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Mr R Floyd
Worsteads Developments Ltd
98 Kirkstall Road
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BY EMAIL

Our Ref: WOR/01/JRjcl5

12th June 2025

Dear Richard

Shop Lane, Kirkheaton
Updated Environmental Risk Assessment and Remediation Strategy

In accordance with our commission, we review below the original contamination test results of 2009 and update the conceptual model and environmental risk assessment for the site. A revised Remediation Statement has also been produced. Further details are provided below.

Background

It is proposed to develop the site with residential dwellings. To provide information to aid the planning process, viability assessment, and design of any subsequent development, Encia Environmental Ltd carried out a geo-environmental investigation of the site. The report for this was issued in June 2009 (Report No, 9557/01).

in 2016, ARP was commissioned to review the chemical test data from the Encia geo-environmental report and compared them against updated screening values. The review, together with a Remediation Statement, was reported in letter WOR/01/MCB, dated 23rd August 2016.

In 2025, it was considered prudent to submit information to discharge pre-commencement planning conditions and it was evident that the ARP Environmental Risk Assessment and Remediation Strategy of 2016 would need to be revised and updated to take into account changes in regulations, guidance, and contamination screening values since its issue. In addition, a new Envirocheck Report would be required, to check for any changes to land use in the locality that could impact the site, or that the site could impact.

This report does not include a copy of the original Encia report, but does refer to the report and include selected extracted information. Reference should be made to the report for detailed information. The indicative layout attached is only for the purposes of informing the conceptual model and minor revisions to the layout that do not affect the conceptual model do not require revision of this report.

2025 Envirocheck Report

The most recent archive map in the Encia report is of 2007, and this shows all the buildings still to be present on the site, and the small mill reservoir in the northwest. The only additional map included in the 2025 Envirocheck Report, that is later than 2007, is of 2024, and this shows the site to be fully clear of any buildings, with the mill reservoir no longer evident. There is no significant change to the adjacent and surrounding area.

There are no new discharge consents on or near the site, no pollution control authorisations within 500m, no new pollution incidents within 500m, and no changes relating to water abstractions within 1km of the site.

The Bedrock Aquifer Designation for the strata below the site is Secondary A. These Aquifers comprise "permeable layers capable of supporting water supplies at a local rather than strategic scale", and in some cases forming an important source of base flow to rivers.

There are no additional areas of potentially infilled land or landfills identified by the new Envirocheck, and there is no change to the original categorisation of the site as being within an area not requiring radon protection for new buildings.

There are no other factors identified in the 2025 Envirocheck that have any significant impact on the conceptual site model for the site.

Screening Values - Soils

Soil contamination test results in this report have been compared first against the more conservative S4UL, and where a C4SL exists for the same determinand, consideration given to the use of the C4SL for any exceedances of the S4UL, within the site-specific context (including the use of benzo(a)pyrene as a surrogate marker for genotoxic PAH compounds, where appropriate). Where no S4UL exists for a determinand, for example lead, the C4SL has been used. The LQM/CIEH screening values have been calculated for soil organic matter contents of 1% and 2.5%, as well as 6%, and the appropriate screening value is used for the organic matter content of the soil. All the C4SL values published are for a soil organic matter content of 6%. The screening values table is presented in Appendix C of this letter.

There have been no significant changes to controlled waters screening values since the Encia report of 2009.

Comparison of Results Against Screening Values

Seventeen samples of made ground were issued by Encia to the UKAS accredited Scientific Analysis Laboratories (SAL) in Manchester for a suite of testing (As, Cd, Cr (VI), Cr(III), Cu, Hg, Ni, Pb, Se, Zn, Total Sulphate, Water Soluble Sulphate, pH, Phenol-monohydric, Speciated PAH, Total TPH, Asbestos, Organic Matter and a wide range of organic compounds).

Any determinands with exceedances of screening values were subjected to statistical analysis using the "Pro UCL" analysis software, which automatically determines the most appropriate 95% Upper Confidence Level (UCL) applicable to each determinand. The table below shows the determinands with exceedances (values highlighted yellow), the screening values, and the applicable UCLs.

Trial Pit	Depth (m)	Lead	Arsenic	Copper	Nickel	Zinc
TP1	0.6-1.5	110.0	25.0	44.0	32.0	110.0
TP1	1.9-3.0	31.0	9.0	31.0	47.0	110.0
TP2	0.0-1.0	310.0	10.0	33.0	26.0	190.0
TP3	0.15-0.9	32.0	14.0	65.0	12.0	28.0
TP5	0.0-0.2	650.0	16.0	43.0	35.0	320.0
TP6	0.6-0.65	37.0	20.0	120.0	72.0	84.0
TP6	0.65-1.1	110.0	12.0	41.0	41.0	130.0
TP7	0.2-0.9	57.0	9.0	18.0	18.0	75.0
TP8	0.0-0.55	1100.0	17.0	90.0	22.0	700.0
TP9	0.2-1.5	240.0	9.0	38.0	25.0	120.0
TP9	1.5-1.7	200.0	32.0	77.0	32.0	230.0
TP11	0.15-0.7	23.0	6.0	23.0	39.0	100.0
TP12	0.0-2.3	27.0	7.0	18.0	32.0	86.0
TP12	2.4-2.9	300.0	68.0	76.0	56.0	120.0
TP13	0.4-2.5	220.0	110.0	130.0	47.0	170.0
TP14	0.0-1.0	31.0	5.0	22.0	40.0	91.0
TP16	0.0-1.0	35.0	6.0	22.0	47.0	130.0
Screening Values		**200.0**	**37.0**	**80#**	**50#**	**200#**
95% UCL		**378.0**	**35.2**	**72.2**	**42.9**	**237.2**

Exceedence

Acceptable

All values in mg/kg unless indicated otherwise

MAFF values - focused on ecology, plants and animals rather than humans

It can be seen from the table that six samples revealed exceedances of screening values within the made ground, comprising elevated lead up to 1,100mg/kg and arsenic up to 110mg/kg. The overall representative concentration (95% UCL) for lead, of 378mg/kg, is above the screening value, indicating the whole of the made ground should be regarded as being above the screening value with respect to lead levels. Conversely, the 95% UCL for arsenic is below the screening value, indicating the made ground overall has lead levels compatible with residential use.

Three locations also contained elevated phytotoxic determinands, copper, nickel and zinc, although only the UCL for zinc was above the screening value.

Ash and clinker within the made ground was tested for calorific value. The results indicate values up to 5.3MJ/kg, making this material potentially combustible.

Leachability analysis was carried out for the heavy metals within the made ground, and also a single sample of perched water encountered at TP8 was analysed. The laboratory test certificates show the perched water at TP8 and the made ground at TP9 (0.2-1.5m) to have a degree of chromium leachability with values of 8µg/l and 5µg/l respectively (the EQS screening value is 4.7µg/l).

Summary of Contamination Results Comparison:-

Taking into account all of the analysis, the following can be concluded: -

The made ground across Area 1 (larger parcel of land) contains widespread elevated lead and zinc concentrations. The made ground is, therefore, unsuitable to be present at the surface of a residential development, and some form of remediation will be necessary. A degree of leachability of chromium is evident, and this will need to be considered in the risk assessment, which follows below. All the locations with exceedances are located on the main site, west of Shop Lane.

Updated Risk Assessment and Conceptual Model

The conceptual model can be updated to take account of the findings of the site investigation and laboratory tests. The main refinements are given below:-

The site is underlain by between 0.3m and 3.7m thickness of made ground but generally around 1.1m thickness, overlying natural weathered cohesive and granular sandstone deposits. The made ground comprises granular and cohesive made ground, rubble, and lesser amounts of ash and clinker, and relict topsoil. No radon protection is required for the proposed properties and Encia discounted the risk of hazardous gas from nearby infilled land due to its likely type, size and age (i.e. no gas protection is stated to be required).

The made ground across Area 1 was found to contain widespread elevated concentrations of lead, with a 95% UCL of 378mg/kg, above the 200mg/kg screening value, and zinc, with a 95% UCL of 237mg/kg, above the 200mg/kg screening value. The made ground also contained elevated concentrations of arsenic at up to 110mg/kg, at two locations, but the 95% UCL was below the screening value. These locations do not need to be considered separately, particularly given the widespread elevated lead and zinc concentrations. A degree of chromium leachability was evident.

Ash and clinker within the made ground was found to have calorific values up to 5.3MJ/kg, making it potentially combustible.

The conceptual model needs to consider sources of contamination, pathways along which contaminants could migrate and the receptors, which may become exposed. The sources, pathways, and receptors, applicable to the proposed development are identified on the table below. Any pathways in italics are deemed not to be viable (and the reason given in brackets).

Viable Source - Pathway - Receptor Matrix (Finished Development)

Contamination Sources	Pathways	Receptors	Severity of Consequence	Probability of Event	Risk
Made ground – widespread elevated Lead and zinc, slight degree of chromium leachability	• Inhalation, ingestion and dermal contact with soil and dust	**Humans:-** • Future occupants • Maintenance workers • Adjacent residents and general public	**Medium**	**Low Likelihood**	**Moderate/ Low**
	• Fruit and vegetable intake, with soil	**Humans (as above)**	**Medium**	**Low Likelihood**	**Moderate/ Low**
	• *Vapour inhalation outdoor (not applicable to the contaminants)*	**Humans (as above)**	**Pathway Not Applicable**		
	• *Vapour inhalation indoor (not applicable to the contaminants)*	**Humans (as above)**	**Pathway Not Applicable**		
	• Migration in surface water	• Surface water (nearest is culvert on-site. No active abstractions within 1km)	**Mild**	**Unlikely**	**Very Low**
	• Migration in groundwater	• Groundwater (Secondary A Aquifer, no abstractions within 1km)	**Mild**	**Unlikely**	**Very Low**
	• Root uptake	**Vegetation:-** • Landscape areas • Private gardens	**Medium**	**Low Likelihood**	**Moderate/ Low**
	• Migration	**Services/Utilities:-** • Potable water supply	**Mild**	**Unlikely**	**Very Low**
Potentially combustible ash	• Asphyxiation • Physical damage	• Construction/de-molition workers • Future occupants • Buildings	**Severe**	**Low Likelihood**	**Moderate**

It can be seen from the above matrix that several pathways to receptors are operative, and this may affect users of the finished development. Some form of remedial action is, therefore, considered necessary to allow residential development without excess risk.

Risk Based Assessment of Remedial Options

The conceptual model has identified risks from the made ground materials from contamination by widespread lead and zinc, and potential combustibility of ash (where present). A slight degree of chromium leachability was evident.

Ingestion, Dust Inhalation, Dermal Contact, Root Uptake, & Fruit and Vegetable Intake With Soil

This pathway is automatically blocked where buildings or hardstanding are present above the material. However, in garden and landscaped areas, provision of a cover blanket of a minimum 0.6m thickness will be required, to reduce the risk to future users of the site to acceptable levels from these pathways. This assumes a worst case double dig scenario (i.e. 2 x spade depths). An increased soil cover thickness of 1.0m will be necessary for any potentially combustible material (ash and clinker) beneath garden or landscaped areas, as usually required by regulatory authorities.

Pathway of Surface Water and Groundwater Migration (Leaching) from the Made Ground

A degree of chromium leachability was evident. The pathway is automatically blocked where buildings or hardstanding are present above the material, and can be blocked in garden/landscape areas by ensuring the cover blanket noted in the preceding section includes at least 450mm thickness of material with a minimum 35% silt/clay content (at least 35% passing a 63 micron sieve), for example clay, sandy clay, or gravelly clay, to prevent rainwater mobilising the contamination.

Risks During Construction Period

It is also necessary to consider the effects of the contamination present on the site in relation to the risks to adjacent residents, construction workers and the general public during construction. This is assessed in the following matrix.

Source	**Pathway**	**Potential Risk**	**Risk after employing suitable Health and Safety plan.**
Existing made ground	Inhalation	Moderate	Damping down of the site during dry periods and timely placement of the existing made ground below barriers should block this pathway and reduce the risk to negligible.
Existing made ground	Ingestion	Moderate	Site fencing will exclude access to members of the public. Existing made ground will be contained within the site boundary, and placed below barriers as soon as possible. Washing facilities and a clean mess room should be provided. These measures should block this pathway and reduce the risk to negligible.
Existing made ground	Contact	Moderate	Education of workers to use adequate hygiene and PPE should block this pathway and reduce the risk to negligible.
Existing made ground	Surface Water	Moderate	Preventing surface water run off by minimising open exposure times of the existing made ground, and using bunds or cut off trenches as necessary should block this pathway and reduce the risk to negligible. Any rolling of material into the on site culvert (if opened) should be prevented by diligence and gravel boards.

Provision of all the above measures will ensure that all the identified pathways for the contamination will be blocked.

Summary

Provided the following remedial measures are adopted, the risks to the identified receptors will be acceptable for the proposed development of residential properties including private gardens.

i) Retention of the remaining made ground on site below hard areas, building footprints, or below a 0.6m thick clean soil cover blanket. This should include at least 450mm thickness of material with a minimum 35% silt/clay content (at least 35% passing a 63 micron sieve), for example clay, sandy clay, or gravelly clay, to minimise leaching of contamination. In areas of hardstanding or building footprints, the cover blanket is not required.

ii) An increased soil cover thickness of 1.0m will be necessary for any potentially combustible material (ash and clinker) beneath garden or landscaped areas, as required by regulatory authorities.

iii) Removal off-site to a suitably licensed landfill is an alternative option, although this is not normally economical. Waste Acceptance Criteria testing will be required for any material to be removed from site to landfill.

iv) Where any contaminated material is taken off-site, the disposal/transfer documents should be retained for inclusion in the Validation Report.

v) Any imported soils used within the cover blanket will need to be verified as suitable by inspection and testing, in accordance with guidance supplied in the document produced by the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG): "Verification Requirements for Cover Systems".

The local water company are likely to require details of the contaminants present on the site, to make a judgment on any requirement for protection of buried water supply pipes from chemical attack/ingress.

A Contamination Remediation Statement is appended. This will need to be agreed with the regulatory authorities.

We trust the information above and attached is satisfactory. However, if you have any comments or queries, please do not hesitate to contact us at your convenience.

Yours sincerely
for ARP GEOTECHNICAL LTD

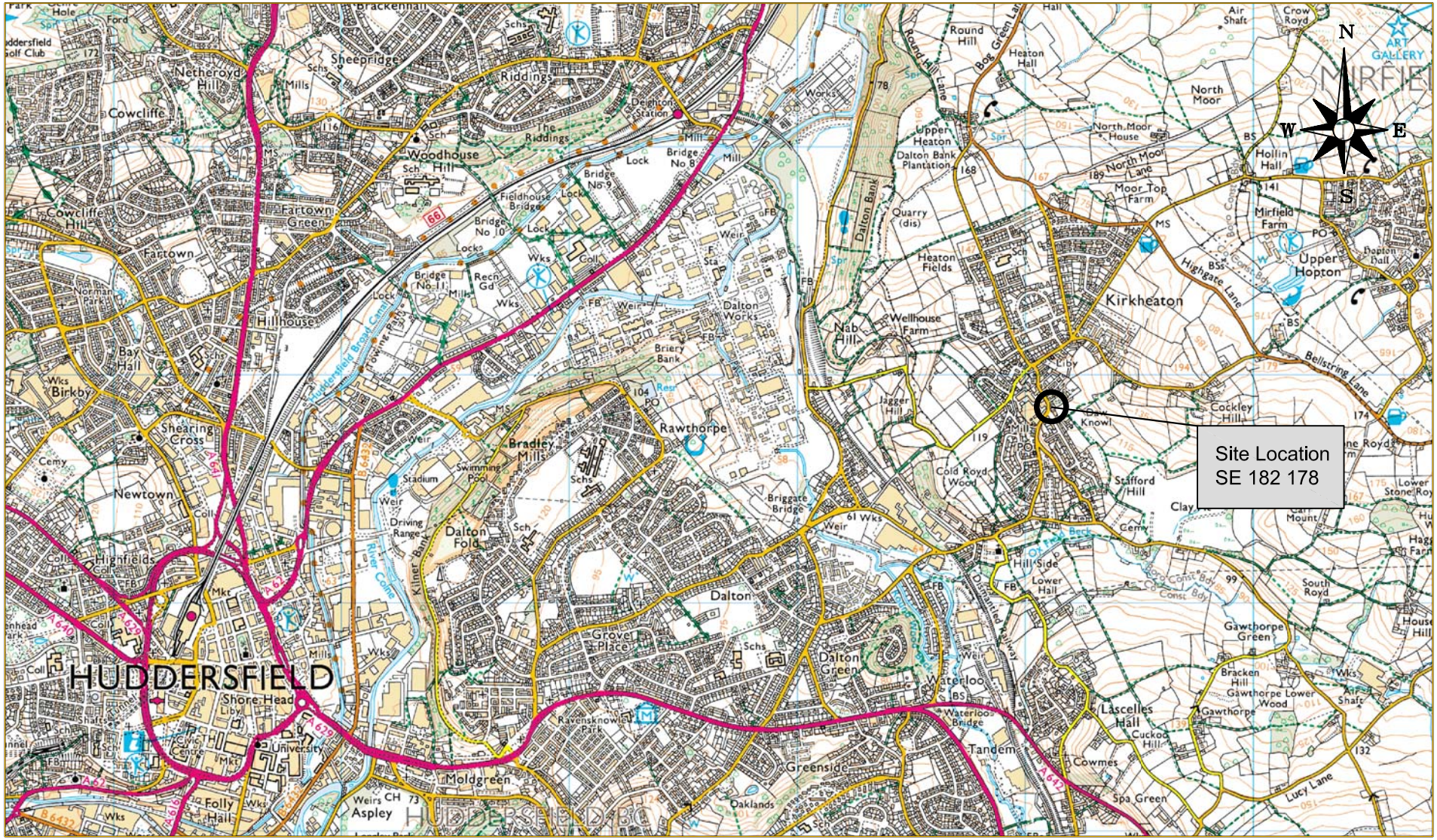
J Race

Enclosures:

Appendix A	Site Location Plan and Indicative proposed Layout
Appendix B	Envirocheck Report
Appendix C	Investigation Plan, Screening Values & Contamination Test Certificates
Appendix D	Risk Categorisation Tables
Appendix E	Remediation Statement

A P P E N D I X A

SITE LOCATION PLAN AND INDICATIVE PROPOSED LAYOUT



ENCIA Environmental
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LS22 7RD
TEL: 01937 589955
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E-Mail: Info@enciagroup.co.uk
Web: www.enciagroup.co.uk

CLIENT: HARTLEY QUALITY HOMES

JOB TITLE: SHOP LANE KIRKHEATON

DRAWING TITLE: SITE LOCATION PLAN

Notes

REV.	DESCRIPTION	DATE

DRAWN	RW	DATE	14/05/2009
APPROVED	RJH	DATE	14/05/2009

STATUS: FOR COMMENT ☐ FOR APPROVAL ☐ DRAFT ☐ FINAL ☑

SCALE	SHEET	DRAWING NO.	REVISION
1:25,000	A4	9557/01	A

PLANNING LAYOUT LAYERS KEY:

- BRICK WALL
- TIMBER FENCE
- PROPERTY DIVISION
- METAL RAILINGS
- PILLARS
- GATE

SCHEDULE OF ACCOMMODATION:

HOUSETYPE	AMOUNT
TYPE F 2 Storey House 3 Bedroom/5 Person	11 No.
TYPE J 2.5 Storey House 4 Bedroom/7 Person	10 No.
TYPE G 2 Storey House 4 Bedroom/7 Person	3 No.
TYPE C2 2 Storey House 2 Bedroom/4 Person	13 No.
TYPE P 2 Storey House 4 Bedroom/7 Person	4 No.
TYPE C3 2 Storey House 3 Bedroom/4 Person	6 No.
TYPE C2 (sp) 2 Storey House 2 Bedroom/4 Person	1 No.
TOTAL	48 No.

REV	DATE	AMENDMENTS	BY	CHKD
A	17.09.14	PLOT 49 REMOVED FROM SOUTH-EASTERN PARCEL TO INCORPORATE ACCESS TO EXISTING UNIT	RAN	JRP

architectural design
town planning
landscape architecture

John R Paley Associates

CLIENT
HARTLEY PROPERTIES

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
SHOP LANE, KIRKHEATON
HUDDERSFIELD

DRAWING OF
PROPOSED PLANNING LAYOUT

MARKETING NAME

drawing no	rev	date
P09:4266:01	A	MAR 14

scale @ A1	drawn	check	date
1:500	RAN	LM	MAR 14

1:500
50m
10m

1 Red Hall Crescent
Paragon Business Village
Wakefield
WF1 2DF
t-01924 383322
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e-info@jrpassoc.co.uk

PROPOSED PLANNING LAYOUT

APPENDIX B

ENVIROCHECK REPORT

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	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
	GFDMP	Glaciofluvial Deposits, Mid Pleistocene	Sand and Gravel	Not Supplied - Cromerian
	LDE	Lacustrine Deposits	Clay and Silt	Not Supplied - Quaternary
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	GR	Grenoside Sandstone	Sandstone	Not Supplied - Westphalian
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	GM	Greenmoor Rock	Sandstone	Not Supplied - Westphalian
	PLCM	Pennine Lower Coal Measures Formation	Sandstone	Not Supplied - Westphalian
	TKS	Thick Stone	Sandstone	Not Supplied - Westphalian
	CLRK	Clifton Rock	Sandstone	Not Supplied - Westphalian
	EF	Elland Flags	Sandstone	Not Supplied - Westphalian
	EYR	80 Yard Rock	Sandstone	Not Supplied - Westphalian
	KKBS	Kirkburton Sandstone	Sandstone	Not Supplied - Westphalian
		Faults		
		Rock Segments		

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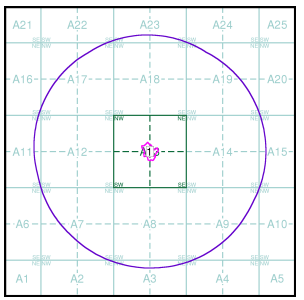
Geology 1:50,000 Maps

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: 077
Map Name: Huddersfield
Map Date: 2003
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



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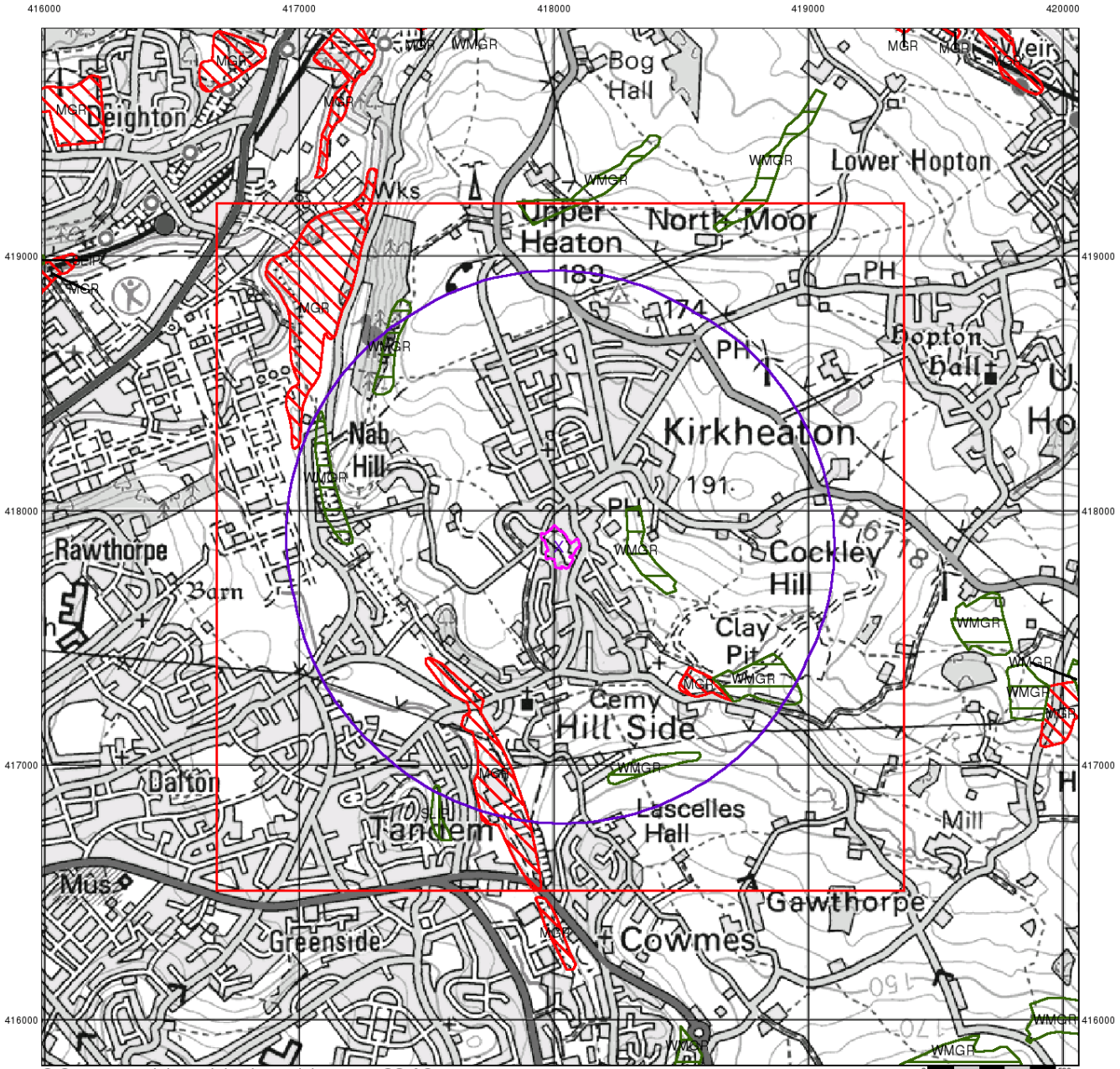
Search Buffer (m): 1000

Site Details:

2, Shop Lane, HUDDERSFIELD, HD5 0DB



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Artificial Ground and Landslip

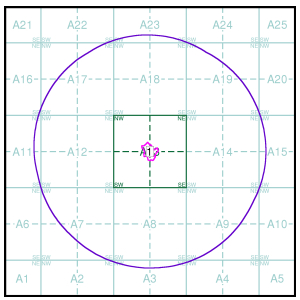
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions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



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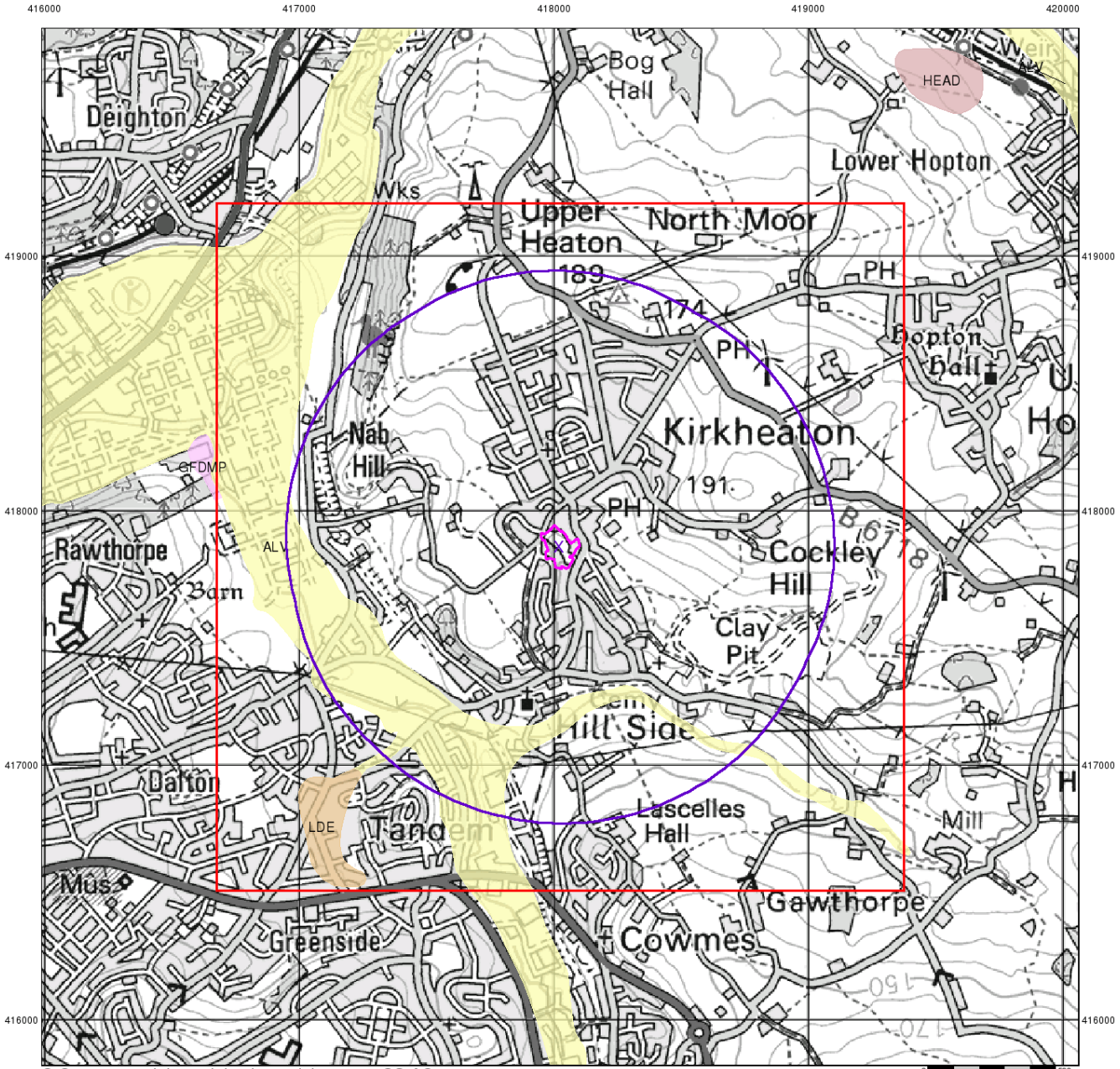
Web: www.envirocheck.co.uk



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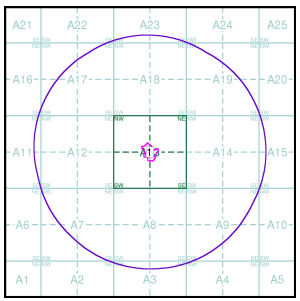
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



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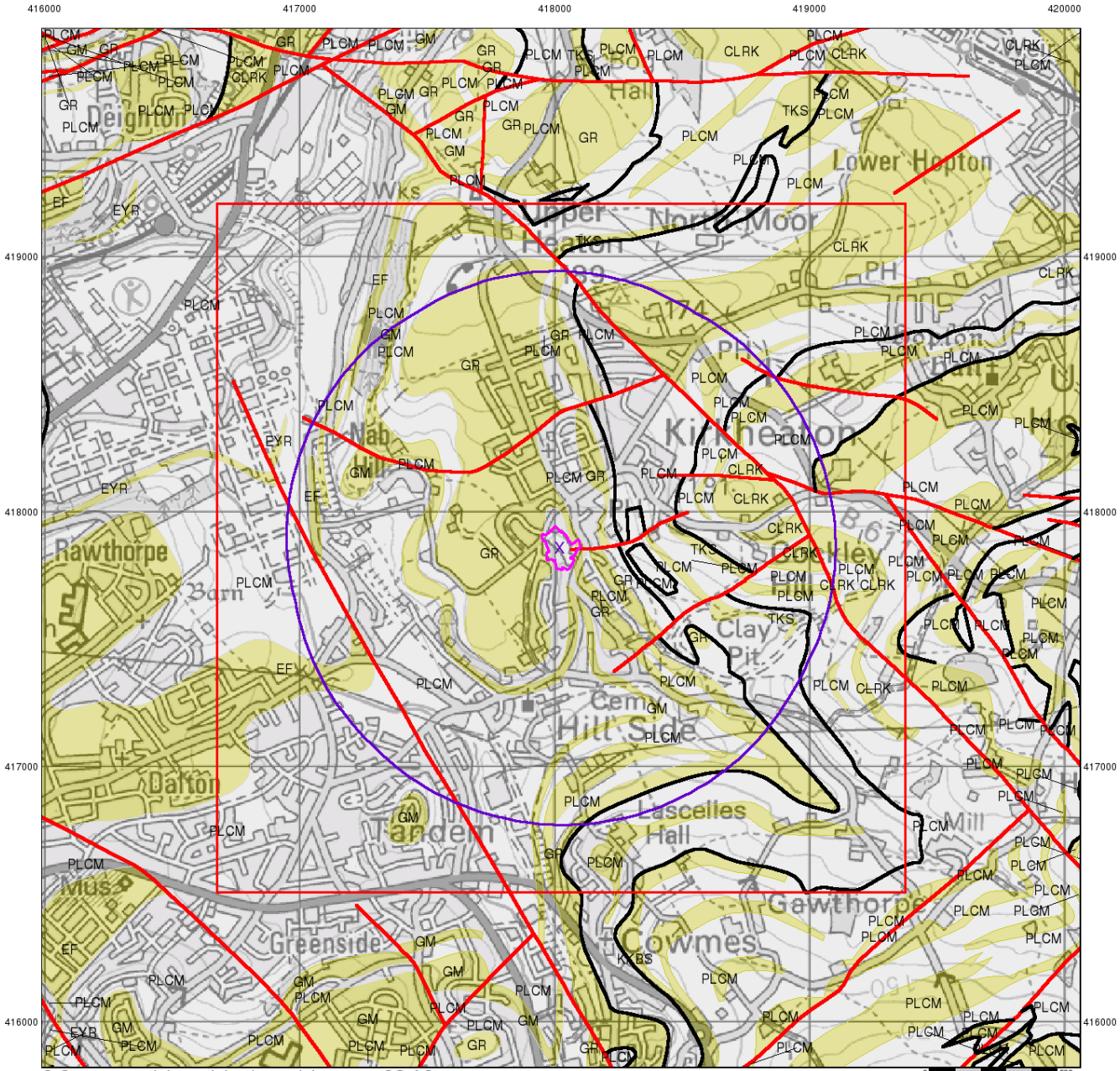

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Bedrock and Faults

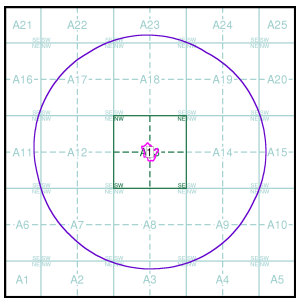
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

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



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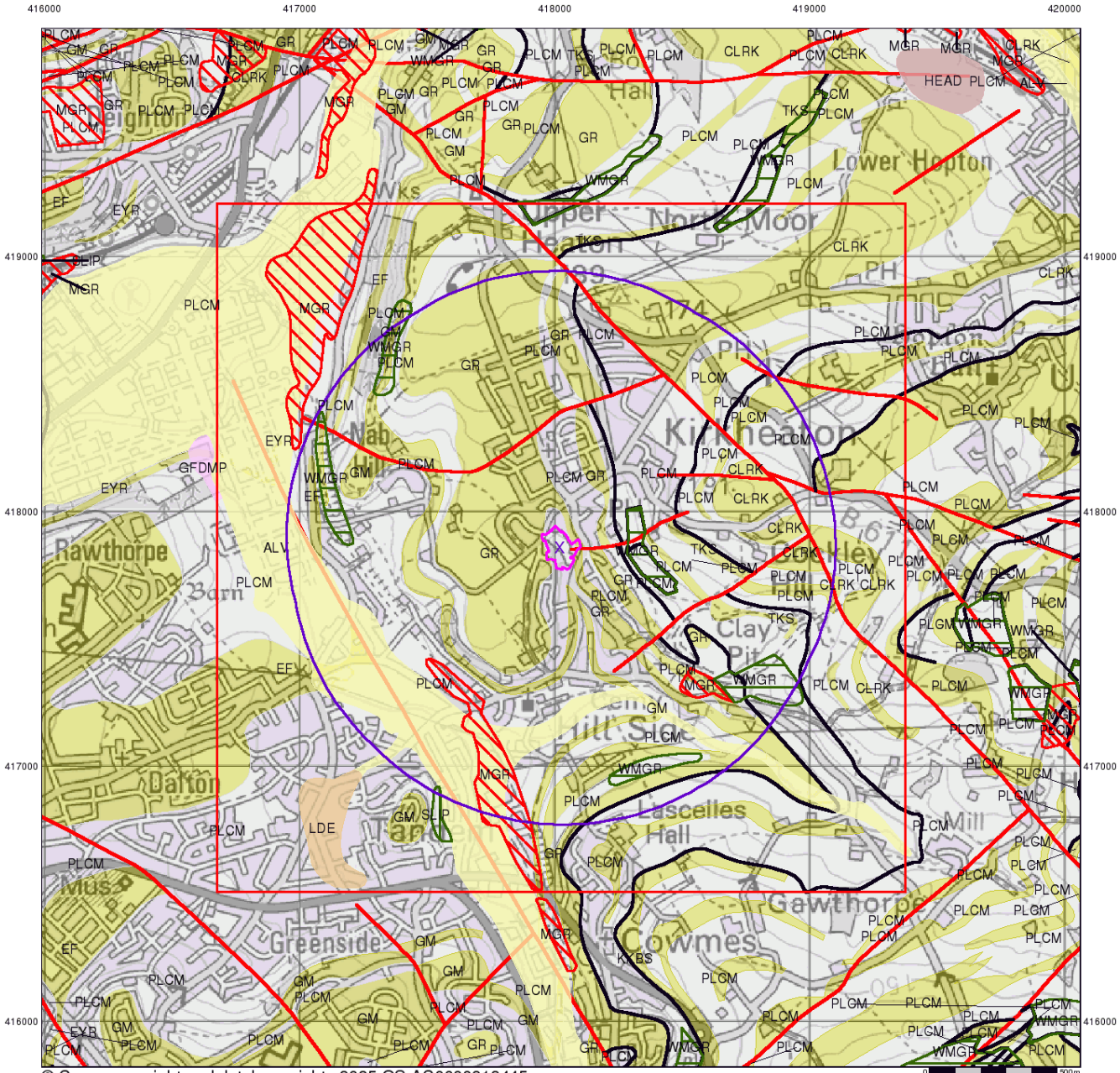

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Combined Surface Geology

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.

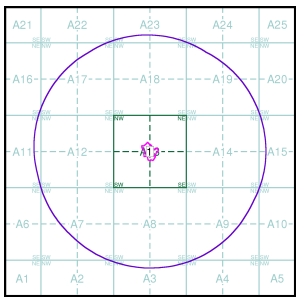
Additional Information

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:	378395479_1_1
Customer Reference:	WOR/01
National Grid Reference:	418020, 417860
Slice:	A
Site Area (Ha):	1.43
Search Buffer (m):	1000

Site Details:

2, Shop Lane, HUDDERSFIELD, HD5 0DB

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
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
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
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. 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
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
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
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

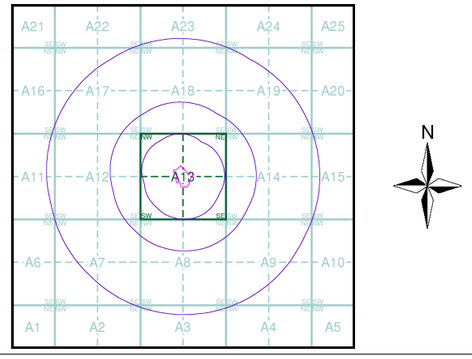
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community 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
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m 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

ARP GEOTECHNICAL LTD

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854 - 1855	3
Yorkshire	1:10,560	1894	4
Yorkshire	1:10,560	1908	5
Yorkshire	1:10,560	1930 - 1931	6
Yorkshire	1:10,560	1938	7
Yorkshire	1:10,560	1948	8
Ordnance Survey Plan	1:10,000	1956	9
Ordnance Survey Plan	1:10,000	1965	10
Ordnance Survey Plan	1:10,000	1976	11
Batley	1:10,000	1983	12
Huddersfield	1:10,000	1984	13
Ordnance Survey Plan	1:10,000	1989	14
10K Raster Mapping	1:10,000	2000	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2024	17

Historical Map - Slice A



Order Details

Order Number: 378395479_1_1
Customer Ref: WOR/01
National Grid Reference: 418020, 417860
Slice: A
Site Area (Ha): 1.43
Search Buffer (m): 1000

Site Details

2, Shop Lane, HUDDERSFIELD, HD5 0DB

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

Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Fireproof Building
- Prominent Fireproof Building
- Non-fireproof Building
- Non-fireproof Building (non-dwelling)
- Factory, mill, and flour mill, with chimneys
- Factory, mill, and flour mill, without chimneys
- Power Station, drawn to scale
- Hydroelectric Power Station
- Radio Station, drawn to scale
- Telephone Station, drawn to scale
- Abandoned Open-pit Mine or Quarry
- Open-pit Salt Mine
- Pit
- Oil Deposit or Well
- Oil Seepage
- Tailings Pile
- Fuel Storage Tanks
- Natural Gas Tank
- Bench Mark
- Drill Hole
- Burial Mound
- Triangulation Point on Burial Mound
- Single-track Railroad
- Double-track Railroad and Station Building
- Coniferous Forest
- Deciduous Forest
- Mixed Forest
- Lawns
- Citrus Orchard
- Wet Ground
- Scattered Vegetation

243,8 Values for prominent elevations

186.0 Numbers for spot elevations, depth soundings, contour lines, etc.

0,2 Velocity of the current, width of river bed, depth of river

Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	ъ (–)
Д д (D)	Л л (L)	У у (U)	ы (Y)
Е е (E)	М м (M)	Ф ф (F)	ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Partly Demolished Buildings
- Demolished Buildings
- Built-Up Area with Fireproof Buildings Predominant
- Built-Up Area with Non-Fireproof Buildings Predominant
- Individual Fireproof Building
- Prominent Industrial Building
- Individual Dwelling, Fireproof
- Ruins of an Individual Dwelling
- Factory or Mill Chimney
- Factory or Mill with Chimney
- Factory or Mill without Chimney
- Mine or Open Pit Mine
- Operating Shaft or Mine
- Non-Operating Shaft or Mine
- Salt Mine
- Tailings Pile
- Pit
- Stone Quarry
- Gas Pump or Service Station
- Fuel Storage or Natural Gas Tank
- Oil or Natural Gas Derrick
- Small Hydroelectric Power Station
- Power Station
- Transformer Station
- Cemetery
- Burial Mound (height in metres)
- Triangulation Point on Burial Mound
- Triangulation Point
- Bench Mark
- Bench Mark (monumented)
- Telegraph Office
- Telephone Station
- Radio Station
- Radio Tower
- Airfield or Seaplane Base
- Landing Strip
- Main Highway
- Highway under Construction
- Improved Dirt Road (former truck road)
- Double-track Railroad with First Class Station
- Dismantled Railroad
- Railroad Under Construction
- Shore Embankment
- River or Ditch with Embankment
- Direction and velocity of current
- Well
- Water Reservoir or Rain Water Pit
- Spring
- Isobath with value
- Heavy (Index) Contour Line
- Contour Line and Value
- Half Contour Line
- Spot Elevation Value
- Coniferous
- Deciduous
- Mixed
- Scrub

Key to Numbers on Mapping

SE11NE_Huddersfield

No.	Description
15	Factories (Machinery And Instruments)
53	Factory (Textiles)

ARP GEOTECHNICAL LTD

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854 - 1855	3
Yorkshire	1:10,560	1894	4
Yorkshire	1:10,560	1908	5
Yorkshire	1:10,560	1930 - 1931	6
Yorkshire	1:10,560	1938	7
Yorkshire	1:10,560	1948	8
Ordnance Survey Plan	1:10,000	1956	9
Ordnance Survey Plan	1:10,000	1965	10
Ordnance Survey Plan	1:10,000	1976	11
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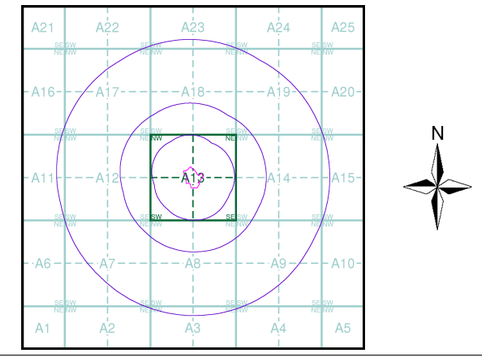
Ordnance Survey Plan	1:10,000	1989	14
10K Raster Mapping	1:10,000	2000	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2024	17

Russian Map - Slice A



Order Details

Order Number: 378395479_1_1
Customer Ref: WOR/01
National Grid Reference: 418020, 417860
Slice: A
Site Area (Ha): 1.43
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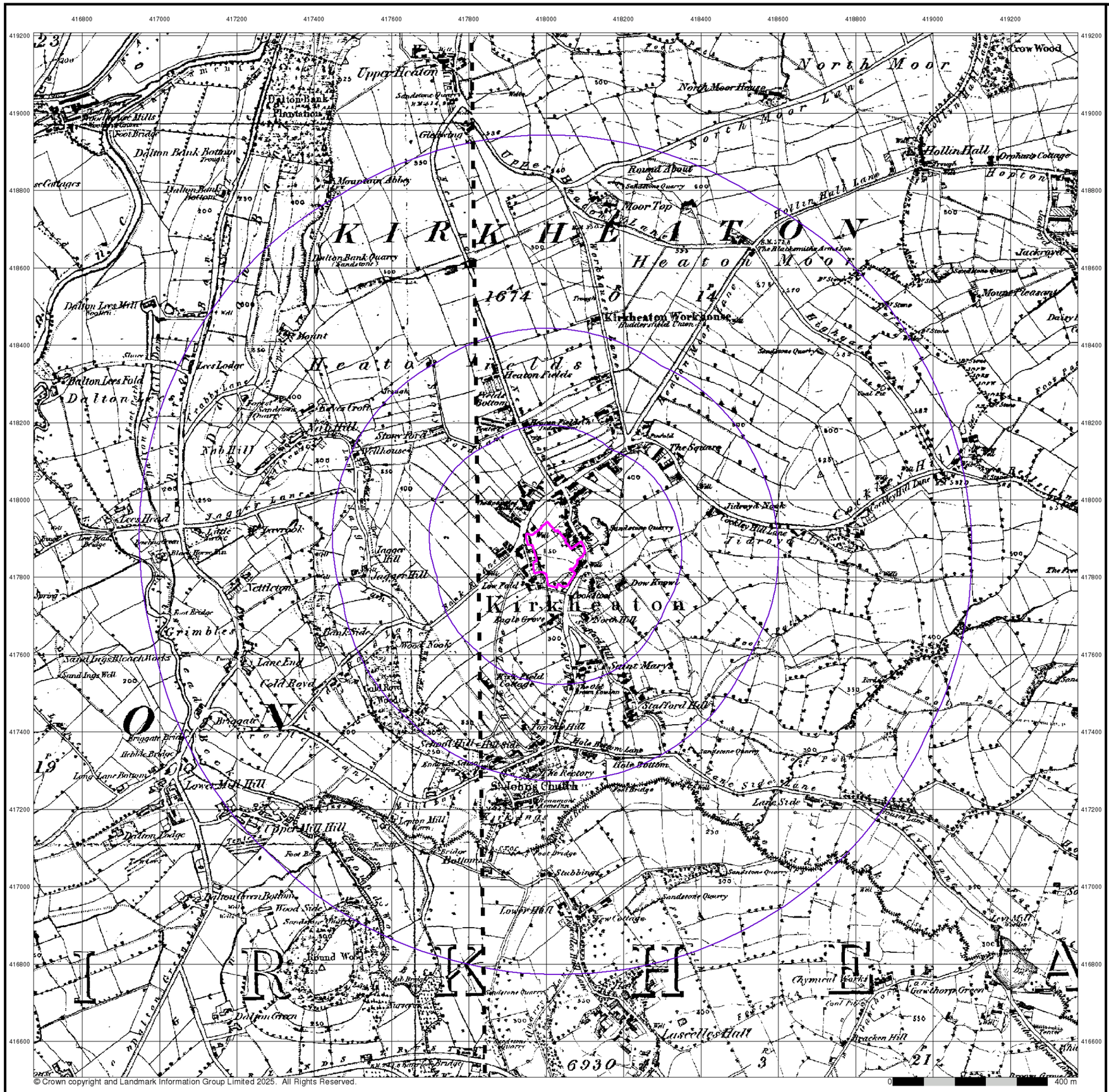


ARP GEOTECHNICAL LTD

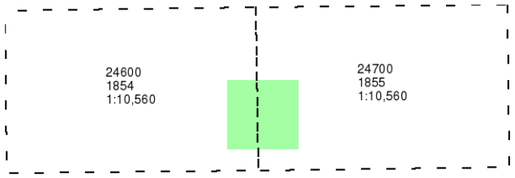
Yorkshire

Published 1854 - 1855

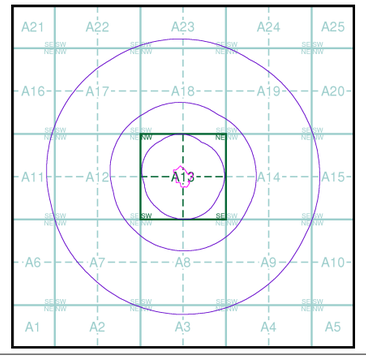
Source map scale - 1:10,560

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



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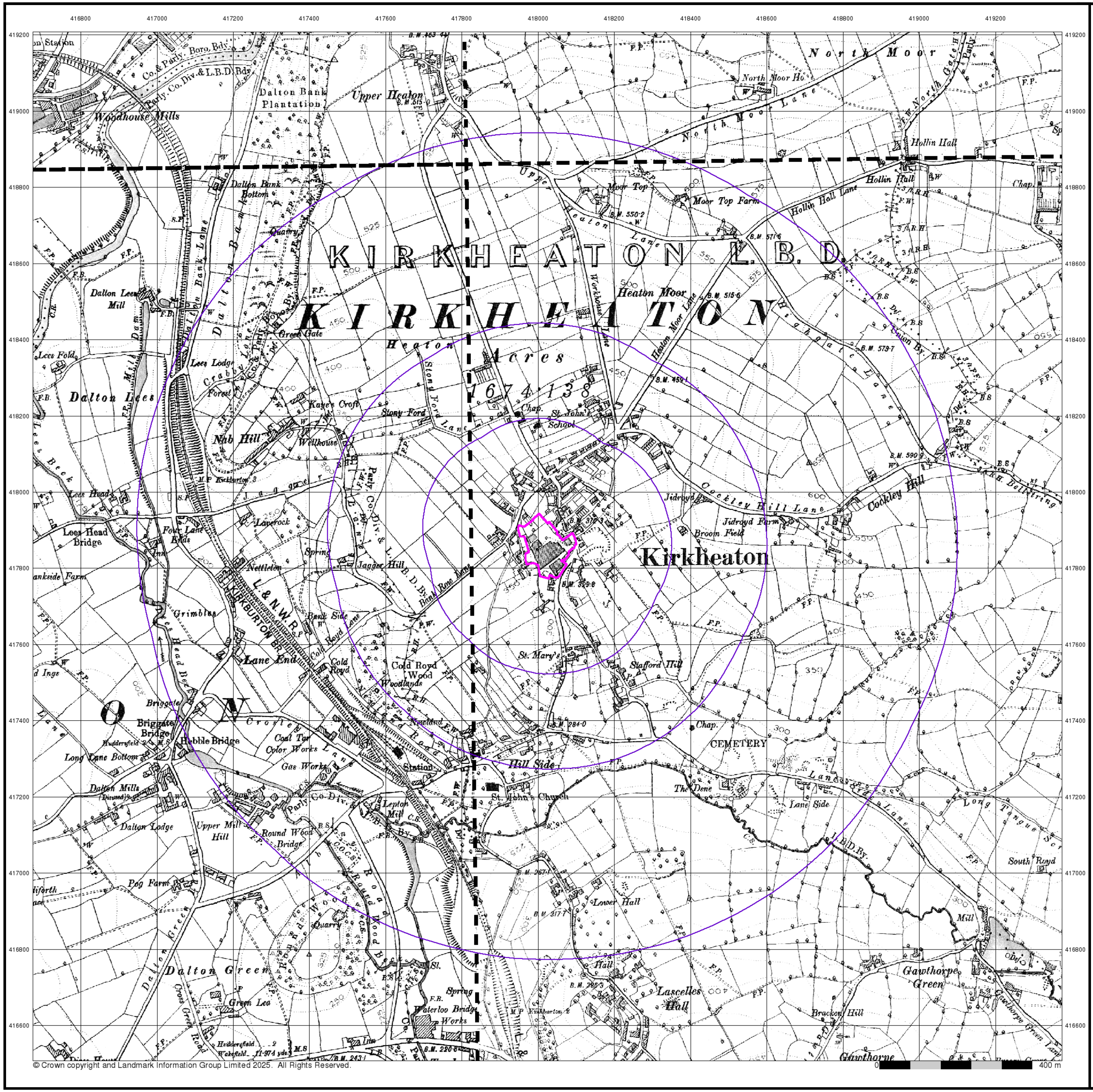

ARP GEOTECHNICAL LTD

Yorkshire

Published 1894

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.

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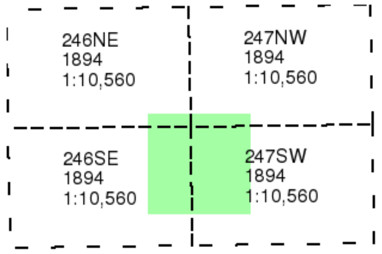
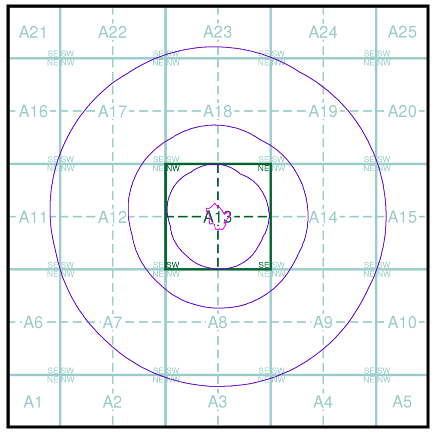


Historical Map - Slice A



Order Details

Order Number:	378395479_1_1
Customer Ref:	WOR/01
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Slice:	A
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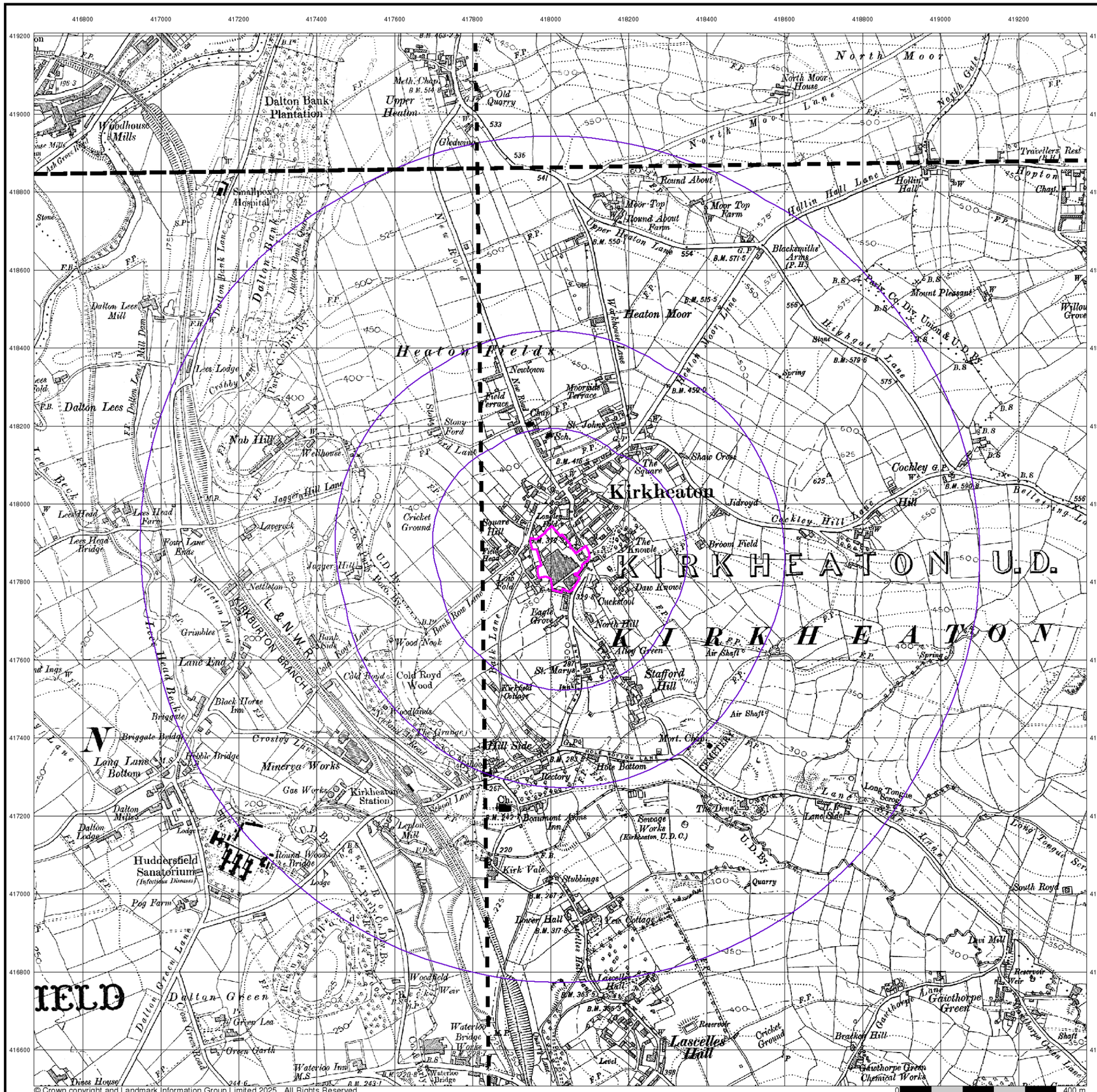


ARP GEOTECHNICAL LTD

Yorkshire

Published 1908

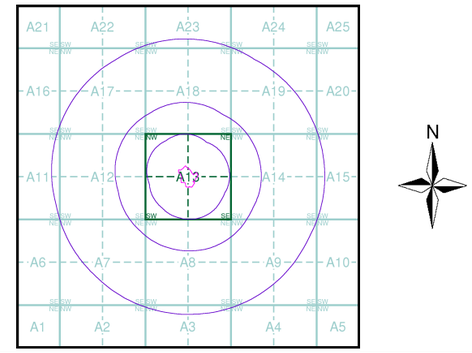
Source map scale - 1:10,560

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)

246NE 1908 1:10,560	247NW 1908 1:10,560
246SE 1908 1:10,560	247SW 1908 1:10,560

Historical Map - Slice A



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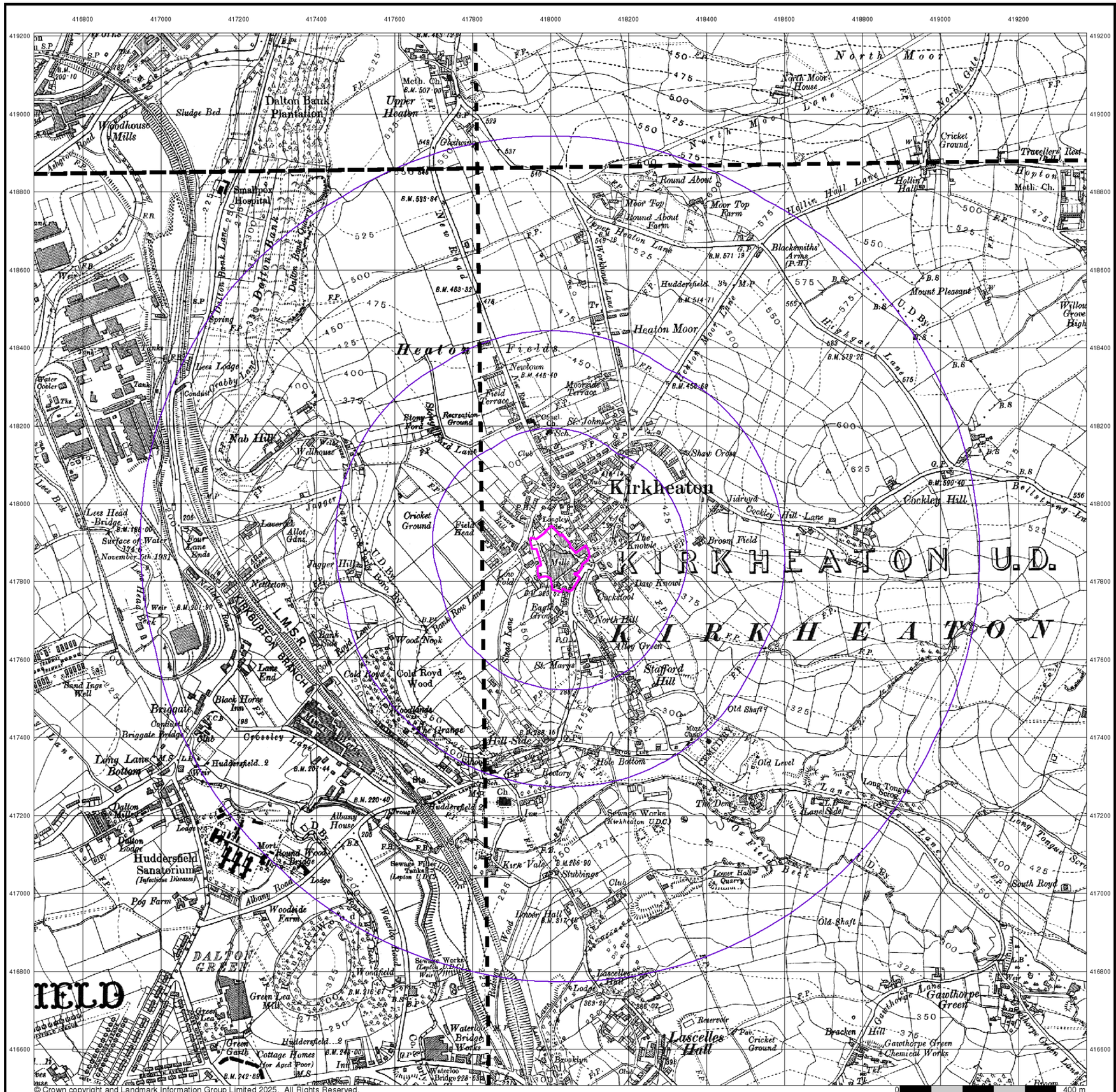


0 400 m

ARP GEOTECHNICAL LTD

Yorkshire

Published 1930 - 1931

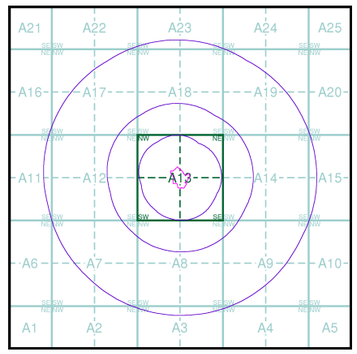
Source map scale - 1:10,560

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)

246NE 1930 1:10,560	247NW 1931 1:10,560
246SE 1930 1:10,560	247SW 1930 1:10,560

Historical Map - Slice A



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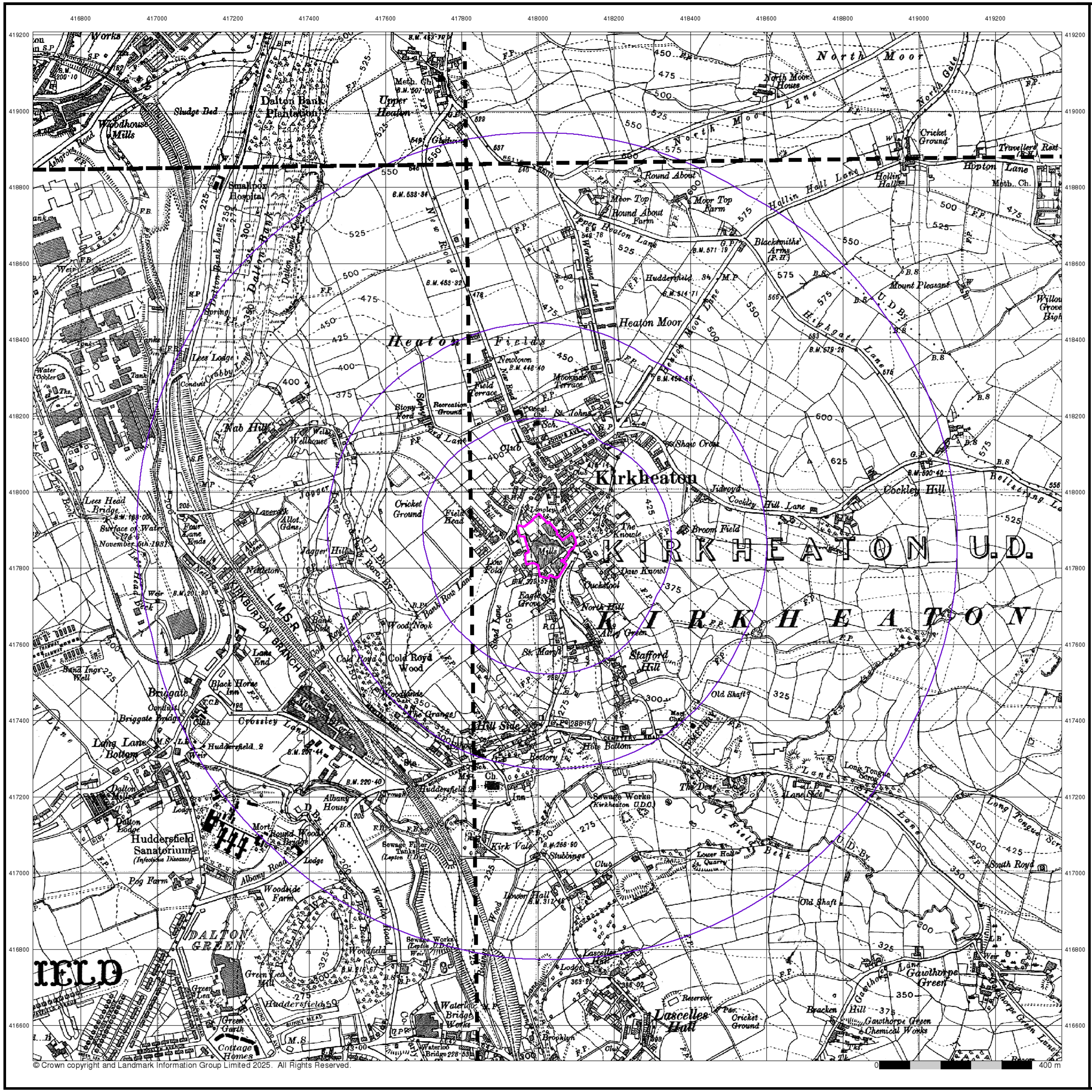

ARP GEOTECHNICAL LTD

Yorkshire

Published 1938

Source map scale - 1:10,560

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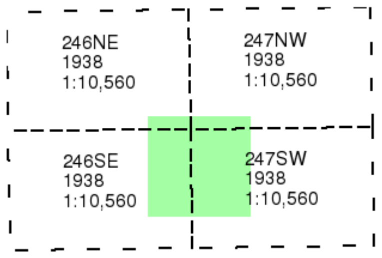
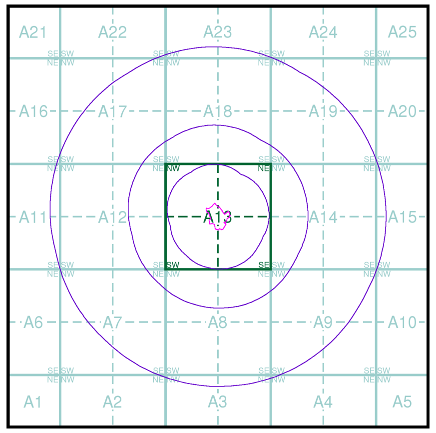


Historical Map - Slice A



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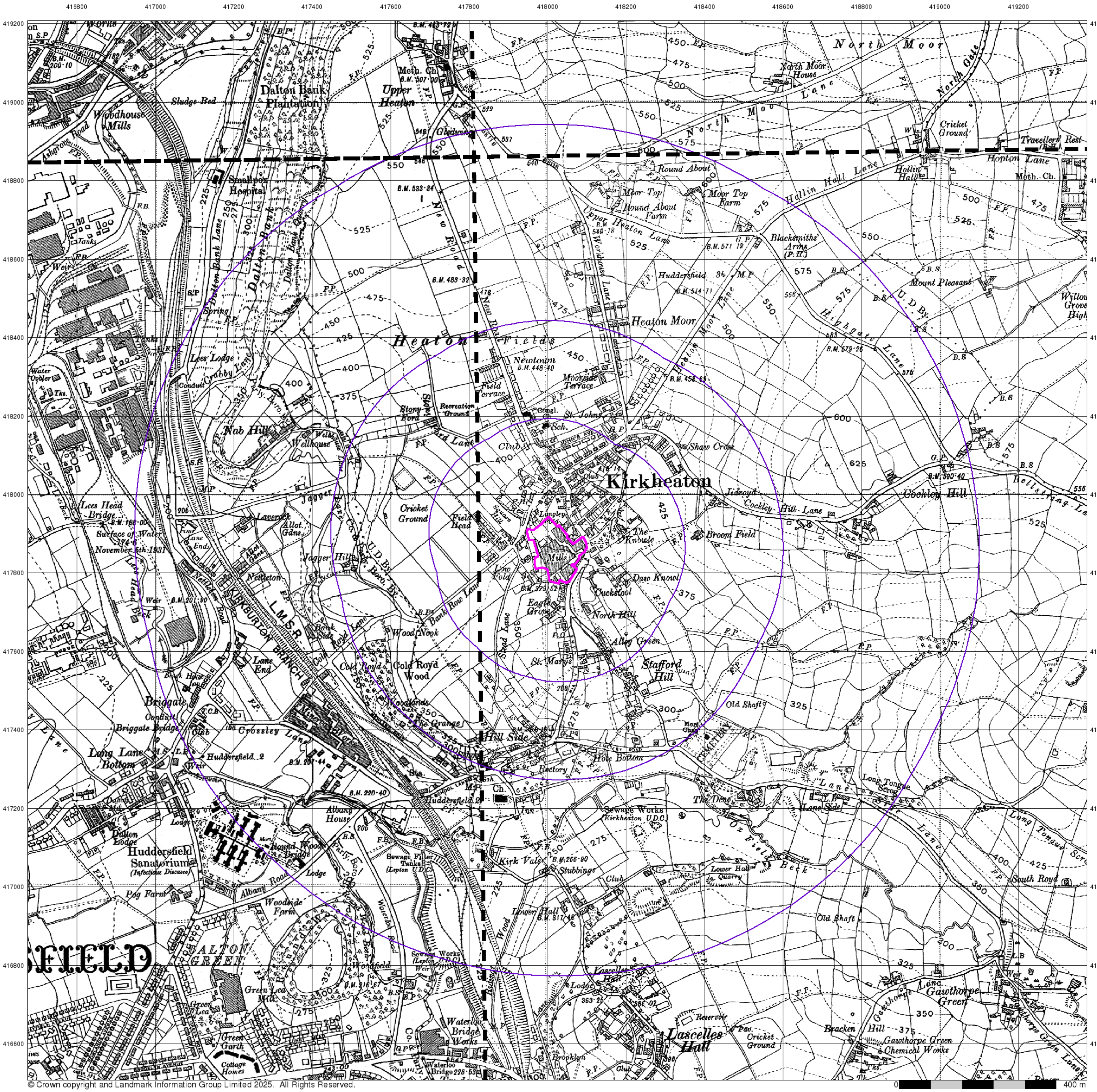


ARP GEOTECHNICAL LTD

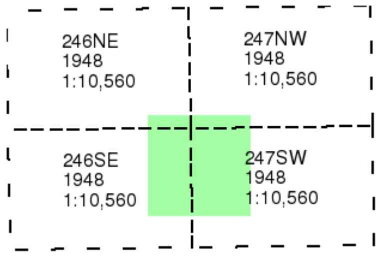
Yorkshire

Published 1948

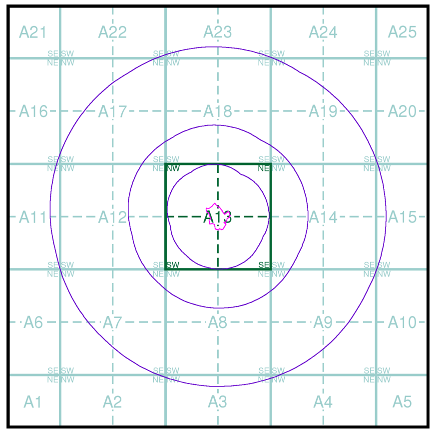
Source map scale - 1:10,560

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



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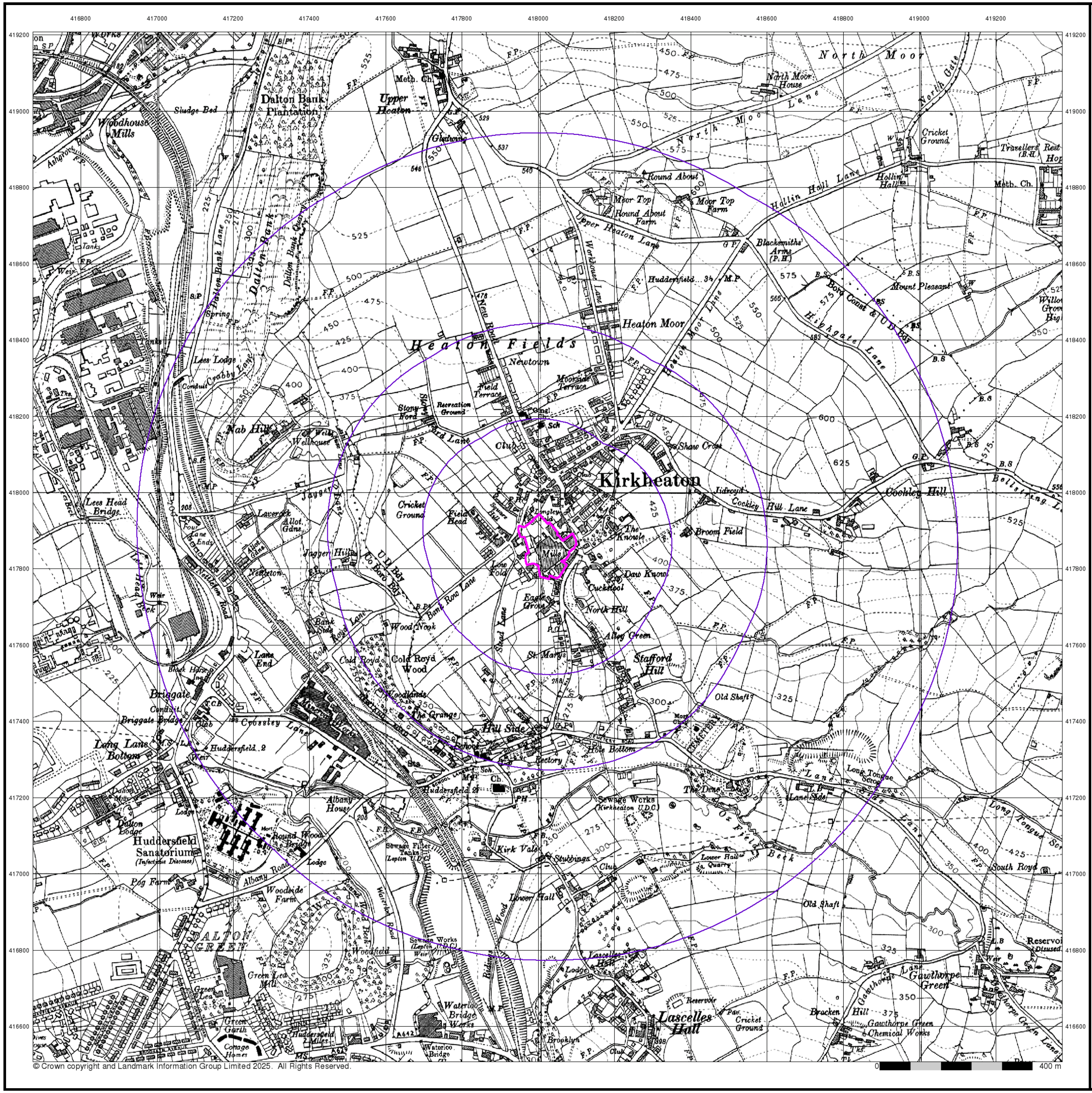
Search Buffer (m):	1000

Site Details

2, Shop Lane, HUDDERSFIELD, HD5 0DB

Landmark INFORMATION GROUP

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



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0 400 m

ARP GEOTECHNICAL LTD

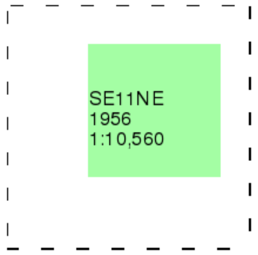
Ordnance Survey Plan

Published 1956

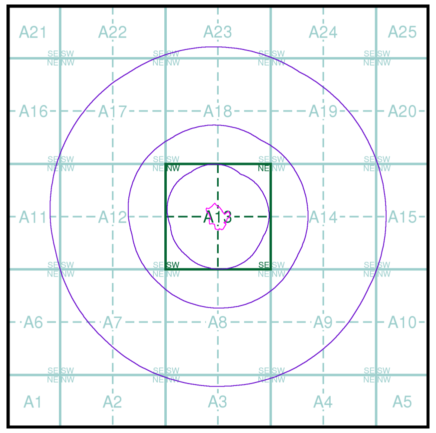
Source map scale - 1:10,000

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

Order Number: 378395479_1_1
Customer Ref: WOR/01
National Grid Reference: 418020, 417860
Slice: A
Site Area (Ha): 1.43
Search Buffer (m): 1000

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