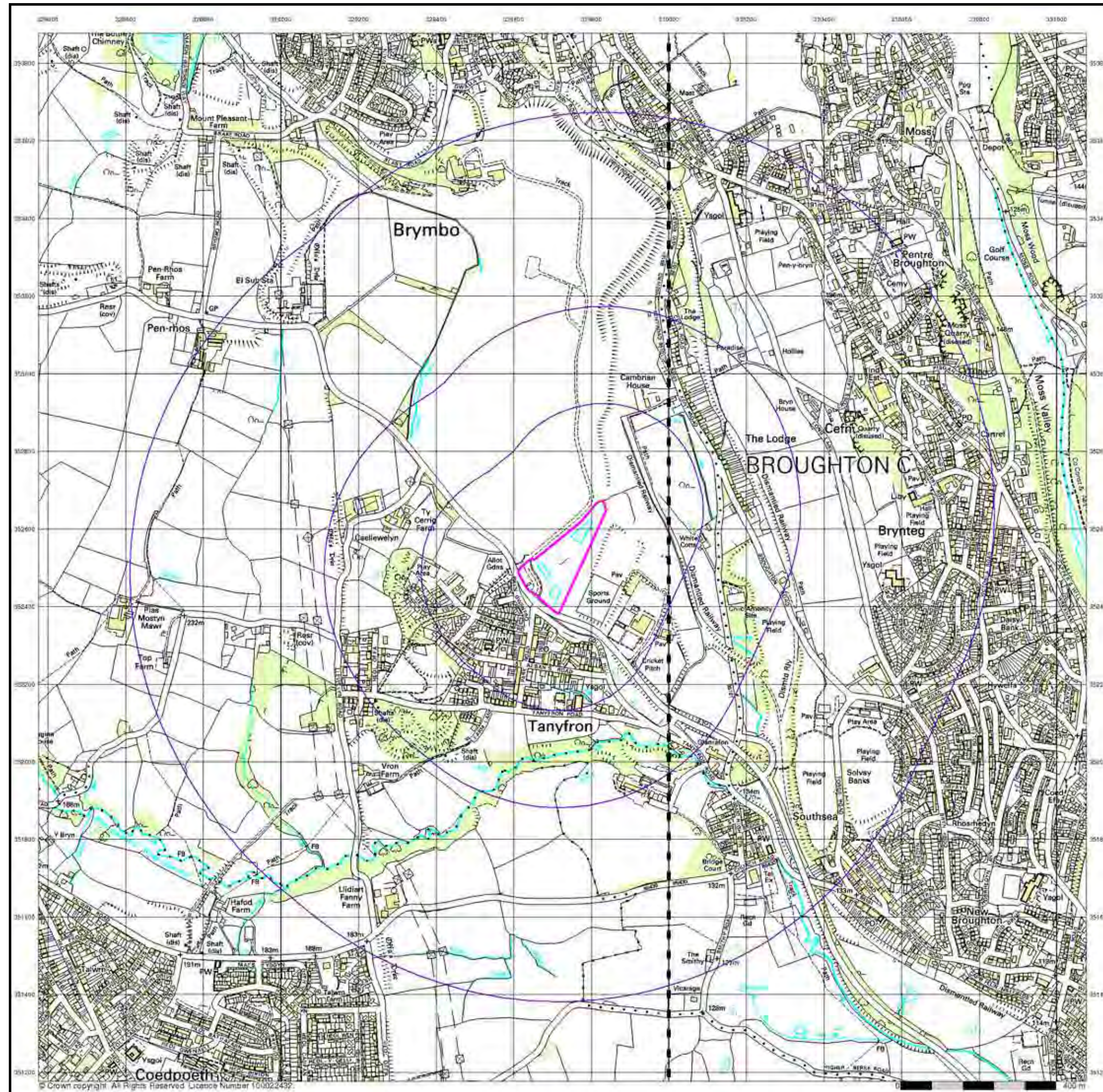
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 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



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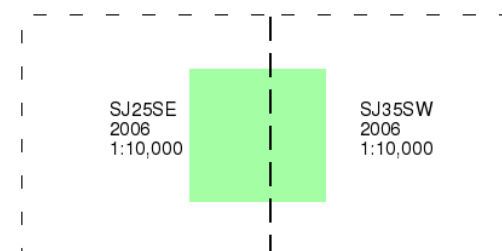
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Published 2006

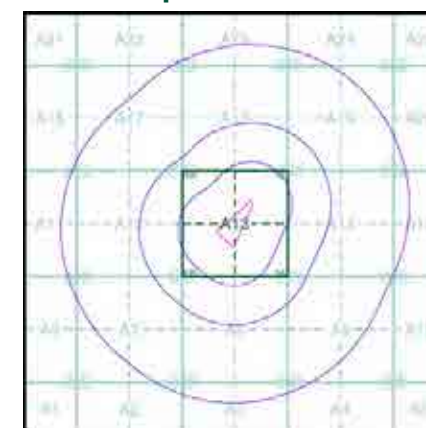
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

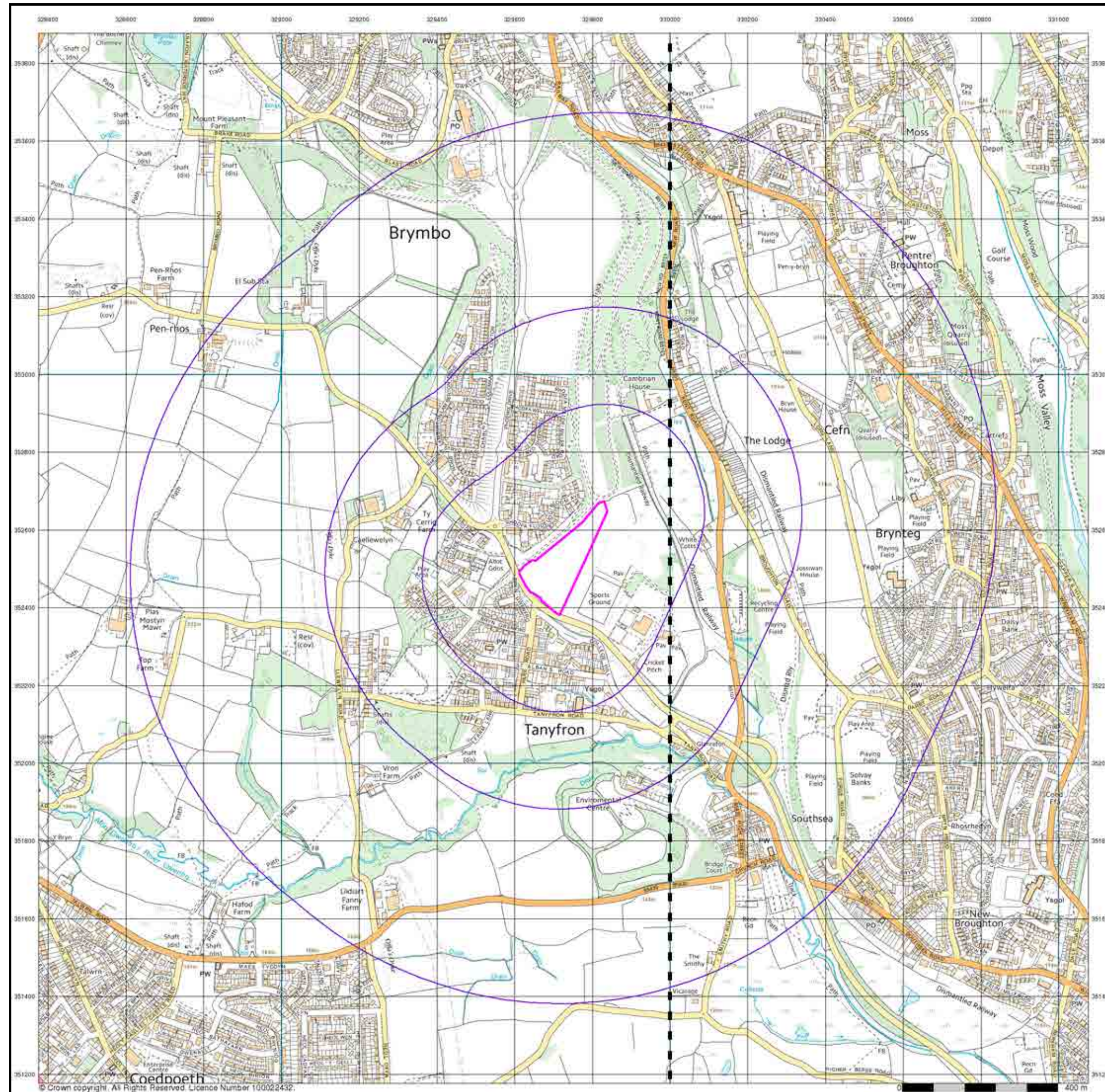
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National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
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Site Details

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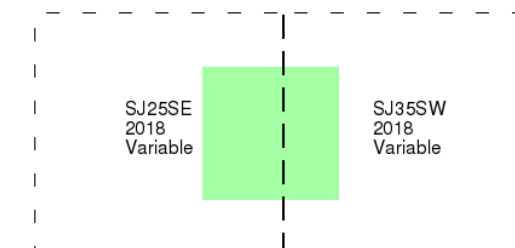
VectorMap Local

Published 2018

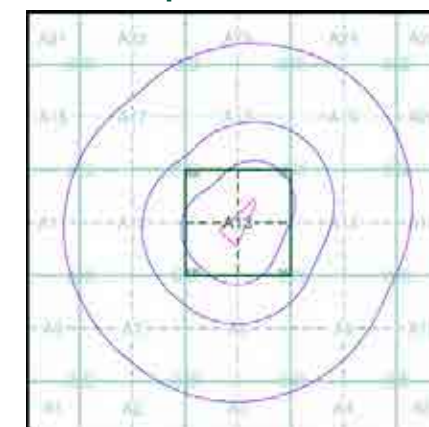
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

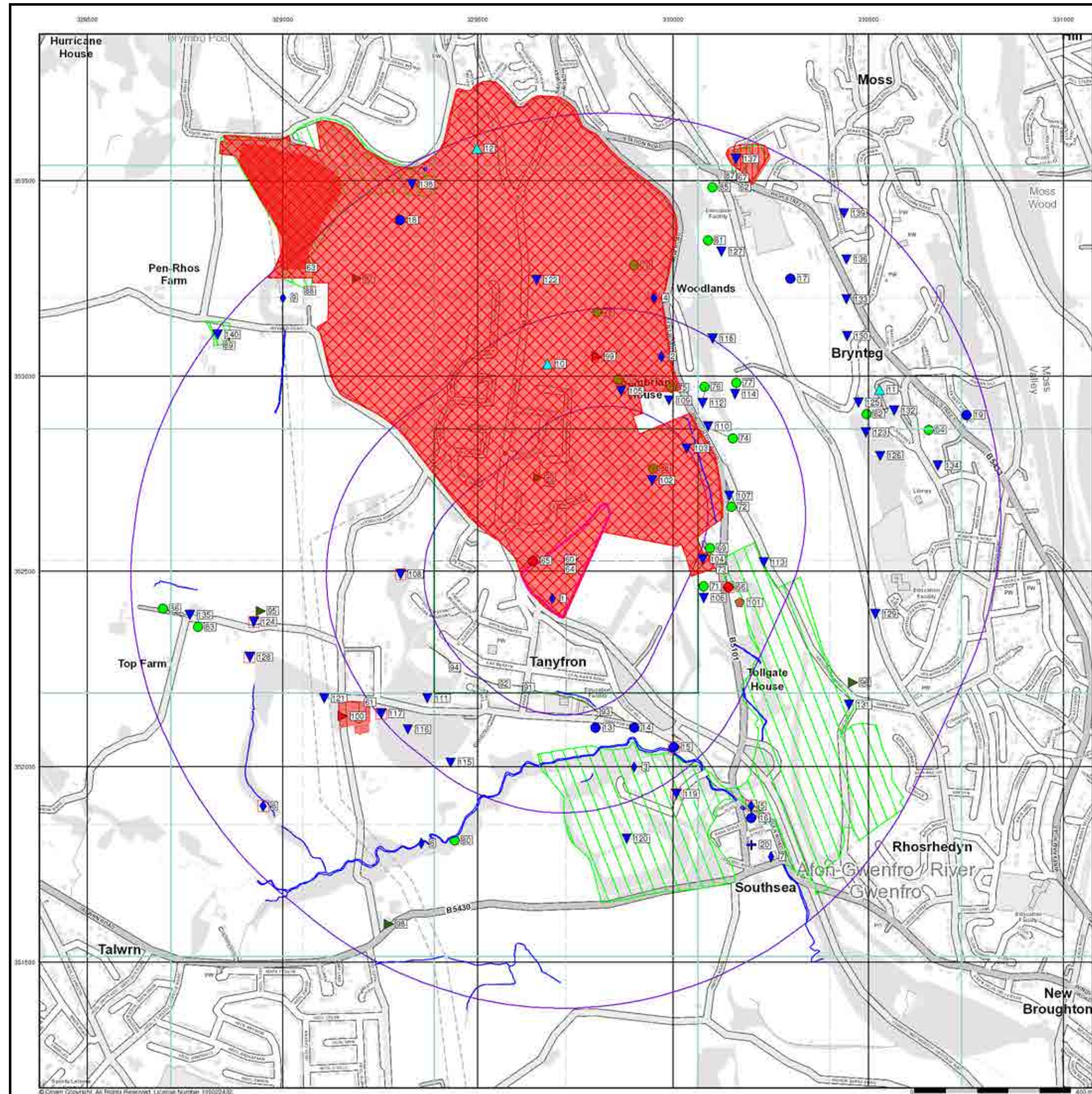
Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500

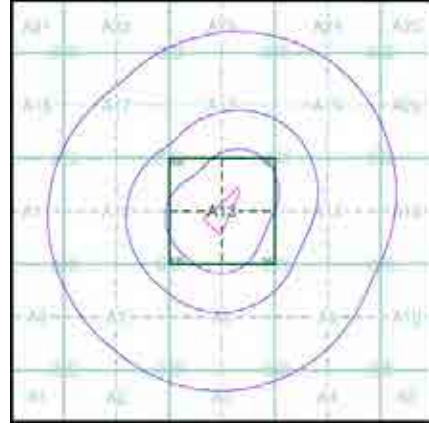


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- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
 - BGS Recorded Mineral Site
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500

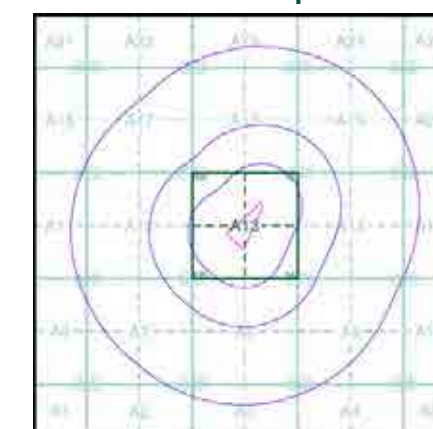
General

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

Industrial Land Use

-  Contemporary Trade Directory Entry
-  Fuel Station Entry
-  Gas Pipeline
-  Points of Interest - Commercial Services
-  Points of Interest - Education and Health
-  Points of Interest - Manufacturing and Production
-  Points of Interest - Public Infrastructure
-  Points of Interest - Recreational and Environmental
-  Underground Electrical Cables

Industrial Land Use Map - Slice A

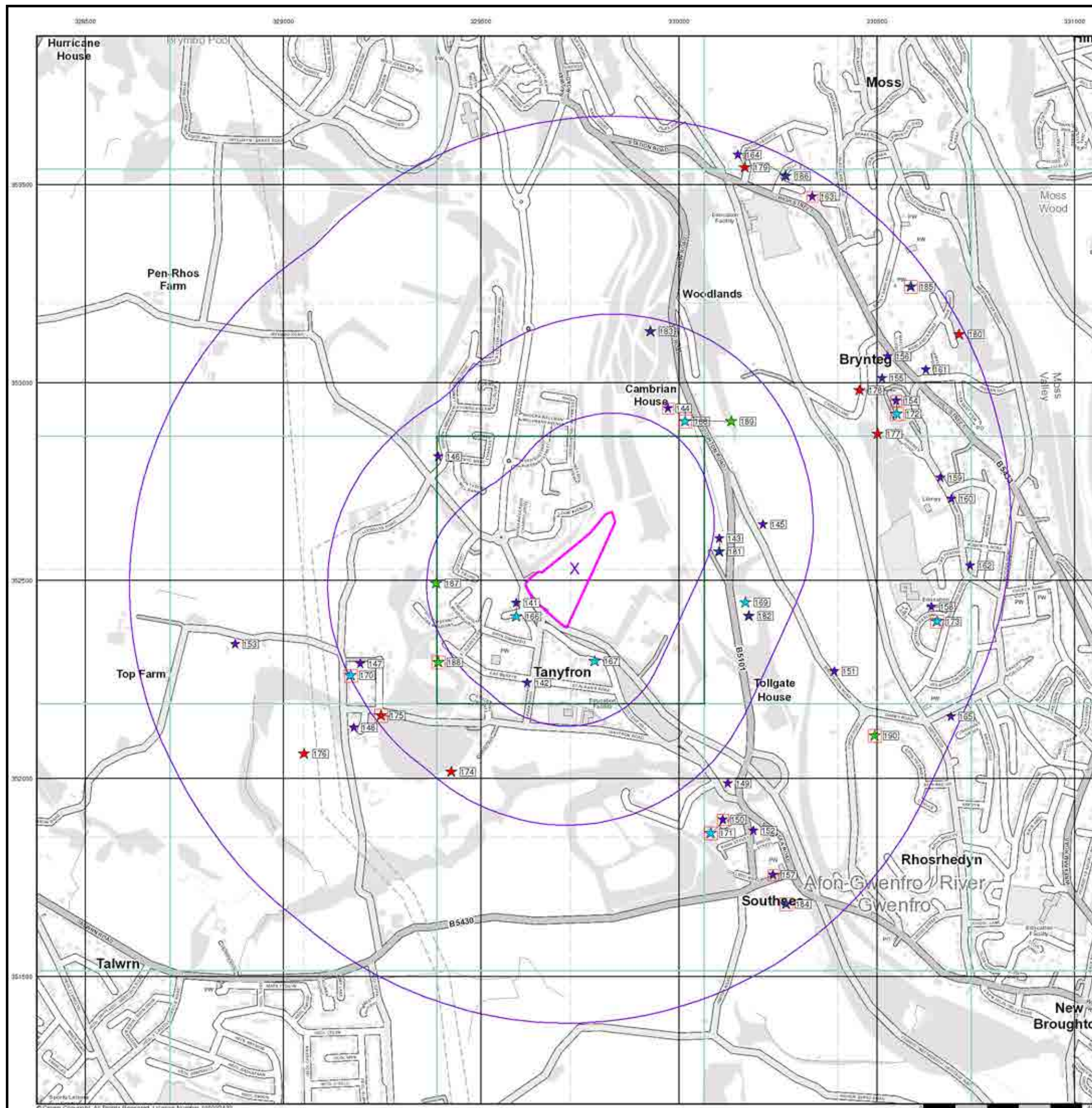


Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



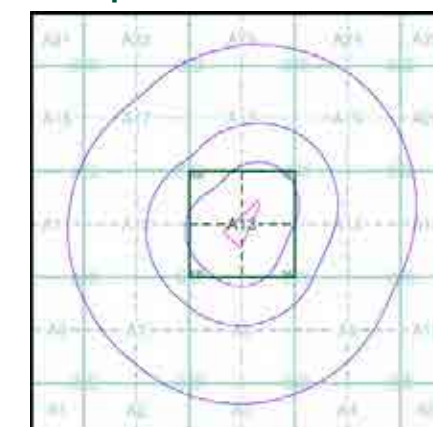
General

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

Agency and Hydrological (Flood)

-  Extreme Flooding from Rivers or Sea without Defences (Zone 2)
-  Flooding from Rivers or Sea without Defences (Zone 3)
-  Area Benefiting from Flood Defence
-  Flood Water Storage Areas
-  Flood Defence

Flood Map - Slice A



Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID
-  Several of Type at Location

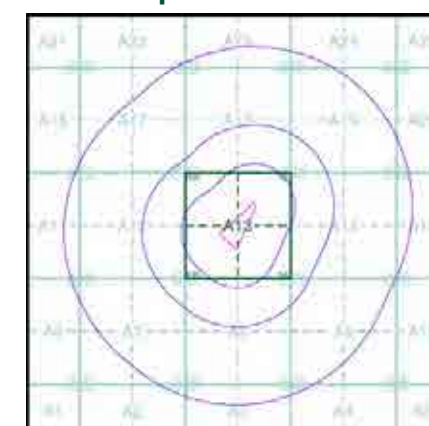
Agency and Hydrological (Boreholes)

-  BGS Borehole Depth 0 - 10m
-  BGS Borehole Depth 10 - 30m
-  BGS Borehole Depth 30m +
-  Confidential
-  Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

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

Borehole Map - Slice A

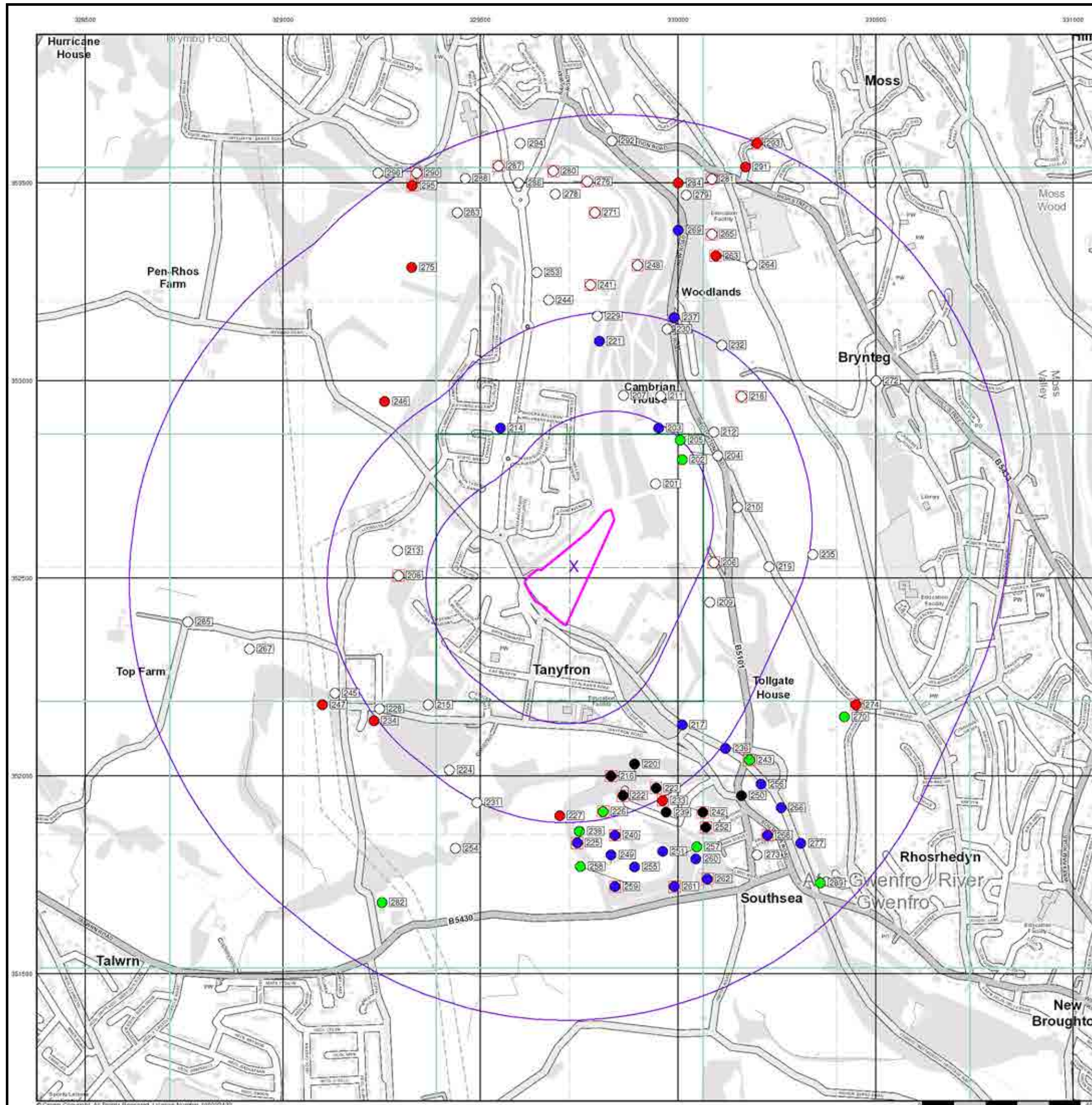


Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



General

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

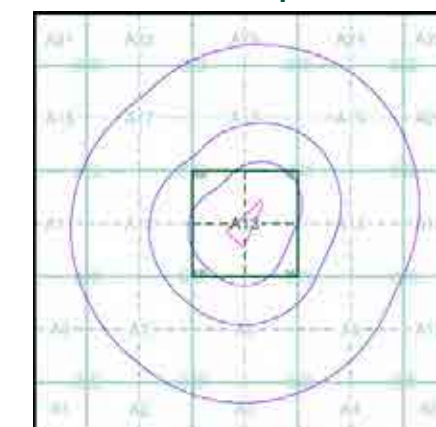
OS Water Network Data

- | | |
|--|---|
|  Canal |  Drain |
|  Reservoir |  Other |
|  Foreshore |  Lake |
|  Marsh |  Transfer |
|  Tidal River |  Lock Or Flight Of Locks |
|  Inland River |  Sea |

Contours (height in meters)

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

OS Water Network Map - Slice A

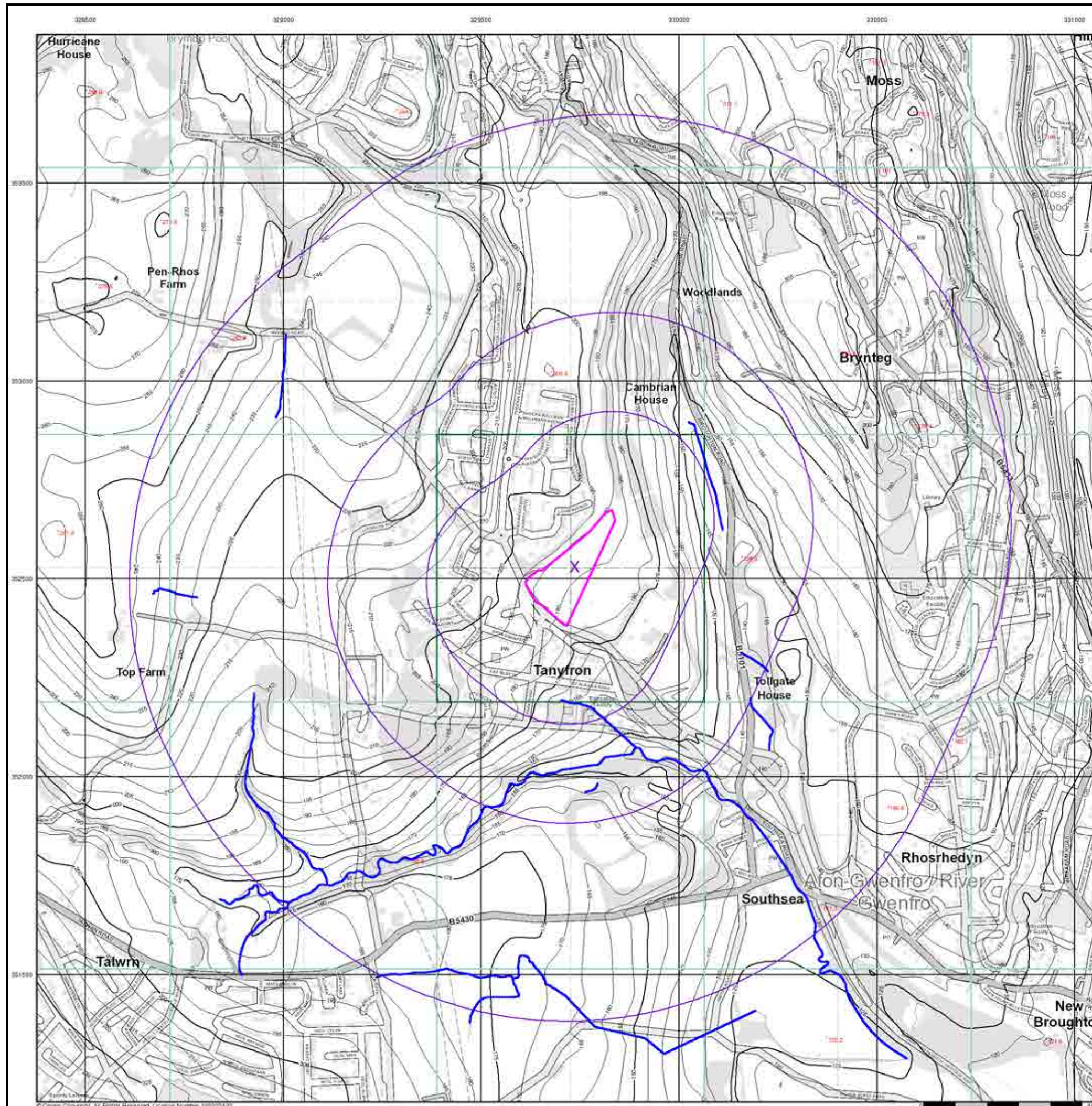


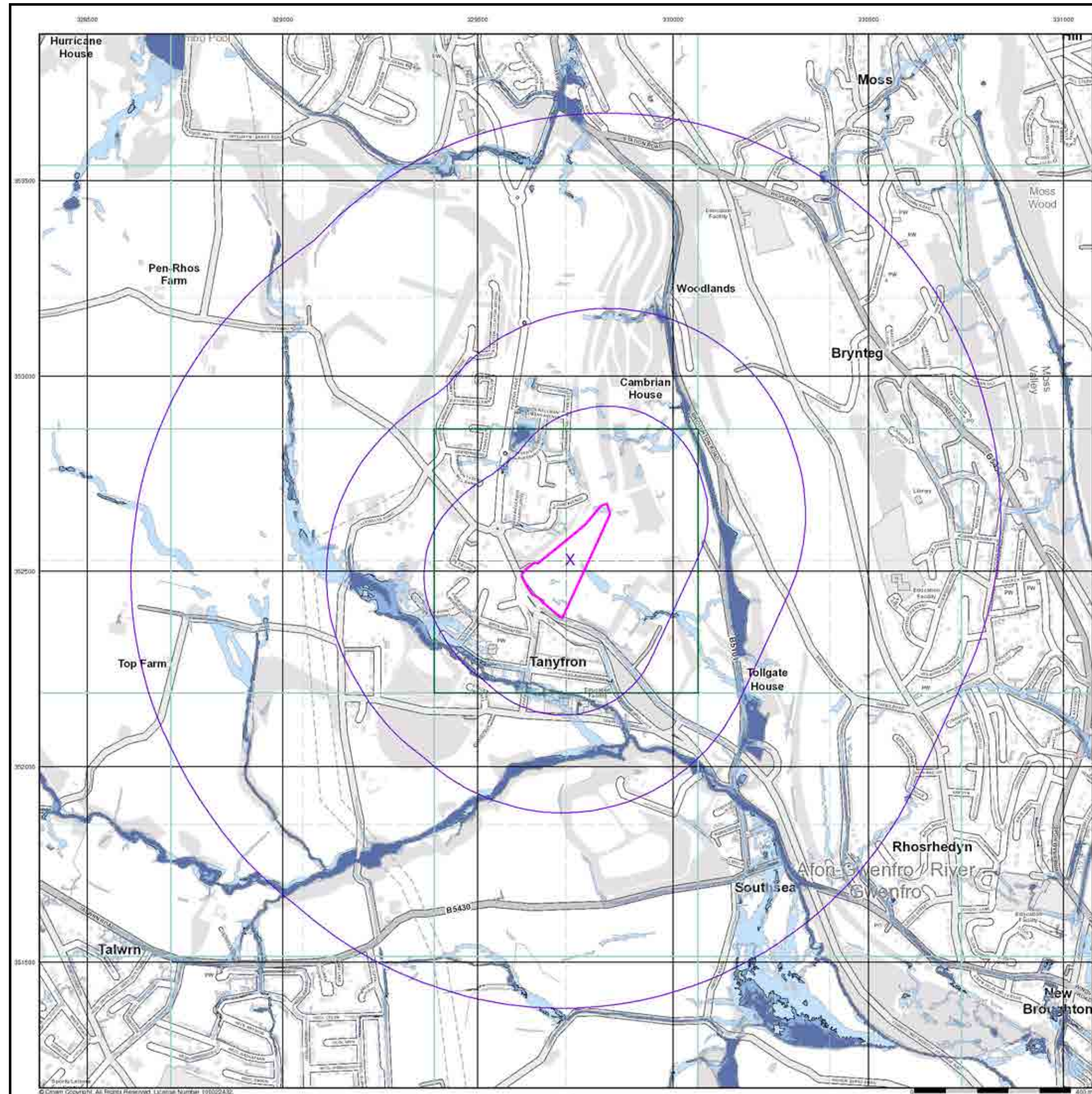
Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500





General

- Specified Site
- Specified Buffer(s)
- X 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

EAN/RW Suitability Map - Slice A



Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
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 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



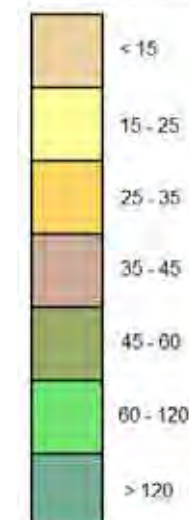
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk

General

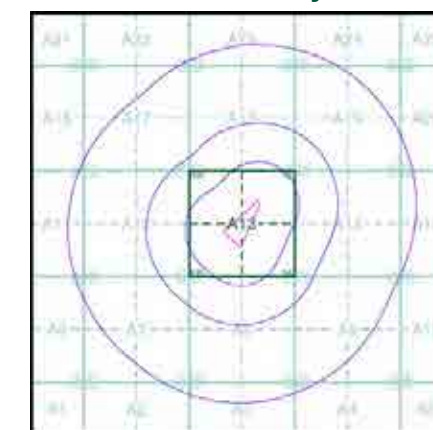
Specified Site Specified Buffer(s) Drawing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



Estimated Soil Chemistry Arsenic - Slice A

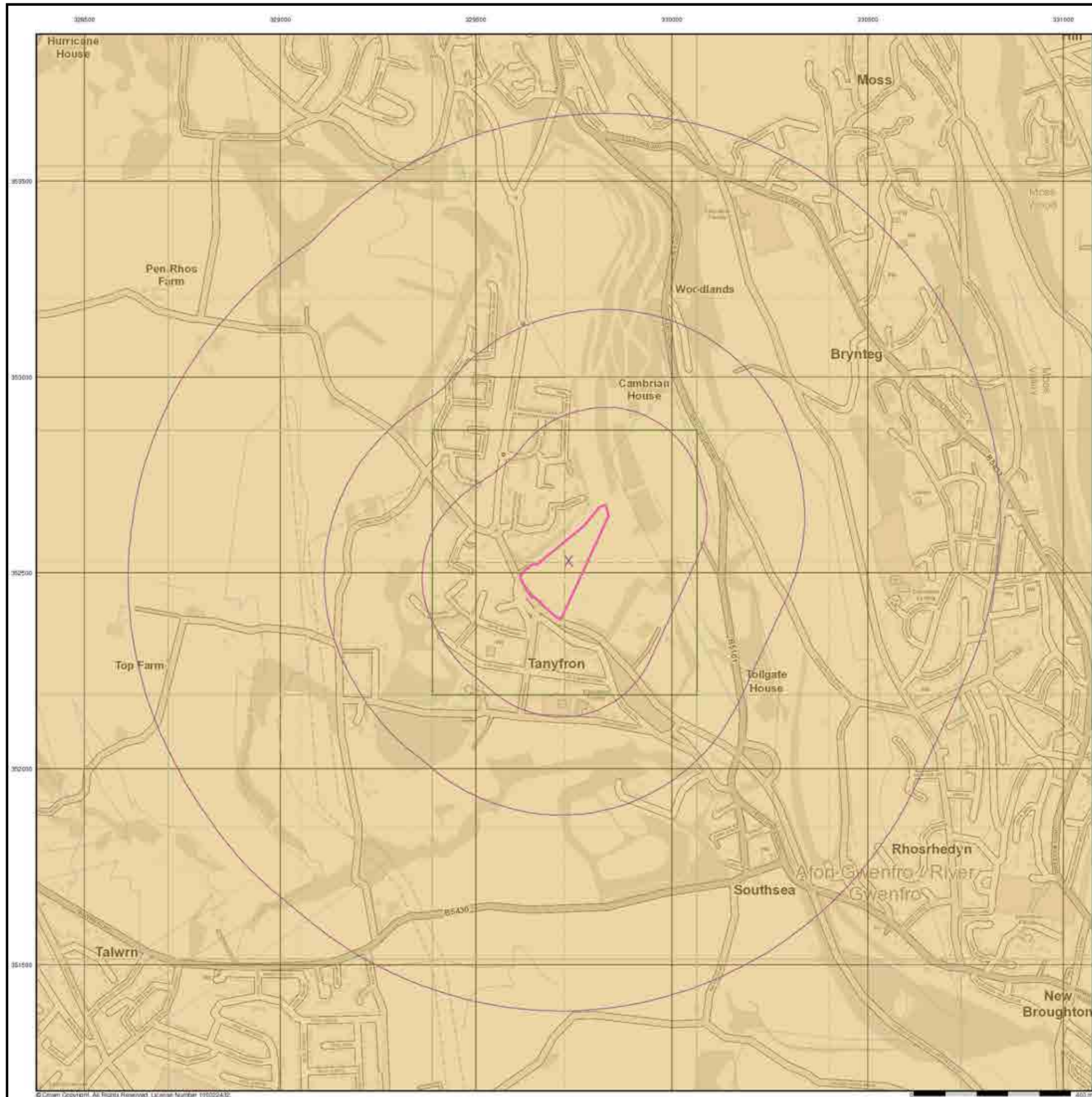


Order Details

Order Details: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500

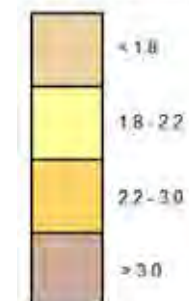


General

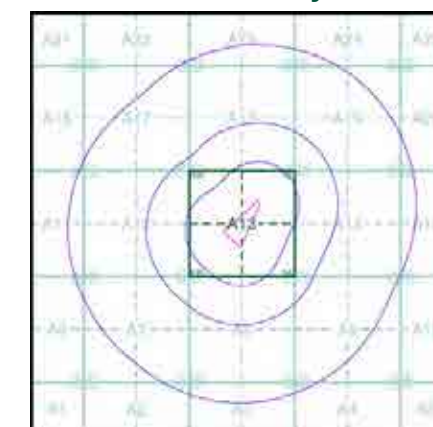
Specified Site Specified Buffer(s) Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A

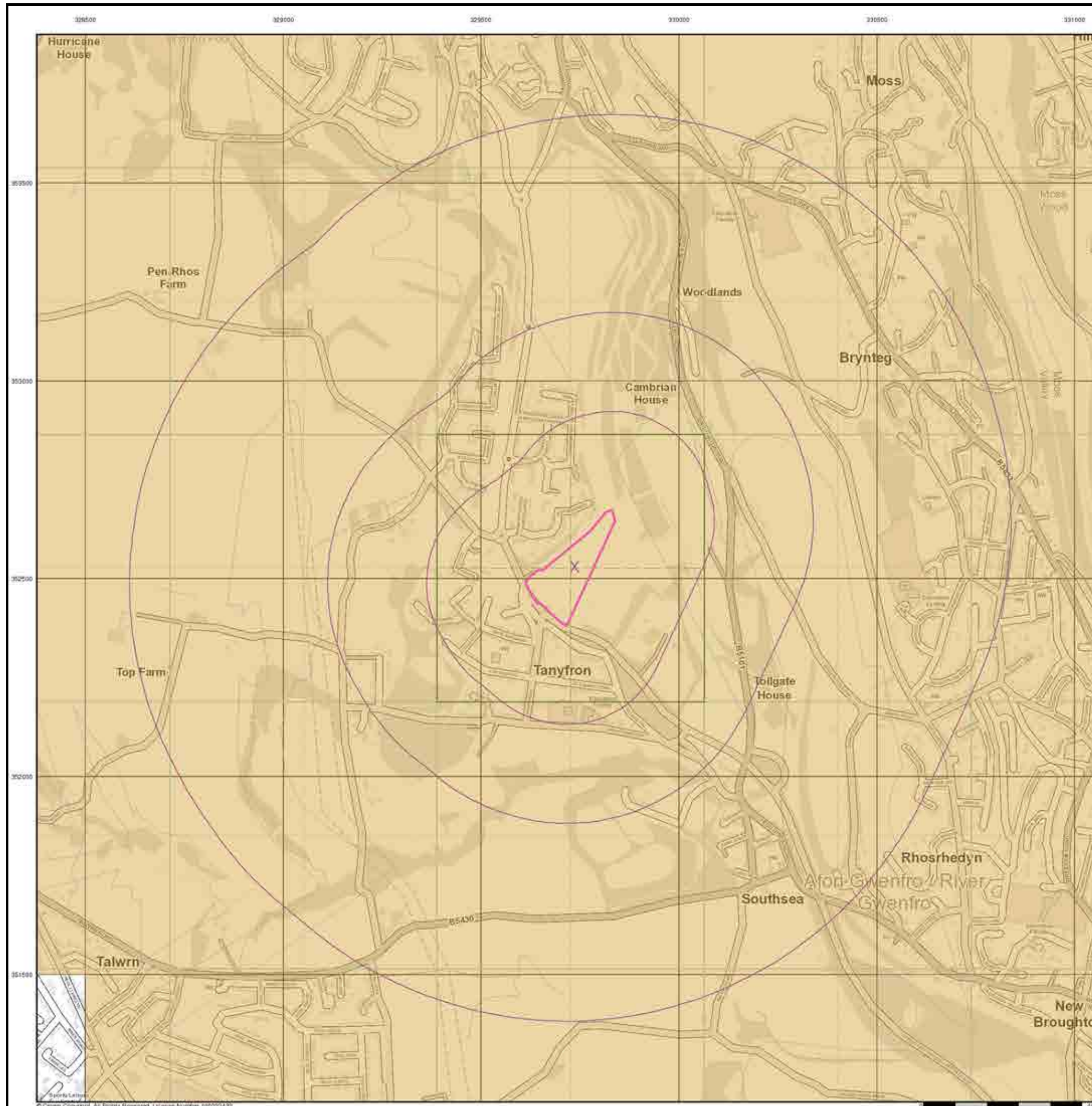


Order Details

Order Details: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500

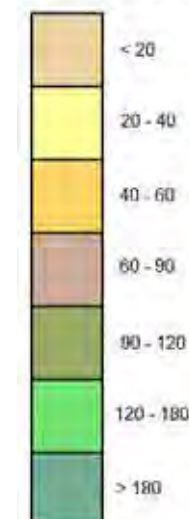


General

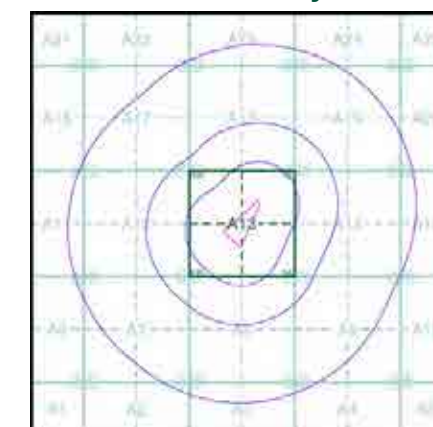
Specified Site Specified Buffer(s) Existing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



Estimated Soil Chemistry Chromium - Slice A

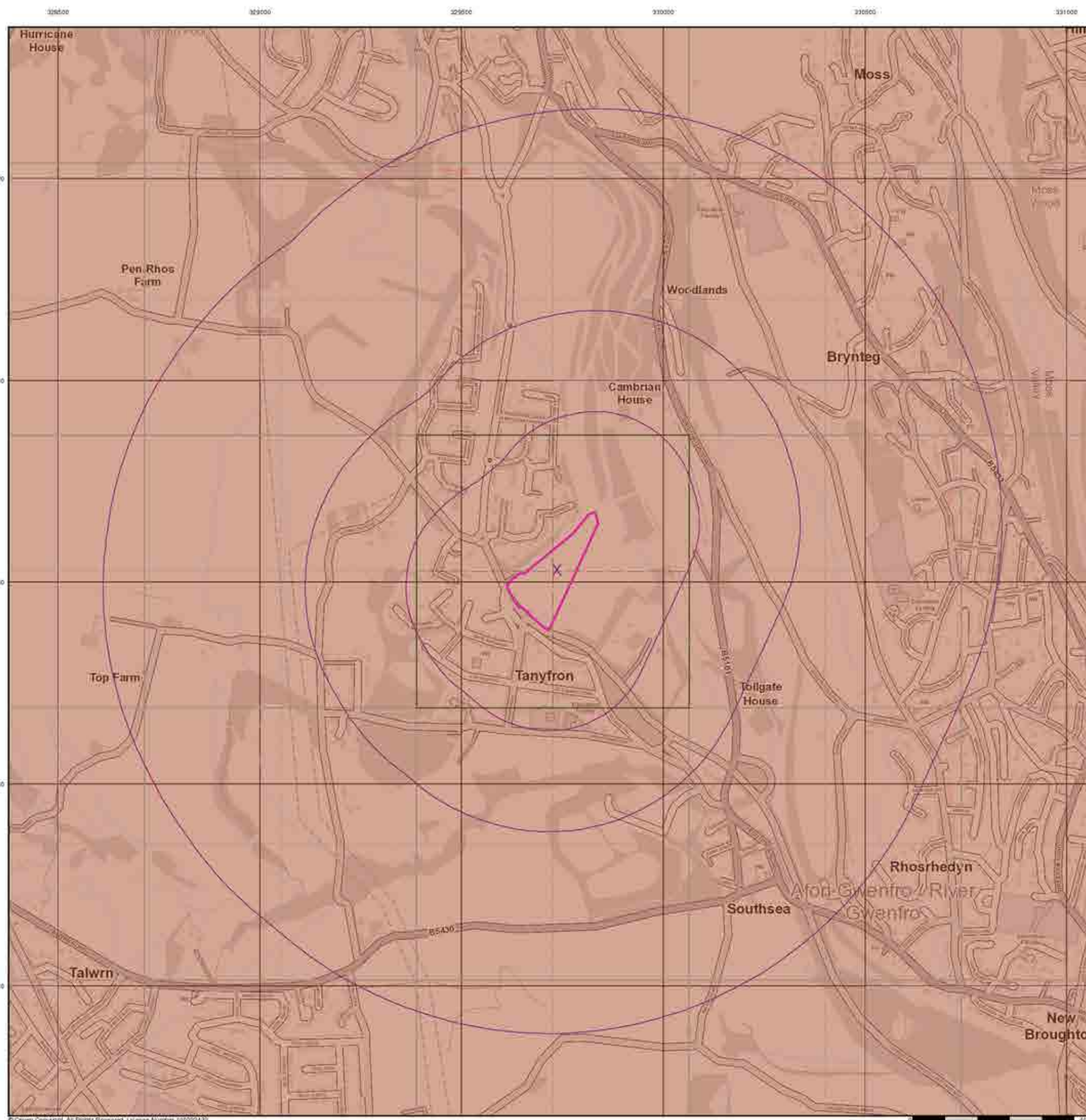


Order Details

Order Details: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500



General

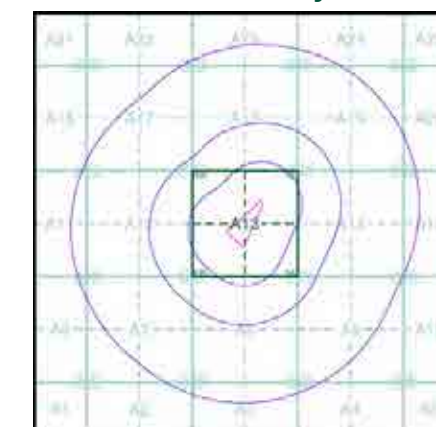
Specified Site Specified Buffer(s) Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A

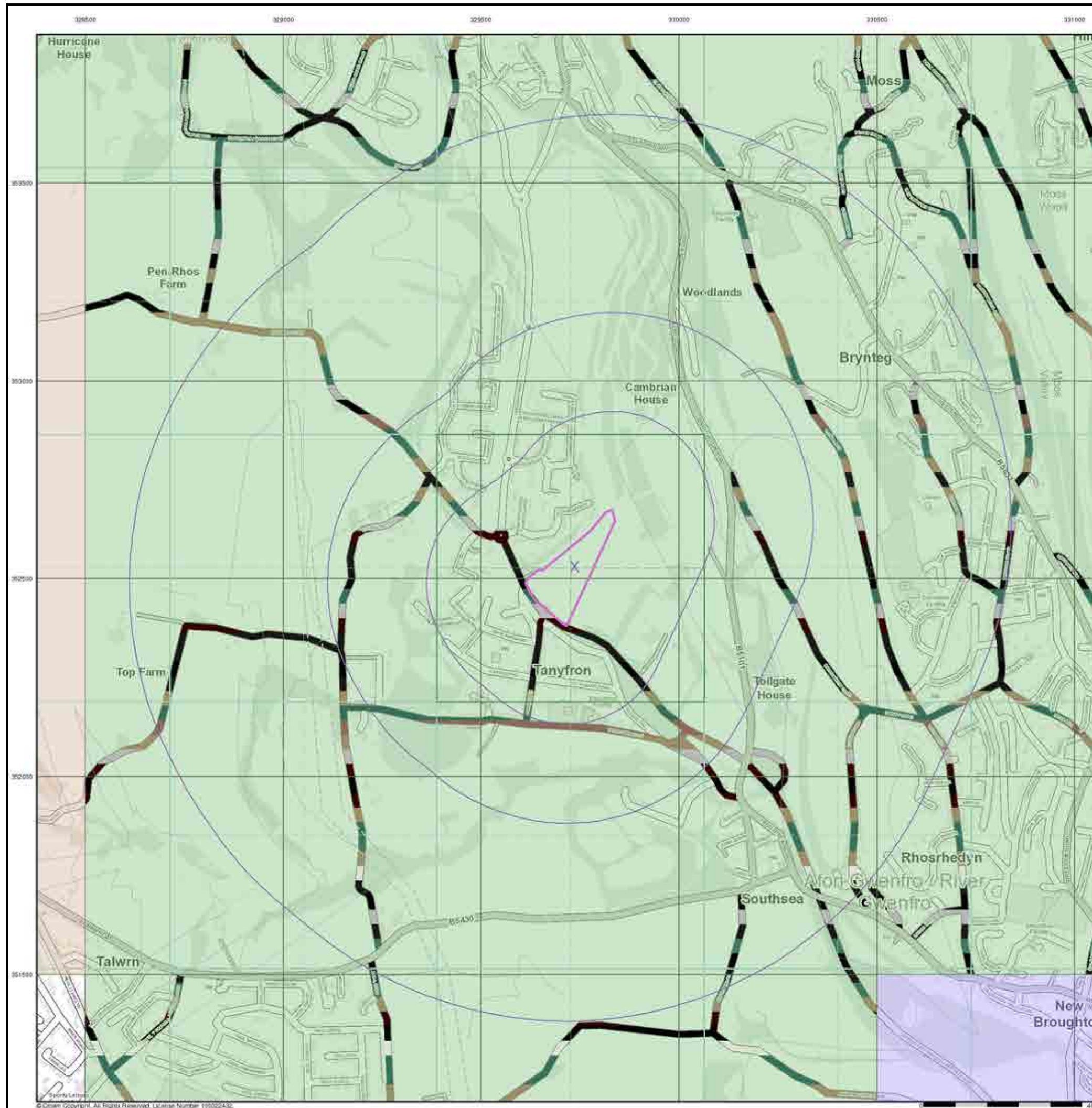


Order Details

Order Details: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 1000

Site Details

Site at 329700, 353500

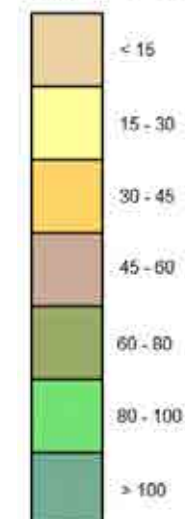


General

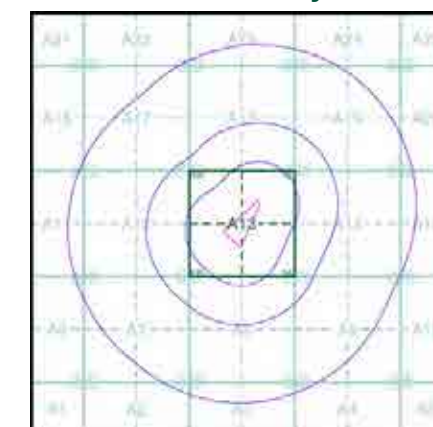
Specified Site Specified Buffer(s) Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A

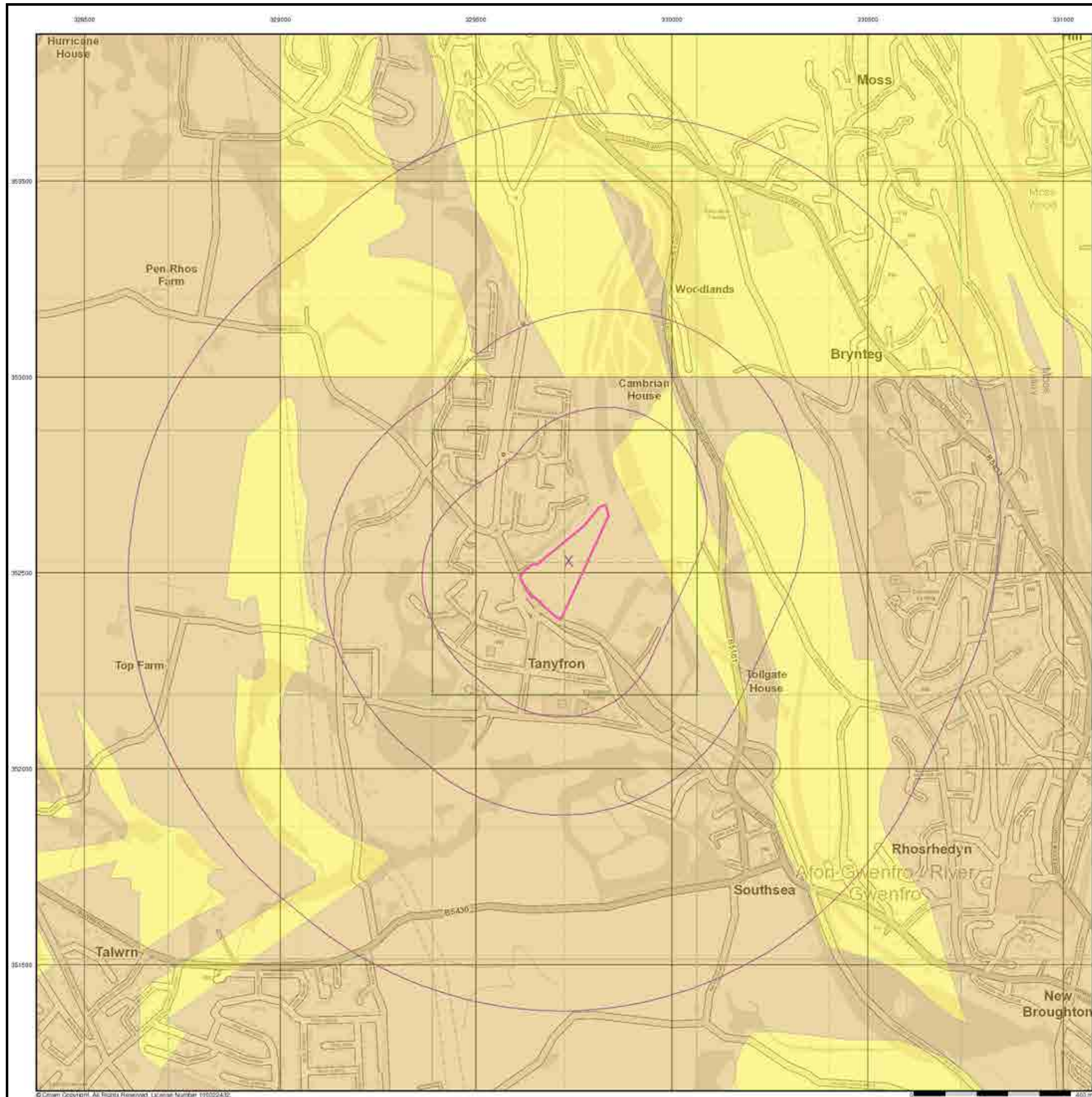


Order Details

Order Details: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 1000

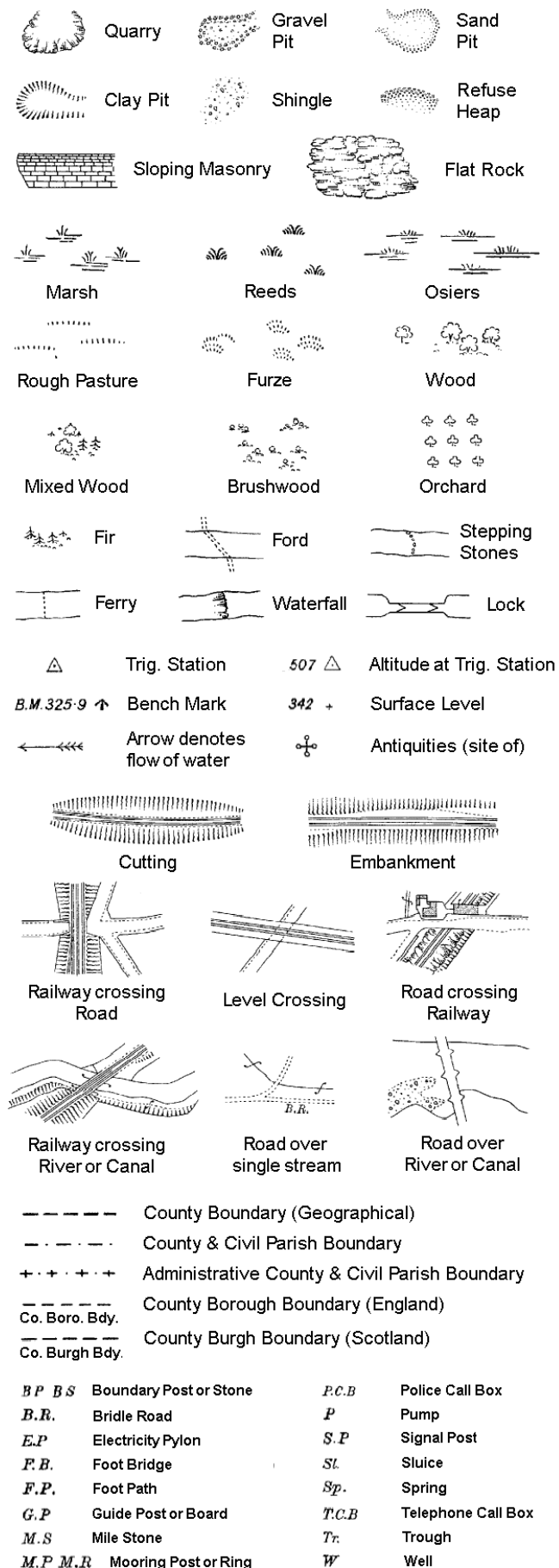
Site Details

Site at 329700, 353500



Historical Mapping Legends

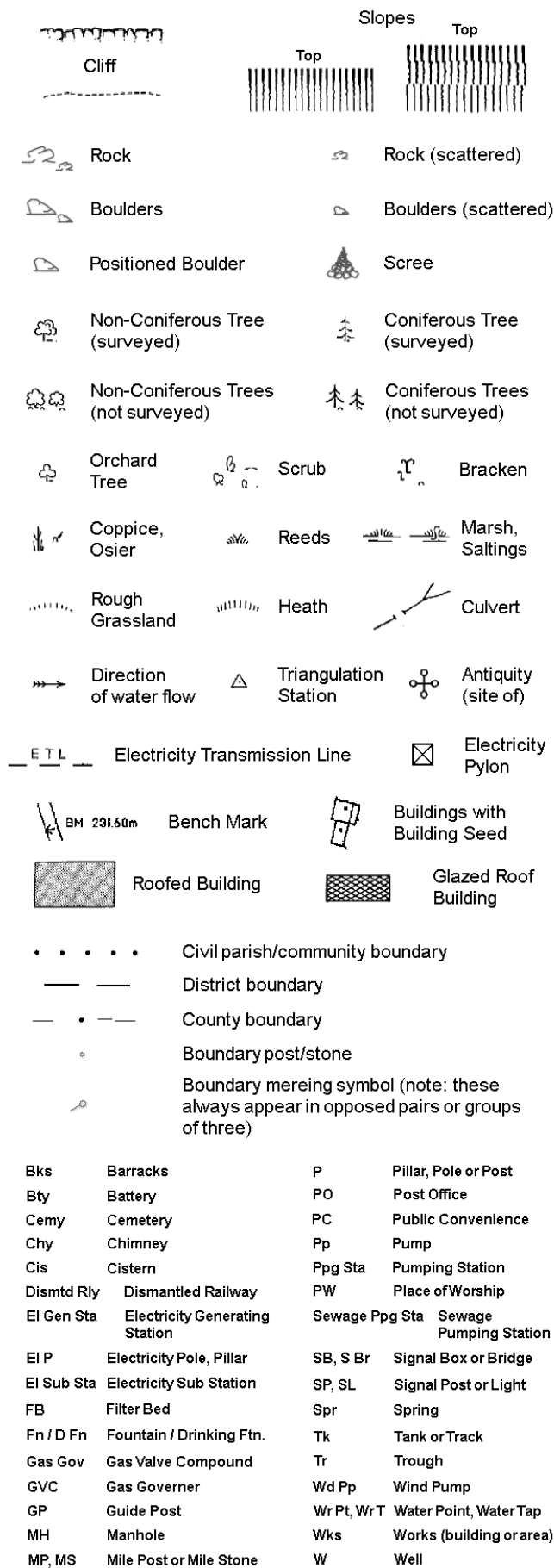
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



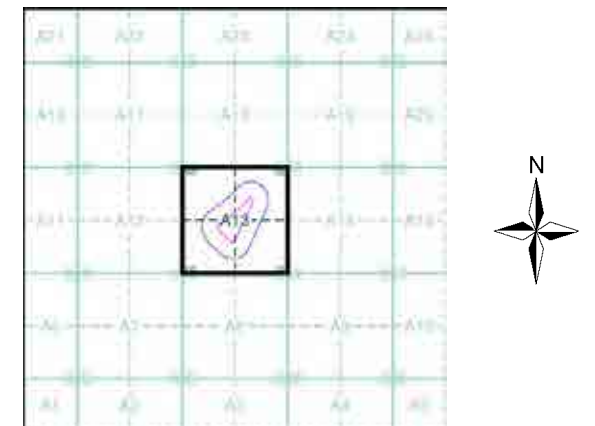
Large-Scale National Grid Data 1:2,500 and 1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Denbighshire	1:2,500	1873	2
Denbighshire	1:2,500	1899	3
Denbighshire	1:2,500	1912	4
Ordnance Survey Plan	1:2,500	1962 - 1963	5
Additional SIMs	1:2,500	1962 - 1990	6
Ordnance Survey Plan	1:2,500	1981 - 1986	7
Additional SIMs	1:2,500	1986	8
Large-Scale National Grid Data	1:2,500	1993	9
Large-Scale National Grid Data	1:2,500	1994	10
Historical Aerial Photography	1:2,500	2001	11

Historical Map - Segment A13



Order Details

Order Number: 173223486_1_1
Customer Ref: ST16882
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Slice: A
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Search Buffer (m): 100

Site Details

Site at 329700, 353500



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Denbighshire

Published 1873

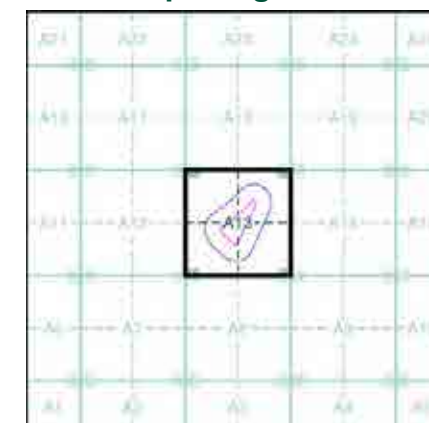
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

028_02
1873
1:2,500
028_06
1873
1:2,500

Historical Map - Segment A13

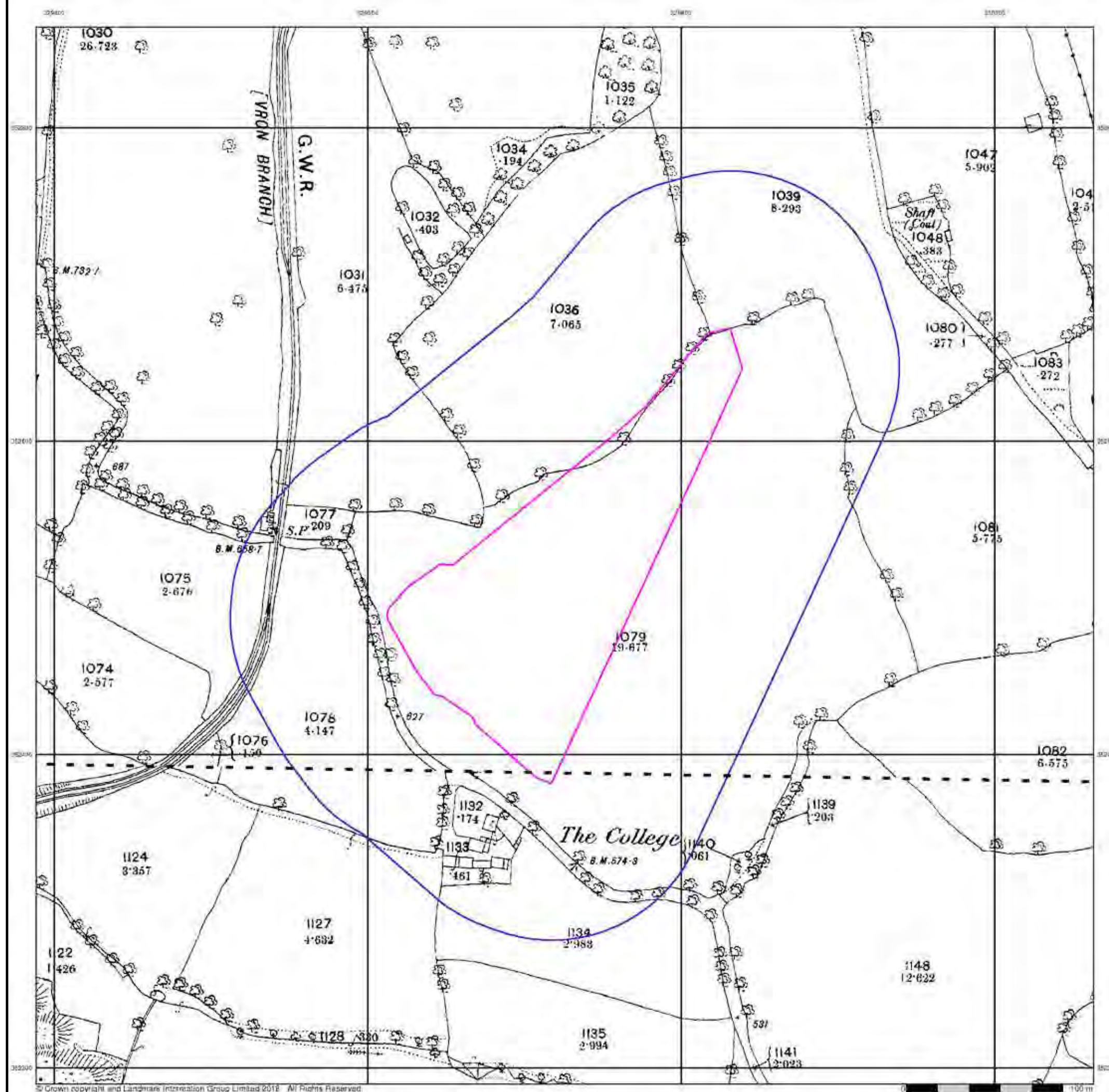


Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 100

Site Details

Site at 329700, 353500



Denbighshire

Published 1899

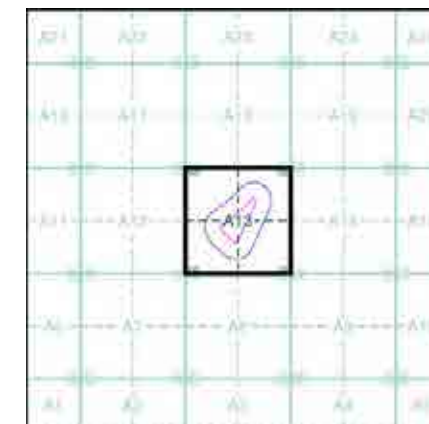
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

028_02	1899	1:2,500
028_06	1899	1:2,500

Historical Map - Segment A13

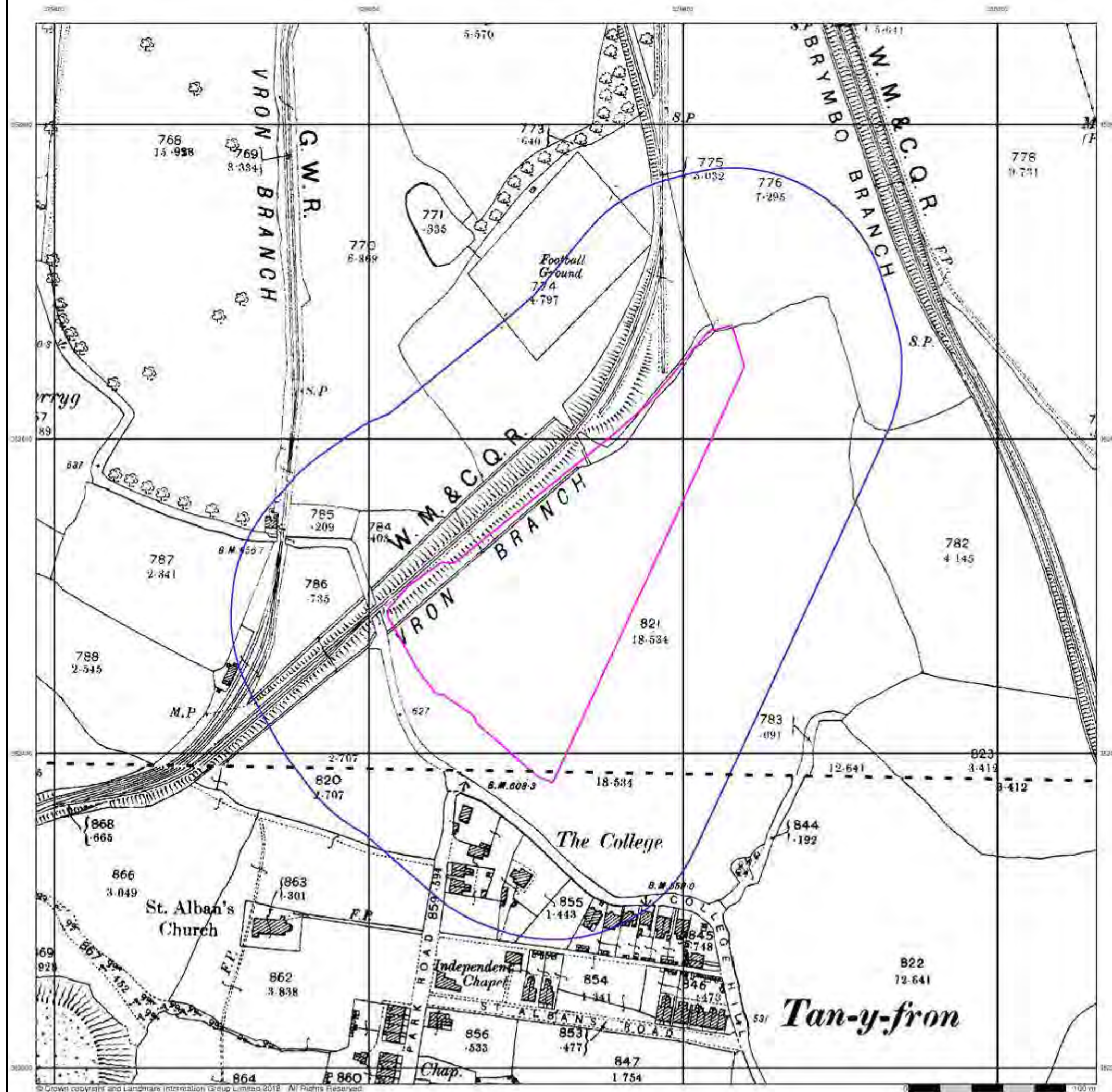


Order Details

Order Number: 173223486_1_1
 Customer Ref: ST16882
 National Grid Reference: 329740, 352530
 Slice: A
 Site Area (Ha): 2.5
 Search Buffer (m): 100

Site Details

Site at 329700, 353500





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Denbighshire

Published 1912

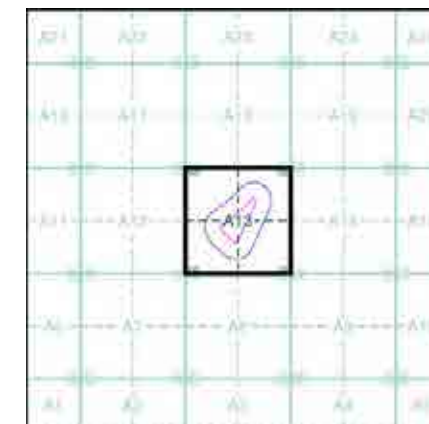
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

028_02
1912
1:2,500
028_06
1912
1:2,500

Historical Map - Segment A13



Order Details

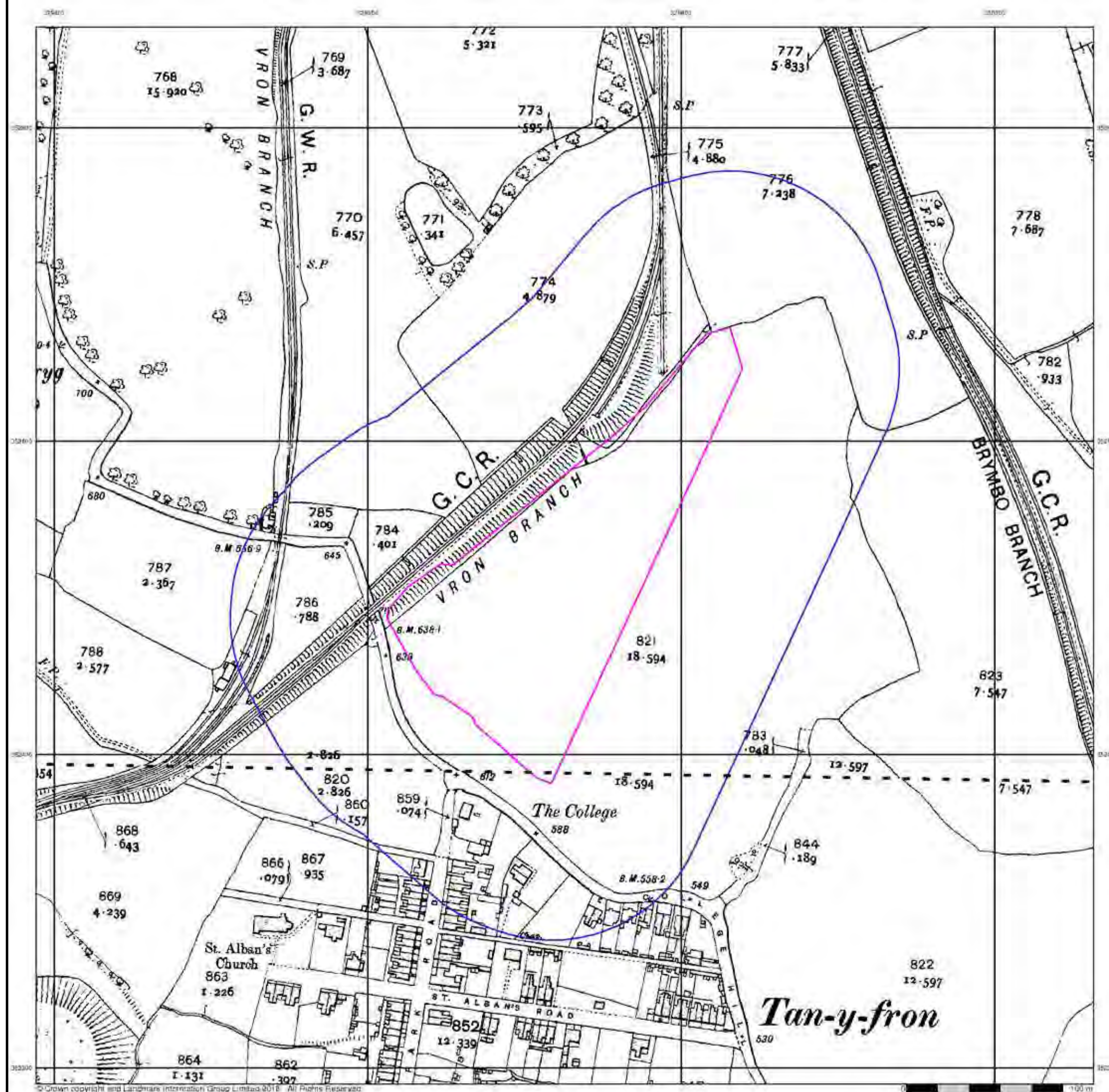
Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 100

Site Details

Site at 329700, 353500



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Ordnance Survey Plan

Published 1962 - 1963

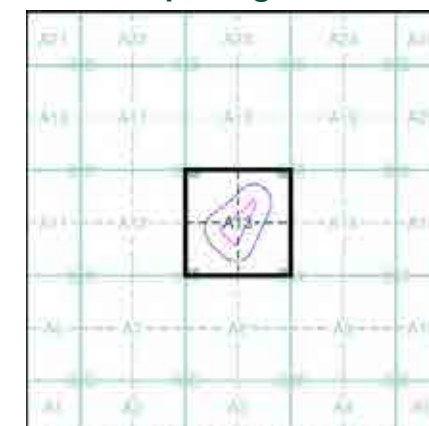
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

SJ2952 1963 1:2,500	SJ3052 1962 1:2,500
---------------------------	---------------------------

Historical Map - Segment A13



Order Details

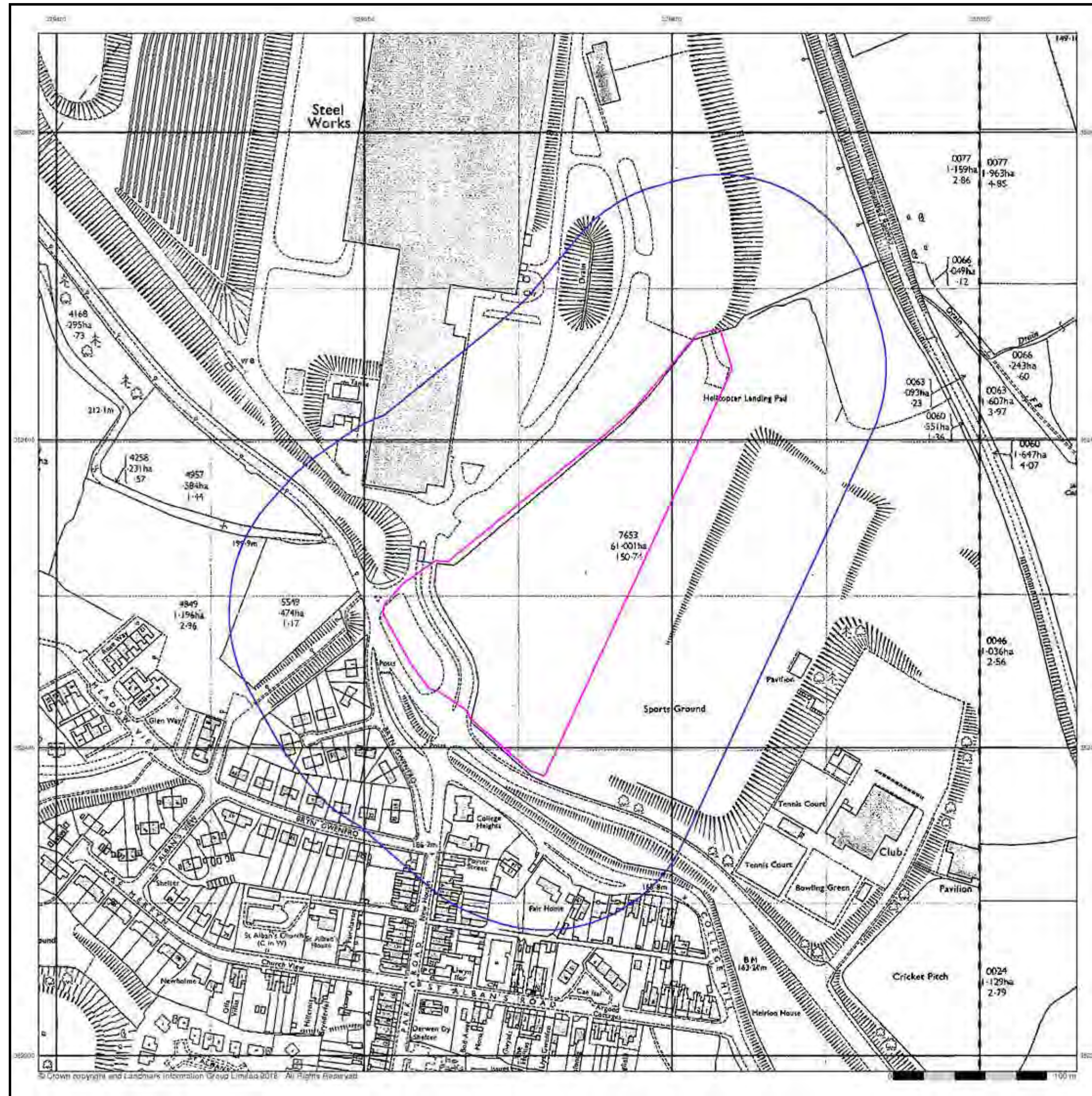
Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 100

Site Details

Site at 329700, 353500



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Additional SIMs

Published 1962 - 1990

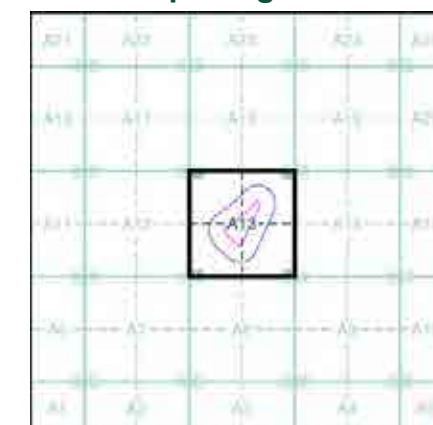
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SJ2952 1990 1:2,500	SJ3052 1962 1:2,500
---------------------------	---------------------------

Historical Map - Segment A13



Order Details

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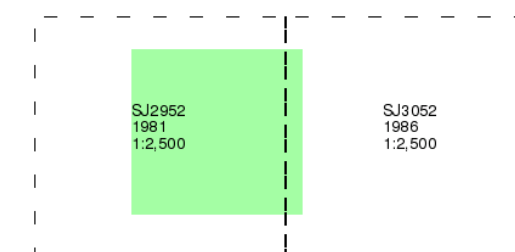


Published 1981 - 1986

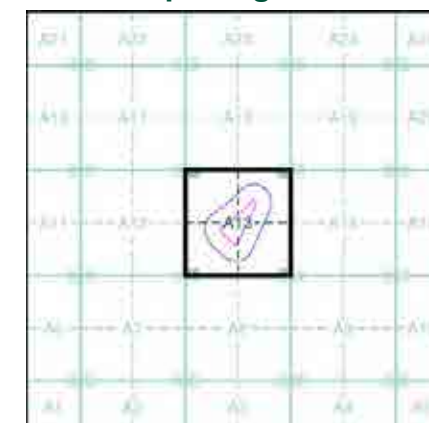
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

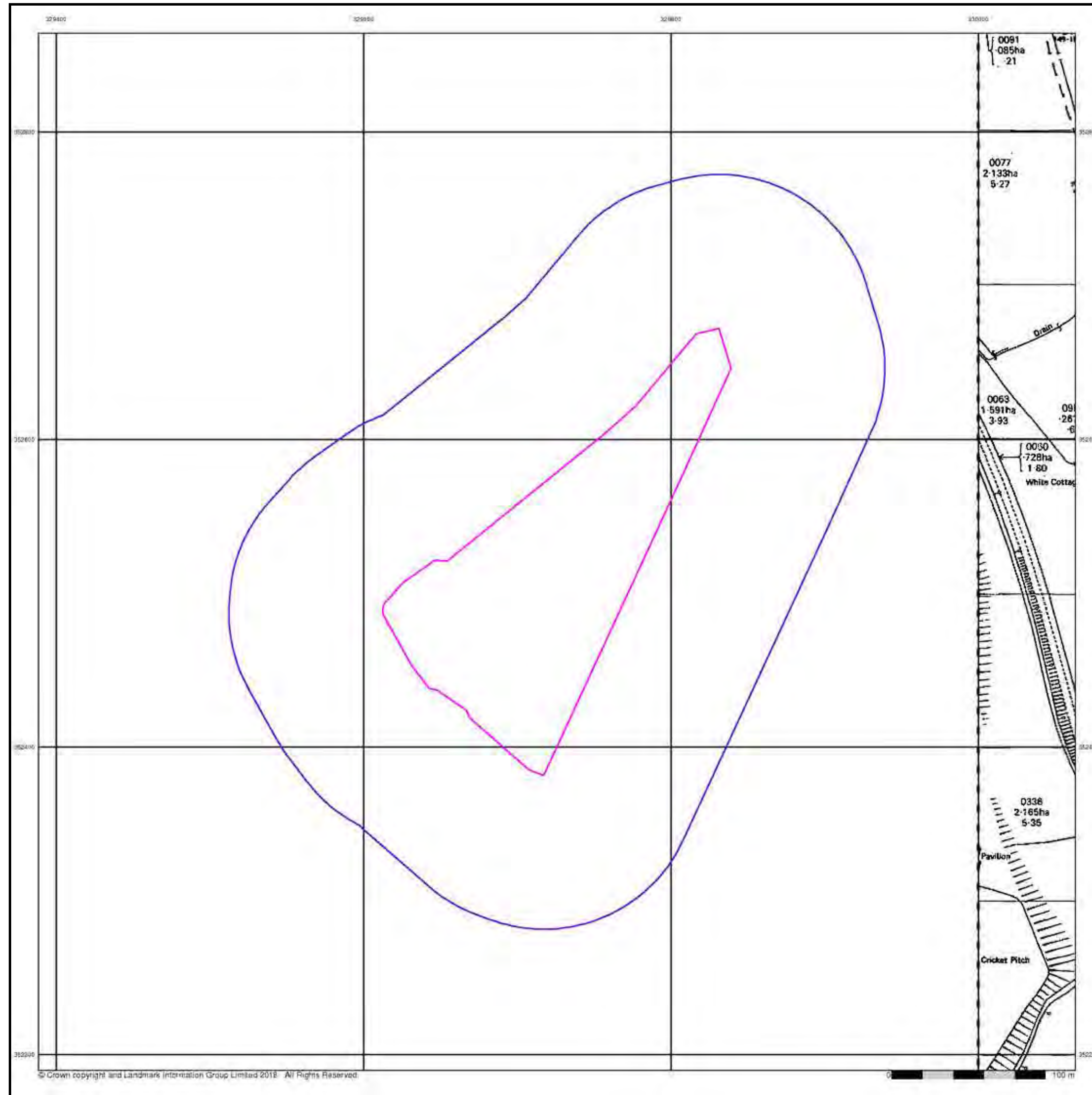
Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 100

Site Details

Site at 329700, 353500

Landmark
INFORMATION GROUP

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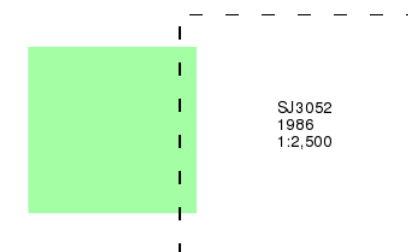
Additional SIMs

Published 1986

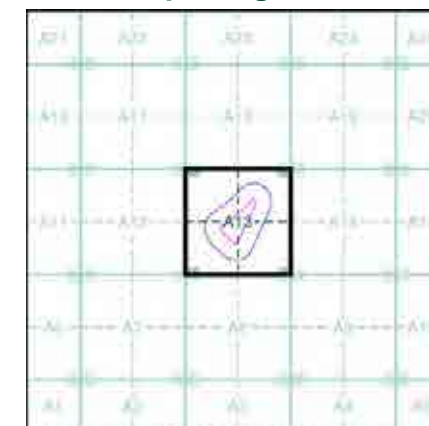
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

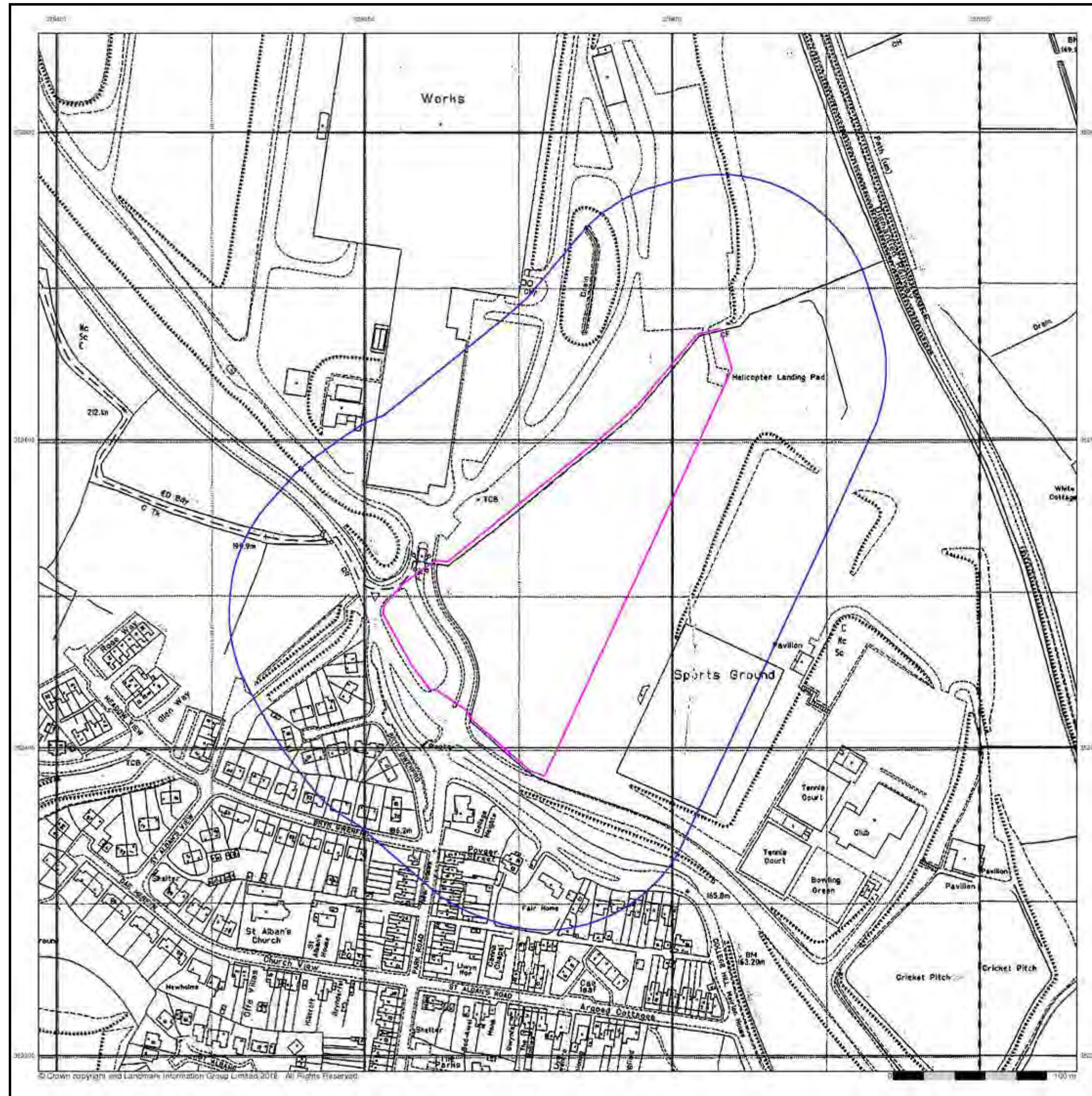
Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 100

Site Details

Site at 329700, 353500



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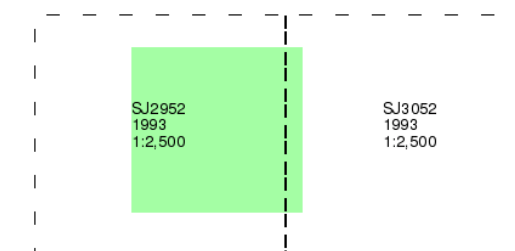
Large-Scale National Grid Data

Published 1993

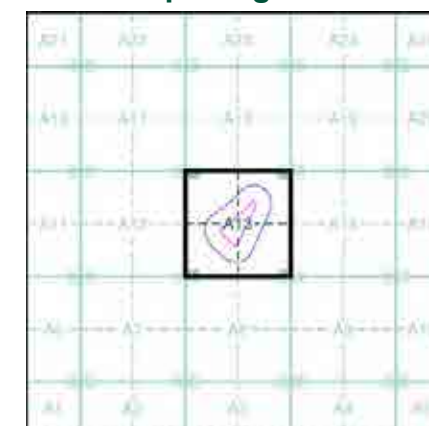
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

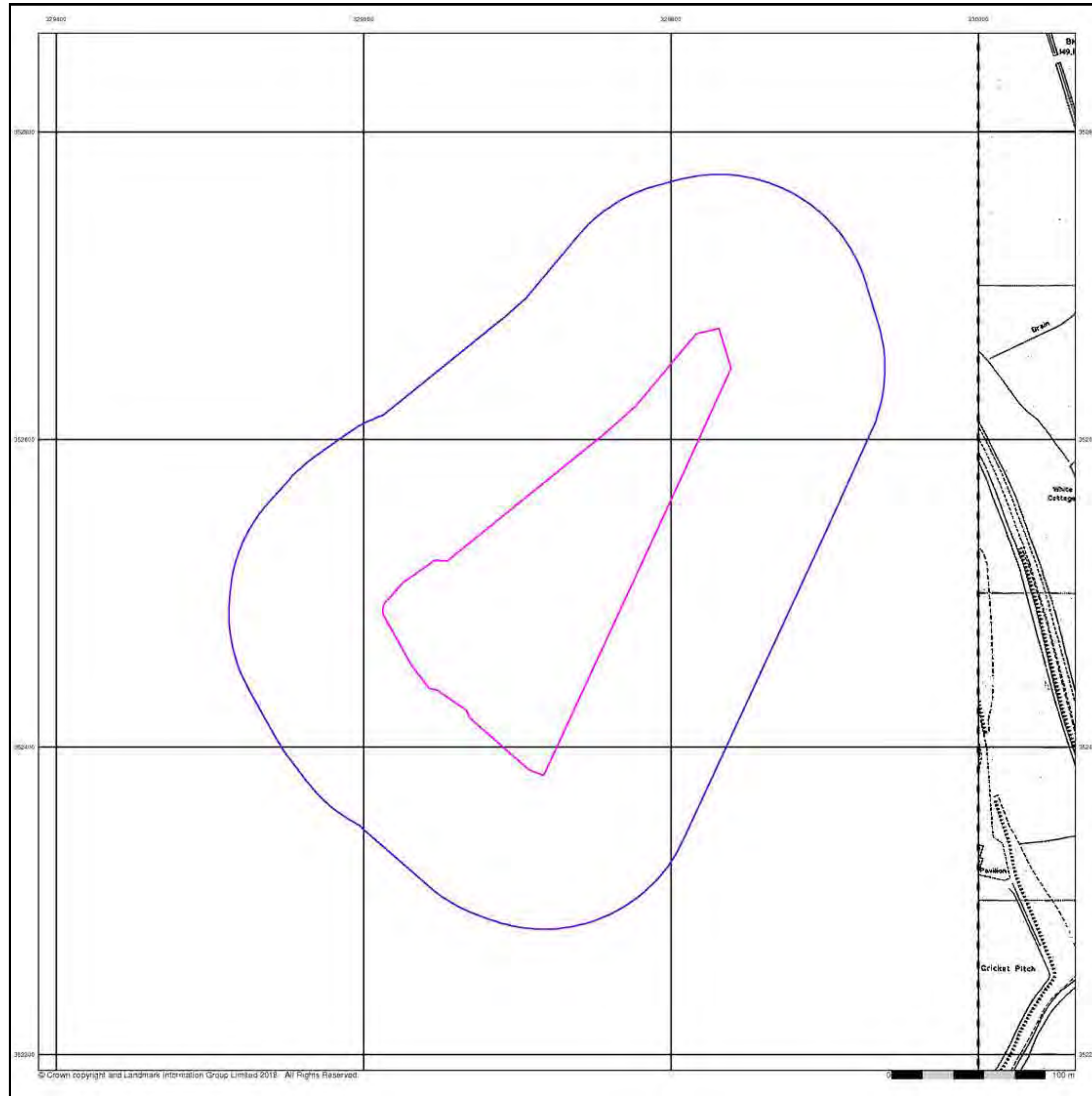
Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 100

Site Details

Site at 329700, 353500



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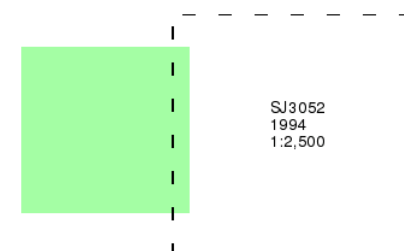
Large-Scale National Grid Data

Published 1994

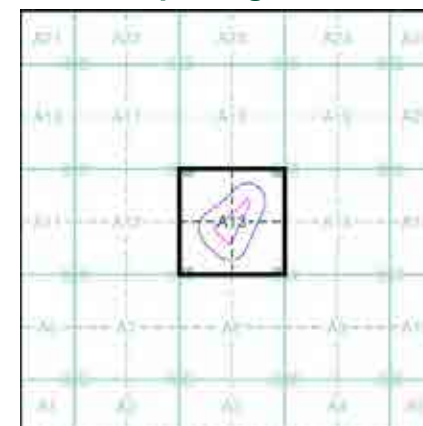
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 100

Site Details

Site at 329700, 353500



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Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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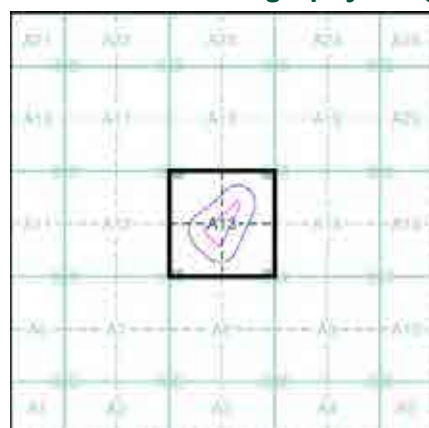
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Historical Aerial Photography

Published 2001

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

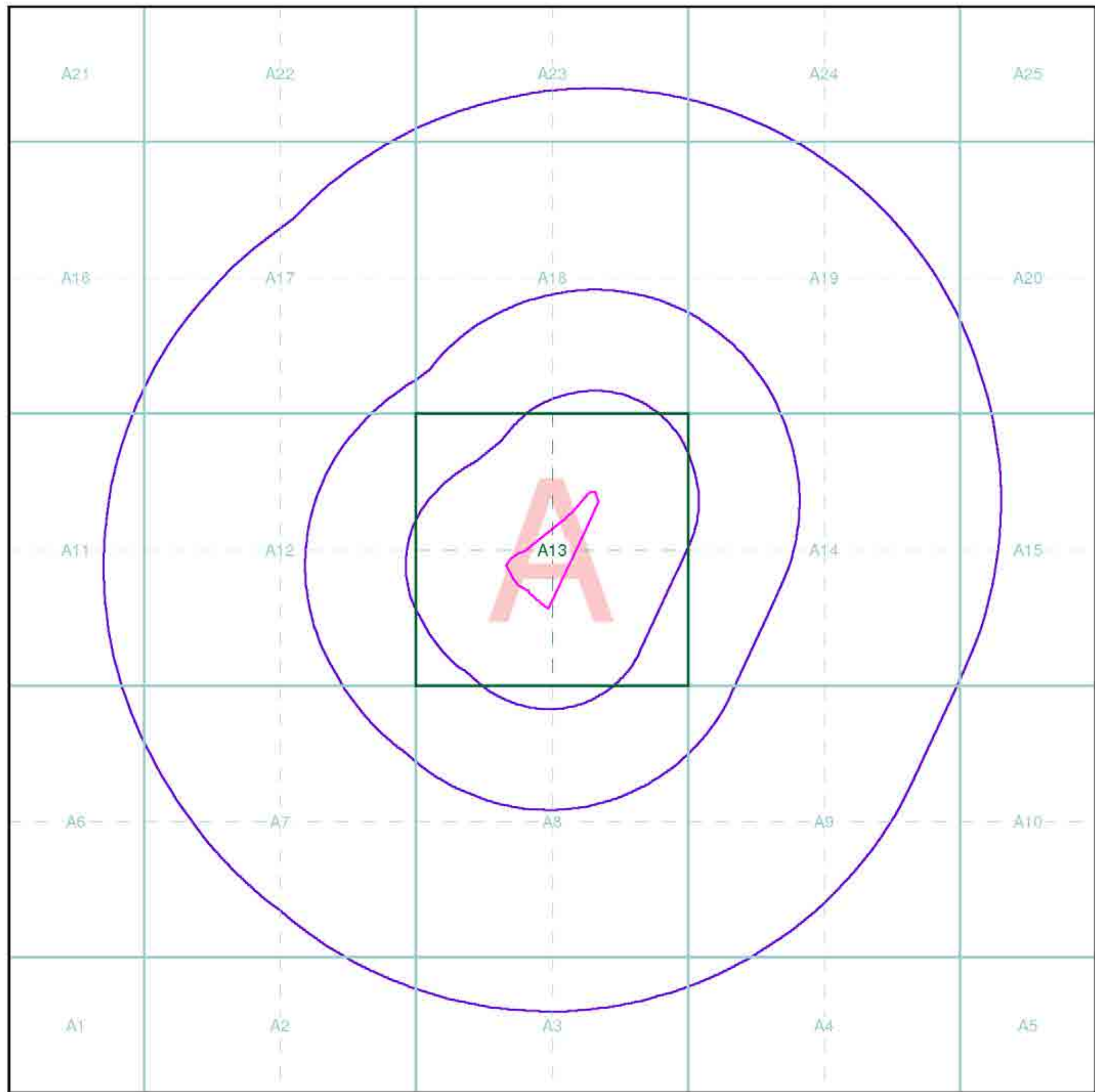
Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329740, 352530
Slice: A
Site Area (Ha): 2.5
Search Buffer (m): 100

Site Details

Site at 329700, 353500



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Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice

Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment

A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant

A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr J Sines, Wardell Armstrong LLP, Sir Henry Doulton House, Forge Lane, Etruria, Stoke on Trent, ST1 5BD

Order Details

Order Number: 173223486_1_1
Customer Ref: ST16882
National Grid Reference: 329730, 352520
Site Area (Ha): 2.5
Search Buffer (m): 1000

Site Details

Site at 329700, 353500

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APPENDIX 4

The Coal Authority Consultants Report



The Coal
Authority

Consultants Coal Mining Report

1 Bryn Gwenfro
Tanyfron
Wrexham
LL11 5SW

Date of enquiry:	2 August 2018
Date enquiry received:	2 August 2018
Issue date:	2 August 2018

Our reference:	51001895663001
Your reference:	ST22343



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

Wardell Armstrong LLP

Enquiry address

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Tanyfron
Wrexham
LL11 5SW

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Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	QUAKER	Coal	7P0K	109	North-West	5.2	East	100	1876
unnamed	TWO YARD	Coal	7OLV	177	South-West	8.0	East	150	1866
unnamed	TWO YARD	Coal	3U2J	177	North-West	11.1	East	150	1874
unnamed	QUAKER	Coal	7P0M	192	West	7.1	East	100	1877
VRON	POWELL	Coal	3VKP	192	South-West	8.0	East	110	1904
unnamed	QUAKER	Coal	3U54	194	South-West	8.0	East	170	1883
BRYMBO	MAIN	Coal	39YF	207	Beneath Property	5.0	South-East	200	1876
VRON	TWO YARD	Coal	7BN3	216	South-West	8.0	East	200	1882
UPPER DROUGHY	MAIN	Coal	3V32	232	Beneath Property	8.0	East	180	1904
unnamed	WALL AND BENCH	Coal	3V5H	315	North	8.1	East	50	1913

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

12014	NW1485	9555
NW1483	NW1473	NW1448
12361	16713	NW1474

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property recorded.

Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

The Coal 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

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

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

Payments to owners of former copyhold land

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

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

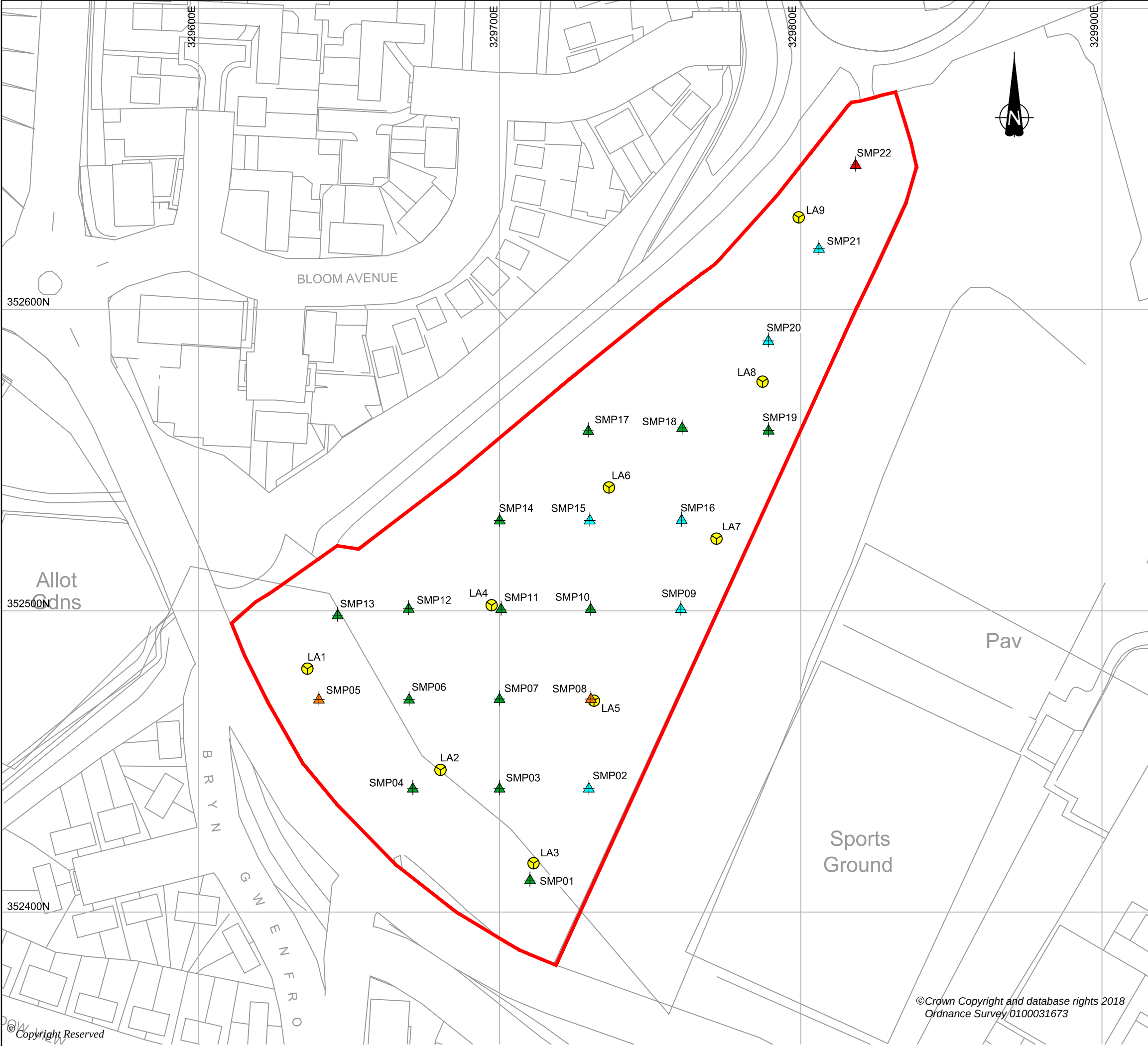
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

DRAWINGS



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KEY

APPROXIMATE SITE BOUNDARY

PLATE LOAD TEST LOCATION

SETTLEMENT MONITORING POINTS

GREATER THAN 10mm OF SETTLEMENT

SETTLEMENT BETWEEN 5mm AND 10mm

SETTLEMENT BETWEEN 0mm AND 5mm

HEAVE

BETWEEN 0mm AND 5mm OF HEAVE

C	Amendment to site boundary	18/06/19	DR	JS	RB
B	Client Name & Site Boundary amended.	18/06/19	SJB	JS	RB
A	First Issue	20/11/18	SJB	JS	RB
REVISION	DETAILS	DATE	DRN	CHKD	APPD

CLIENT

Parkhill Estates & Brymbo Developments Ltd.

PROJECT

Former Brymbo Steelworks, Wrexham: Link Road Development Module

DRAWING TITLE

Previous Site Investigation - Scott Wilson

DRG No.	ST16882-003	REV	C
DRG SIZE	A3	SCALE	1:1250
DRAWN BY	SJB	CHECKED BY	JS
		APPROVED BY	RB

wardell armstrong

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WWW.WARDELL-ARMSTRONG.COM

BIRMINGHAM

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CARDIFF

CARLISLE

EDINBURGH

GLASGOW

LONDON

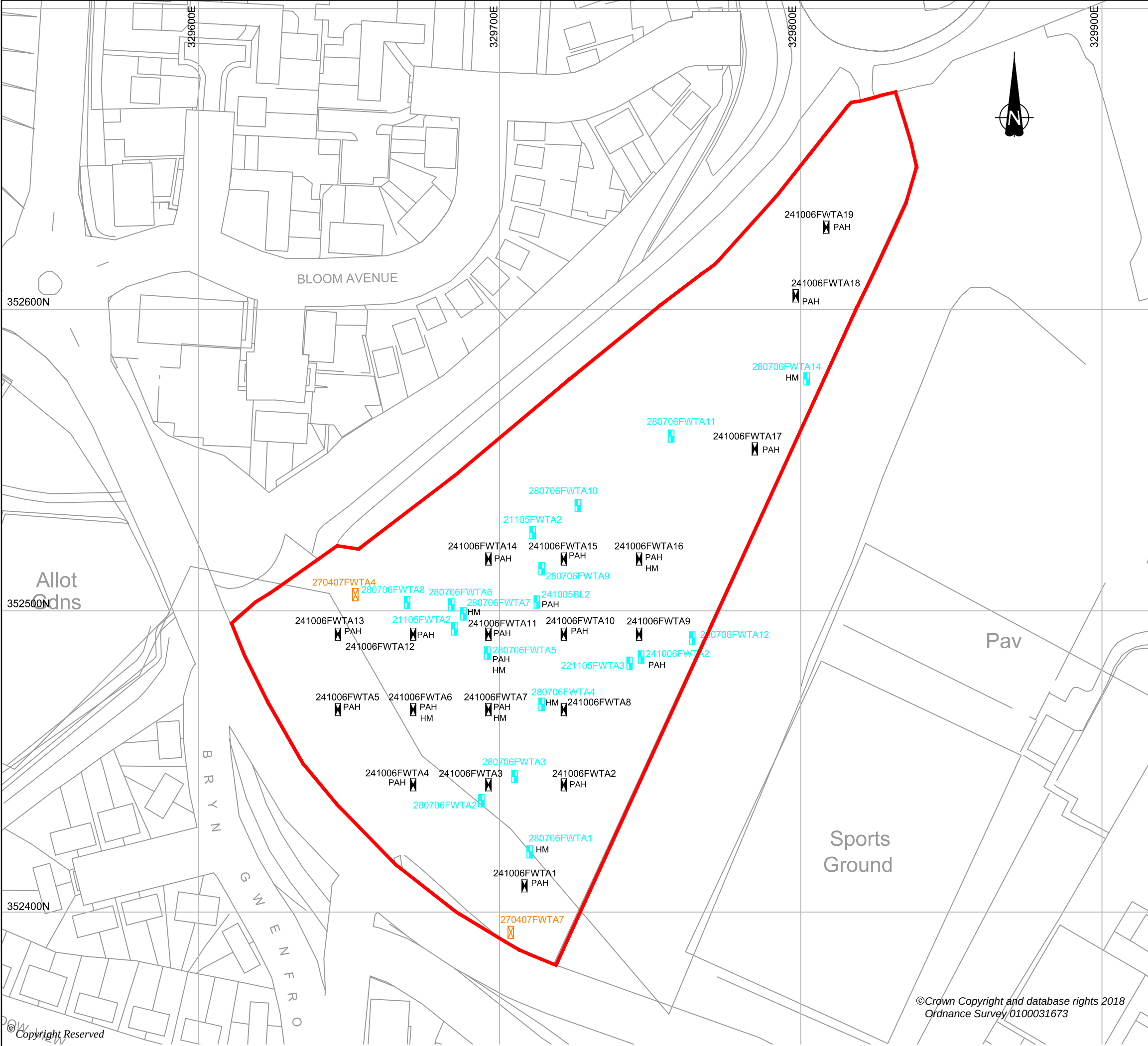
MANCHESTER

NEWCASTLE UPON TYNE

SHEFFIELD

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Ordnance Survey 0100031673

N:\ST16882 - FORMER BRYMBO STEELWORKS\03 - DESIGN\AUTOCAD\ST16882-003-C_PREVIOUS SITE INVESTIGATION LOCATIONS BY SCOTT WILSON.LTD.DWG



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KEY

APPROXIMATE SITE BOUNDARY

2003 - 2006 SITE INVESTIGATION:

PRE-RECLAMATION VALIDATION SAMPLES

2006 SITE INVESTIGATION:

BATTER VALIDATION SAMPLE

RESTORATION SURFACE VALIDATION SAMPLE

EXCEEDANCES:

HM HEAVY METALS

PAH PAH

NOTES:

PLAN SHOWS ALL SAMPLE LOCATIONS PROVIDED BY THE SMITH GRANT ON SITE PLANS IN THE CONTAMINATION CERTIFICATION REPORT.

WHERE CO-ORDINATES WERE NOT AVAILABLE, POSITIONS ARE APPROXIMATELY MARKED.

EXCEEDANCES SHOWN ARE RELATED TO 2015 GUIDELINES.

C	Amendment to site boundary	23-08-19	DR	JS	RB
B	Client Name & Site Boundary amended.	18/06/19	SJB	JS	RB
A	First Issue	20/11/18	SJB	JS	RB

REVISION	DETAILS	DATE	DRN	CHKD	APPD
----------	---------	------	-----	------	------

CLIENT

Parkhill Estates & Brymbo Developments Ltd.

PROJECT

Former Brymbo Steelworks, Wrexham: Link Road Development Module

DRAWING TITLE

Previous Site Investigation - Smith Grant

DRG No.	ST16882-004	REV	C
DRG SIZE	A3	SCALE	1:1250
DRAWN BY	SJB	CHECKED BY	JS
		APPROVED BY	RB

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DO NOT SCALE FROM THIS DRAWING

KEY

APPROXIMATE SITE BOUNDARY

186.0

FINISHED LEVEL CONTOURS

6.0

FILL MATERIAL CONTOURS

GEOLOGICAL FAULT

AREA OF BURIED SLOPES (UPTO >1:1 GRADIENT)

AREA OF SETTLEMENT > 10mm

FRENCH DRAIN

TREES

DISCHARGE CONSENT

RESTORATION SURFACE VALIDATION SAMPLE (2006)

EXCEEDANCES (POST RECLAMATION)

HM

HEAVY METALS

PAH

PAH

C	Amendment to site boundary	23-08-19	DR	JS	RB
B	Client Name & Site Boundary amended.	18/06/19	SJB	JS	RB
A	First Issue	20/11/18	SJB	JS	RB
REVISION	DETAILS	DATE	DRN	CHKD	APPD

CLIENT

Parkhill Estates & Brymbo Developments Ltd.

PROJECT

Former Brymbo Steelworks, Wrexham: Link Road Development Module

DRAWING TITLE

Development Considerations and Constraints

DRG No.	ST16882-005	REV	C
DRG SIZE	A3	SCALE	1:1250
DRAWN BY	SJB	CHECKED BY	JS
		APPROVED BY	RB

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