GEO-ENVIRONMENTAL INVESTIGATION REPORT



ST. WILFRID'S RC COLLEGE, TEMPLE PARK ROAD, SOUTH SHIELDS, NE34 0QA

PREPARED FOR FAITHFUL+GOULD

GEOL CONSULTANTS LTD

QUALITY CONTROL

Project No.	**GEOL20-9553**	**Client**	**Faithful+Gould**
Design Team	**Jasper Kerr Consulting Engineers Limited**		
Report Type	**Geo-Environmental Investigation Report**		
Project Type	**Proposed School Classroom Extension**		
Site Address	**St Wilfrid's RC College, Temple Park Road, South Shields, South Tyneside, NE34 0QA**		
NGR	**461127, 454165**		
Date	**06/11/2020**		

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REPORT REVISION HISTORY				
Issue	**Description**	**Date**	**Author**	**Approval**
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1.0 Introduction

Geol Consultants Limited (GEOL) were instructed by Faithful+Gould to undertake appropriate Ground Investigation Works for a parcel of land located within the boundaries of St Wilfrid's RC College on Temple Park Road in South Shields, where proposals have been formulated to construct a new 2-storey building extension sometime soon.

The purpose of this report is to provide information relating to the following.

- Identify the environmental setting and likely ground conditions for the site, including details relating to the deeper geology, hydrogeology, hydrology, and mining
- Identify the sites previous development history, usage and activities with a view to determining any potential contaminants associated with the recorded site history and to assess the impacts from those contaminants towards the future site end-users (Human Health)
- Identify the ground conditions and assess the geotechnical properties of the underlying deposits with a view to assisting with new building foundation designs
- Assess all potential sources of hazardous ground gas generation
- Assess the potential contamination issues associated with the existing shallow soil deposits and to assess the impacts they may have towards the future site end-users (Human Health)
- Determine the scope of any further investigation works or remediation measures required for the site prior to commencing with any future development works

The information contained in this technical report is limited to the area of the site as shown on the existing and proposed development layout plans attached in Appendix I, and to those areas accessible at the time of the ground investigation works being undertaken. When considering the scope of works completed for the development proposals, any features or issues not specifically mentioned cannot be assumed to have been covered. This report effectively comprises a combined Phase I Preliminary Contamination Risk Assessment and Phase II Ground Investigation Report, entitled Geo-Environmental Investigation Report.

2.0 Site Details

Detail	Description
Site address	St Wilfrid's RC College, Temple Park Road, South Shield, Tyne & Wear, NE34 0QA
NGR	461127, 454165
Site topography	The site area is generally flat, with a slight fall in topography to the north. The southwestern portion of the site has been subject to a reduction in ground levels (cutting) to accommodate existing buildings and footpaths

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2.0 Site Details (Cont'd)

Detail	Description
Current site use	The site is occupied by St Wilfrid's RC College, a secondary school and 6th form, comprising several buildings with areas of hardstanding and soft landscaping
Proposed site use	Proposals have been formulated to construct a new 2-storey extension on the southwestern portion of the site, to house new classrooms

3.0 Scope of Works

The ground investigation works completed over the site area by GEOL comprised the sinking of 4 no. windowless sampling boreholes (labelled BH's 01 to 04). Detailed descriptions of the strata encountered during the investigation works, together with the results of all insitu field testing, are presented on the borehole record sheets copies of which can be seen in Appendix V.

4.0 Geological Setting & Coal Mining Appraisal

No made ground / fill deposits are recorded over the site in accordance with published British Geological Survey (BGS) maps, reference; Sheet NZ 36 SE, 1:10,560 scale. Whilst made ground / fill deposits are not recorded over the site area, some made ground / disturbed deposits should be anticipated, arising from the construction of the existing school and associated areas of hardsurfacing.

The natural superficial deposits recorded below the site are shown to comprise the Pelaw Clay Member, comprising reddish-brown to dark brown silty clay, which is expected to extend to depths of 6m before bedrock deposits are present. The underlying bedrock deposits are shown to consist of the Pennine Middle Coal Measures (MCM) of Carboniferous age, comprising alternations of sandstone, mudstone and siltstone with seams of coal and fireclays.

The coalfield is divided into two areas, referred to as development high risk areas (DHRA's), and development low risk areas (DLRA's). The DHRA forms 15% of the coalfield area, where coal mining risks are present at shallow depth which are likely to affect new development. The DLRA forms 85% of the coalfield where past coal mining activity has taken place at such depth that it poses a low risk to new development. In accordance with the Coal Authority Online Interactive Map Viewer, the site falls within a designated development high risk area (DHRA), where coal mining risks are present at shallow depth which are likely to affect new developments. Whilst the site is not recorded to be underlain by past recorded shallow coal mining workings, it does lie within an area where probable shallow coal mining workings may exist.

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4.0 Geological Setting & Coal Mining Appraisal (Cont'd)

Based on published geological maps (Sheet NZ 36 SE, 1:10,560 scale), the Hebburn Fell coal seam is recorded to subcrop circa 50m east of the site, dipping west below the site, and is recorded to range in thickness between 0.38m up to 0.79m. Based on maps held by GEOL, there are no records pertaining to this seam being worked in the past. To assist in determining the depth of any potentially worked seams below the site and records pertaining to known mine entries, a Consultants Coal Mining Report (reference 51002304076001) was obtained from the Coal Authority, a copy of which can be seen attached in Appendix II. The relevant coal mining related information contained within this report has been summarised in the Table below.

Data Type	Details
Past underground mining	Workings recorded within Yard seam at depths of 299m, with an extraction thickness of 1.20m, and last worked in 1951
Probable unrecorded shallow workings	Yes
Spine roadways at shallow depth	No spine roadways recorded at shallow depth
Mine entries	None recorded within 100m of the site
Outcrops	No outcrops recorded
Geological faults, fissures and breaklines	No faults, fissures or breaklines recorded
Mine gas	None recorded within 500m from the site boundary
Opencast mines	None recorded within 500m from the site boundary
Coal mining subsidence	The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50m of the enquiry boundary, since 31st October 1994

As part of this CMRA, GEOL have been provided with a copy of a Ground Investigation & Geotechnical Interpretive Report produced by Cundall Geotechnical, reference N7260, dated March 2008, associated with investigation works completed on the northeastern side of the existing school for new building extensions, and located within the same geological setting as these proposed works. In total 2 no. rotary boreholes were put down, and two seams of coal were recorded at depths of 8.30m (0.07m in thickness) and also at 12.60m (0.16m thick), with thin seams of coal encountered within the second position put down at similar depths. No voiding or evidence of broken ground appears to have been encountered during these intrusive works undertaken.

The recorded workings noted in the Table above are considered too deep to represent a future surface instability risk to the site, and therefore when considering the geological and coal mining data reviewed for this development site, it is felt that the mechanisms for future ground subsidence and crown hole failures occurring at the surface in the future as a direct result of unrecorded shallow coal mining activities below the site area is deemed to be negligible, and thus no further assessment or intrusive investigation works are required with regards to historical shallow coal mining activities.

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5.0 Historical Map Review

Copies of OS maps covering the site and adjacent land are contained within the Landmark Information Group, Envirocheck Report attached in Appendix III. The information contained within the Table below has been based on available OS maps and the observations noted during the reconnaissance (walkover) survey completed.

OS map date	Site	Adjacent land
1862 to 1957	The site is shown to be undeveloped, comprising agricultural land. By 1916 a football ground is shown to partially encroach within the northwestern corner of the site, although by 1921 it is no longer recorded	The adjacent land to the west is mostly undeveloped. By 1962 Harton & Whitburn Colliery is recorded circa 250m southwest of the site. By 1897 South Shields Union Workhouse is recorded 200m south. By 1916 terraced residential housing is recorded to the west, which continues by 1938 and 1942 with new semi-detached properties recorded to the southeast. By 1942 the Union Workhouse is now recorded as the Harton Institution & General Hospital, and later as South Shields Hospital (1956) From 1942 allotment gardens are recorded adjacent to the western boundary
1966 to 1977	By 1966 Saint Cuthbert's RC Secondary School has been built adjacent to the sites northern & eastern boundaries. Road infrastructure is recorded within the site area	Playing fields are recorded to the northeast of the school and Brinkburn Comprehensive School is recorded circa 200m southeast. By 1975 The Margret Sutton School is recorded to the north with Ashley Road Primary School recorded further to the north
1982 to 2006	By 1982 a square building is recorded on the eastern portion of the site	Rectangular buildings are recorded to the south, and a new building an extension is recorded on the eastern footprint of the school
2020	Based on historical aerial photographs, sometime between 2009 and 2012 the rectangular building is demolished, and new areas of hard and soft landscaping are constructed, representing the present-day site layout	Between 2012 and 2013 a new school is constructed to the north replacing the old Margret Sutton School site which becomes an area of playing fields, and new tennis courts are constructed to the northeast. By 2017 a new extension is built to the east

6.0 Environmental Setting

6.1 Hydrogeology

The Pelaw Clay Member is classified as an Unproductive Aquifer. The Pennine Middle Coal Measures are recorded as Secondary A Aquifer. This Aquifer designation has been assigned where permeable layers are 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. The site is not recorded within a Source Protection Zone (SPZ).

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6.0 Environmental Setting (Cont'd)

6.2 Hydrology

There are no surface watercourses recorded within 250m of the site. The site lies within a Flood Zone 1, an area with a low probability of flooding with <1 in 1000 chance of fluvial flooding occurring (<0.1%), and therefore this site is unlikely to be at significant risk from future flooding. According to the GOV.UK Long Term Flood Risk Information Interactive Map, the site lies within a very low (<0.1%) risk of surface water flooding occurring.

6.3 Radon Assessment

The BRE Digest, BR211 (2015) Radon: Guidance on protective measures for new buildings, indicates the site to lie within a lightly shaded grid square (1km), indicating that **NO** radon protective measures will be required for new structures.

6.4 Landfill & Waste and Hazardous Ground Gas Risk Assessment

There are no Historical or Registered Landfill Sites or potential infilled quarry's / pits located within a plausible migration distance from the site (i.e. lateral distance of 250m). As part of the ground investigation works carried out by Cundall Geotechnical, reference N7260, dated March 2008, insitu ground gas monitoring was undertaken within three boreholes with monitoring completed on four occasions. No elevated levels of Methane or Carbon Dioxide (max 0.7%) were recorded and the risk assessment concluded that the site would be classified as Characteristic Situation 1 indicating that the site would not required gas protection measures.

6.5 Site Ecology

From the reconnaissance (walkover) survey completed, an inspection was made of the vegetated areas of the site, to investigate the presence of any invasive plants, such as Japanese Knotweed and the like. No evidence of invasive plant species were noted during the site walkover.

7.0 Ground Conditions

Detailed descriptions of the strata encountered during the investigation works, together with the results of all insitu field testing, are presented on the borehole record sheets, copies of which can be seen in Appendix IV. The borehole positions can also be seen on the Borehole Location Plan a copy of which can be seen in Appendix IV. A summary of the ground conditions encountered below the site can be seen in the Table on the following page.

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7.0 Ground Conditions (Cont'd)

There was no obvious visual or olfactory evidence of 'ashy' materials, unforeseen fuel / oil contamination or potential asbestos containing materials (ACM's – cement sheeting, tiles, and the like) or bundles of fibres encountered.

Strata	Depths Recorded	Description & Comments
MADE GROUND: (Variable)	0.00m to 0.14m up to 0.60m	The initial surfacing at the borehole locations comprised either paving or grass in turn underlain by a mixture of disturbed clay or sand deposits containing occasional anthropogenic debris
SUPERFICIAL GEOLOGY: Pelaw Clay Formation	0.14m to 0.60m to 5.15m up to 5.45m (base of boreholes)	Natural stiff (high strength), occasionally becoming firm (medium strength) slightly silty occasionally gravelly, laminated CLAY underlain by stiff (high strength) silty gravelly CLAY with occasional cobbles

A water ingress was recorded at the location of BH02 at 4.00m, rising to 2.25m upon completion of the borehole prior to backfilling. The remaining boreholes put down were noted to be dry during the investigation period. As such a shallow continuous groundwater surface (water table) has not been encountered during these investigation works.

Where possible, insitu hand shear vane tests were undertaken within the natural clay deposits, and a summary of the results obtained can be seen in the Tables below.

Strata	Results	Comments
Pelaw Clay deposits	Shear strength values range from 54kN/m^2 to 120kN/m^2	Shear strength values confirm the natural clay deposits to be medium and high strength in nature, with an average value of 79kN/m^2

Also, where possible, insitu standard penetration tests (SPT's) were undertaken within the natural clay deposits, and a summary of the results obtained can be seen in the Table on the following page.

Strata	SPT Results	Comments
Pelaw Clay deposits	SPT 'N' values ranging between 18 up to 38	The SPT 'N' values suggest the natural clay deposits are stiff to very stiff in nature

In total 4 no. insitu Mexe Cone CBR tests were completed at the borehole locations to determine the insitu strength / density of the underlying deposits to provide a characteristic design CBR value for the site. The results can be seen on the Borehole Record Sheets attached in Appendix IV. The results have identified CBR values ranging between 3% & 4%. Therefore, for design purposes, where new roads, pavements and floor slabs are to be constructed, and where the initial shallow deposits are used as an undisturbed subgrade, then a characteristic CBR design value of 3% should be adopted.

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7.0 Ground Conditions (Cont'd)

This value could be increased where the exposed formation level is proof rolled or the formation level is deepened, and any soft spots identified can be accommodated by the introduction of additional subbase.

8.0 Laboratory Testing

8.1 Determination of Liquid & Plastic Limits

Five representative samples of the natural clay deposits recovered at the borehole locations have been tested to determine their moisture content and liquid & plastic limits, to ascertain their volume change potential (i.e. shrinkage or swelling), to help assist with future foundation design. The results of the tests are contained in the Professional Soils Laboratory (PSL) Laboratory Report (reference PSL20/4743), a copy of which can be seen attached in Appendix V.

The natural deposits tested fall within the high and very high plasticity range, and when considering the amount passing the 425um sieve, these clay deposits display a moderate volume change (shrinkage or swelling) potential. As such, these deposits tested are likely to undergo significant changes in volume if large changes in their natural moisture content were to occur due to seasonal variations or the like, and therefore if new foundations were to be based within these clays, they should be placed at a minimum depth of 0.90m below finished ground levels.

However, consideration will need to be given to the presence of nearby existing, proposed or recently removed vegetation to avoid the effects of future shrinkage and swelling of the natural clay deposits, and as such minimum foundation depths may need to be increased to take this into account, as well as considering depths of made ground. Reference should be made to the BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations.

8.2 Determination of Chemical Attack on Buried Concrete

Nine representative samples of the made ground soils and natural deposits recovered at the borehole locations have been tested by Derwentside Environmental Testing Services (DETS) Limited to determine their pH value and soluble sulphate (sulphate aqueous extract SO_4) levels, so these materials can be classified in accordance with the guidance BRE Special Digest 1:2005, Concrete in Aggressive Ground. The results of the tests are contained in the DETS Certificate of Analysis (reference 20-17491), a copy of which can be seen attached in Appendix V.

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8.0 Laboratory Testing (Cont'd)

8.2 Determination of Chemical Attack on Buried Concrete (Cont'd)

The laboratory test results indicate soluble sulphate concentrations ranging between 40mg/l up to 650mg/l, and pH values ranging between 7.3 and 10.2 for the made ground and natural deposits. Therefore, where future foundations and buried concrete are to be constructed, they can be classified as Design Sulphate Class of DS-2, and the Aggressive Chemical Environment for Concrete (ACEC) class can be assessed as AC-2.

8.3 Soil Contamination Screening

Representative samples of the made ground and shallow soils have been screened for a wide range of chemical analytes to determine potential sources of contamination and to allow an assessment of any risks these materials may pose to construction workers and future end users. The testing was completed by DETS (UKAS & MCERTS accredited), and the suites of contamination analysis completed are summarised below.

- 5 no. soil samples tested for Arsenic, Cadmium, Chromium (III & VI), Copper, Lead, Mercury, Nickel, Selenium, Zinc, Cyanide (free) and Total Organic Carbon (TOC) / Soil Organic Matter (SOM)
- 5 no. soil samples screened for Speciated Polycyclic Aromatic Hydrocarbons (PAH's) – based on the current USEPA 16 PAH's
- 5 no. soil samples tested for Asbestos (presence)

A Human Health, Generic Quantitative Risk Assessment (GQRA) is carried out by comparing measured concentrations in soil with generic screening values appropriate for the Conceptual Model and pollutant linkage(s) being assessed. Provided the measured concentrations are below appropriate generic screening criteria, the risk from the pollutant linkages(s) being assessed are unlikely to represent a significant risk. The generic screening values referred to usually take the form of risk-based Generic Assessment Criteria (GAC) values, that are most typically derived using the Environment Agency's Contaminated Land Exposure Assessment (CLEA) Model. For the purposes of this Human Health contamination risk assessment, and when considering the nature and sensitivity of the proposed development (education facility with pupils >11yrs old), the results have been compared against currently available assessment values published by LQM / CIEH (Suitable 4 Use Levels – S4UL's), CL:AIRE Category 4 Screening Levels (C4SL's), and Atkins ATRISKsoil Soil Screening Values (SSVs) for Cyanide only, with Public Open Space (resi) taken as the best fit end-use for this type of site / development. The laboratory results are contained within the DETS Certificate of Analysis Test Report (reference 20-17491), a copy of which can be found in Appendix V, and a summary of the contamination results can be seen in the Table below and on the following page.

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8.0 Laboratory Testing (Cont'd)

8.3 Soil Contamination Screening (Cont'd)

Analyte (Generic)	Critical concentration (mg/kg)	No. of samples screened	Max. concentration recorded (mg/kg)
Arsenic	79[(1)]	5	27
Cadmium	120[(1)]	5	0.6
Chromium III	1,500[(1)]	5	29
Chromium VI	7.7[(1)]	5	<1.0
Copper	12,000[(1)]	5	180
Lead	630[(3)]	5	280
Mercury	120[(1)]	5	2.3
Nickel	230[(1)]	5	34
Selenium	1,100[(1)]	5	<0.5
Zinc	2,000[(1)]	5	250
Cyanide	34[(2)]	5	0.2
Asbestos	Presence	5	No Asbestos Detected
PAH's			
Acenaphthene	15,000[(1)]	5	1.7
Acenaphthylene	15,000[(1)]	5	0.2
Anthracene	74,000[(1)]	5	3.2
Benzo(a)anthracene	29[(1)]	5	4.2
Benzo(a)pyrene	5.7[(1)]	5	3.9
Benzo(b)fluoranthene	7.2[(1)]	5	3.1
Benzo(ghi)perylene	640[(1)]	5	1.7
Benzo(k)fluoranthene	190[(1)]	5	1.6
Chrysene	57[(1)]	5	4.8
Dibenz(ah)anthracene	**0.58[(1)]**	**5**	**1.5**
Fluoranthene	3,100[(1)]	5	11
Fluorene	9,900[(1)]	5	2.2
Indeno(123cd)pyrene	82[(1)]	5	1.1
Naphthalene	4,900[(1)]	5	2.2
Phenanthrene	3,100[(1)]	5	12
Pyrene	7,400[(1)]	5	9.4

[(1)] = The LQM / CIEH Suitable 4 Use Levels – Geol reference no. S4UL3816 - (Public Open Space$_{resi}$, based on 6% SOM for organic analytes), [(2)] = ATRISK^{SOIL} SSV (2015), [(3)] = CL:AIRE C4SLs (Public Open Space 1 (resi))

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8.0 Laboratory Testing (Cont'd)

8.3 Soil Contamination Screening (Cont'd)

None of the maximum concentration values for any of the generic contaminants listed in the Table exceed the critical concentration values adopted for this site, based on an end use of Public Open $Space_{resi}$. None of the samples screened were found to contain the presence of asbestos.

Generally, no significant concentrations of PAH's have been recorded to exceed the chosen target concentration values adopted for this site, however, some marginally elevated levels of Dibenz(ah)anthracene only have been recorded to exceed the chosen critical concentration values within the shallow 'topsoil' deposits at the locations of BH's 03 and BH04. When considering these results as a whole and in light of the remaining samples screened, and the development setting, it is felt that in our opinion the concentrations recorded do not represent a significant risk to current or future end users of the site and therefore no further risk assessment or remedial measures are required. The findings and conclusions drawn from this risk assessment should be discussed with South Tyneside Council and their opinion should be sought prior to the development commencing.

9.0 Recommendations for New Building Foundations

Based on the ground conditions encountered at the borehole locations, shallow conventional strip or pad foundations will be acceptable for the proposed new building extension, based wholly within the natural clay deposits. Based on the insitu geotechnical testing completed, new foundations can be designed to a maximum allowable bearing pressure of 125kN/m^2 in order to remain within acceptable levels of settlement (<25mm). Foundations should be based at a minimum depth of 0.90m below finished ground levels. During the ground preparation works and the development of the site, should the ground conditions appear to differ from those already identified as part of these investigation works, then advice should be sought from a suitably qualified Engineer to determine if a reassessment of the ground conditions and recommendations is required before the development progresses further.

Consideration will need to be given to the presence of existing, proposed or recently removed vegetation to avoid the effects of future shrinkage and swelling of the natural clay deposits, and as such minimum foundation depths may need to be increased to take this into account. Reference should be made to the NHBC Technical Standards guidance, Part 4.2 Building Near Trees, and BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations.

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10.0 General Comments

During the creation of deep excavations, potential instability issues may be encountered where excavations are left open for a long period of time. Therefore, temporary lateral trench support may be required for construction related excavations to prevent trench wall collapse and over-excavation, as well as providing a safe working environment for any operatives who may require access to deep excavations, those in excess of 1.20m deep.

In addition, for deeper excavations, drainage, service runs or the like that may pass close to or beneath any proposed new foundations, these should be undertaken with care and completed prior to the preparation of any new foundations, so as not to allow any loose or granular material to move or 'flow', thus causing settlement to occur to any new foundations based at a higher level.

It is also recommended for any new developments, adequate surface drainage should be designed and installed by a competent contractor, in order to prevent surface water 'ponding' or collection, during and post construction, particularly where the existing surface drainage system is disrupted or damaged.

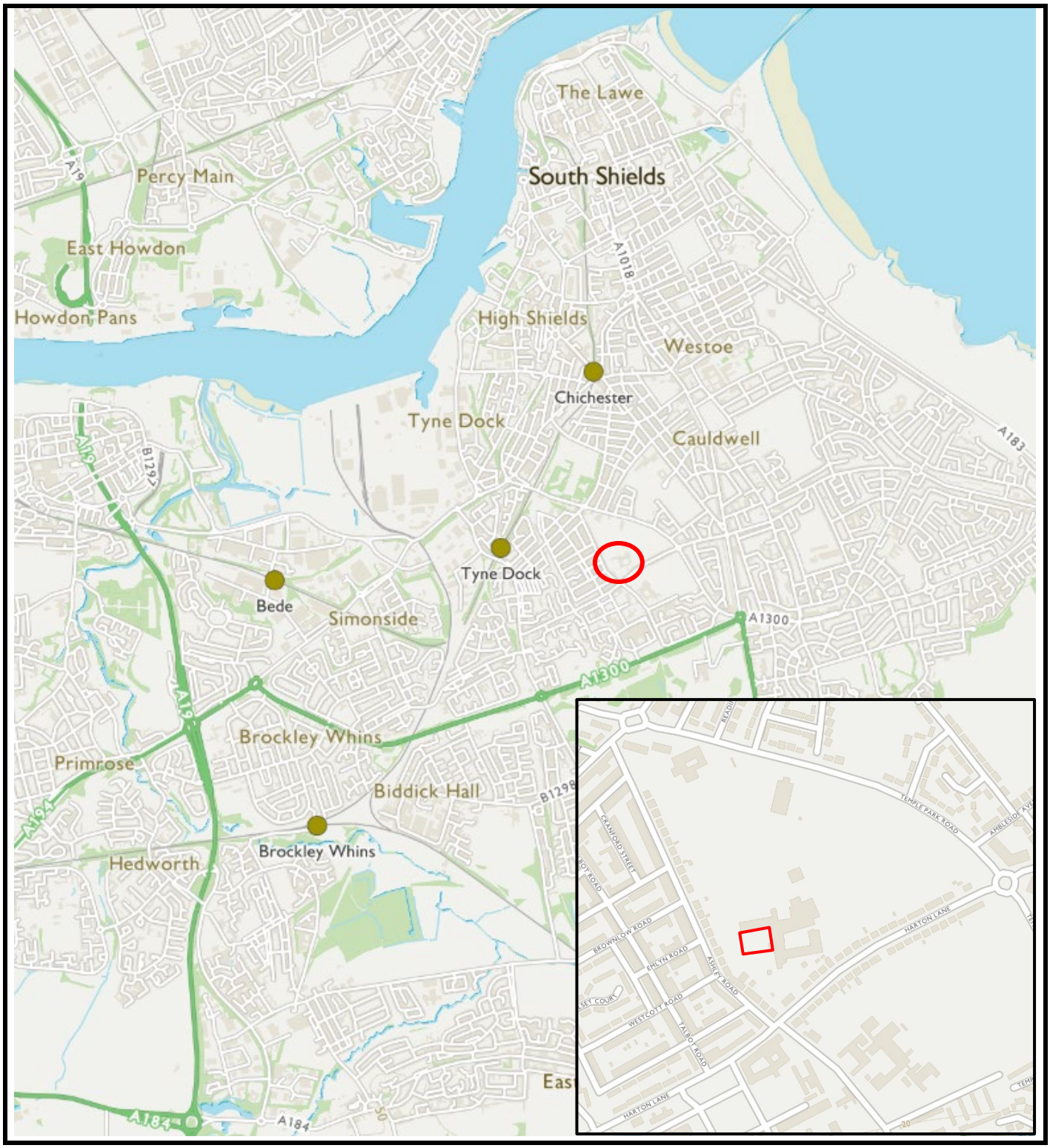
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APPENDIX I

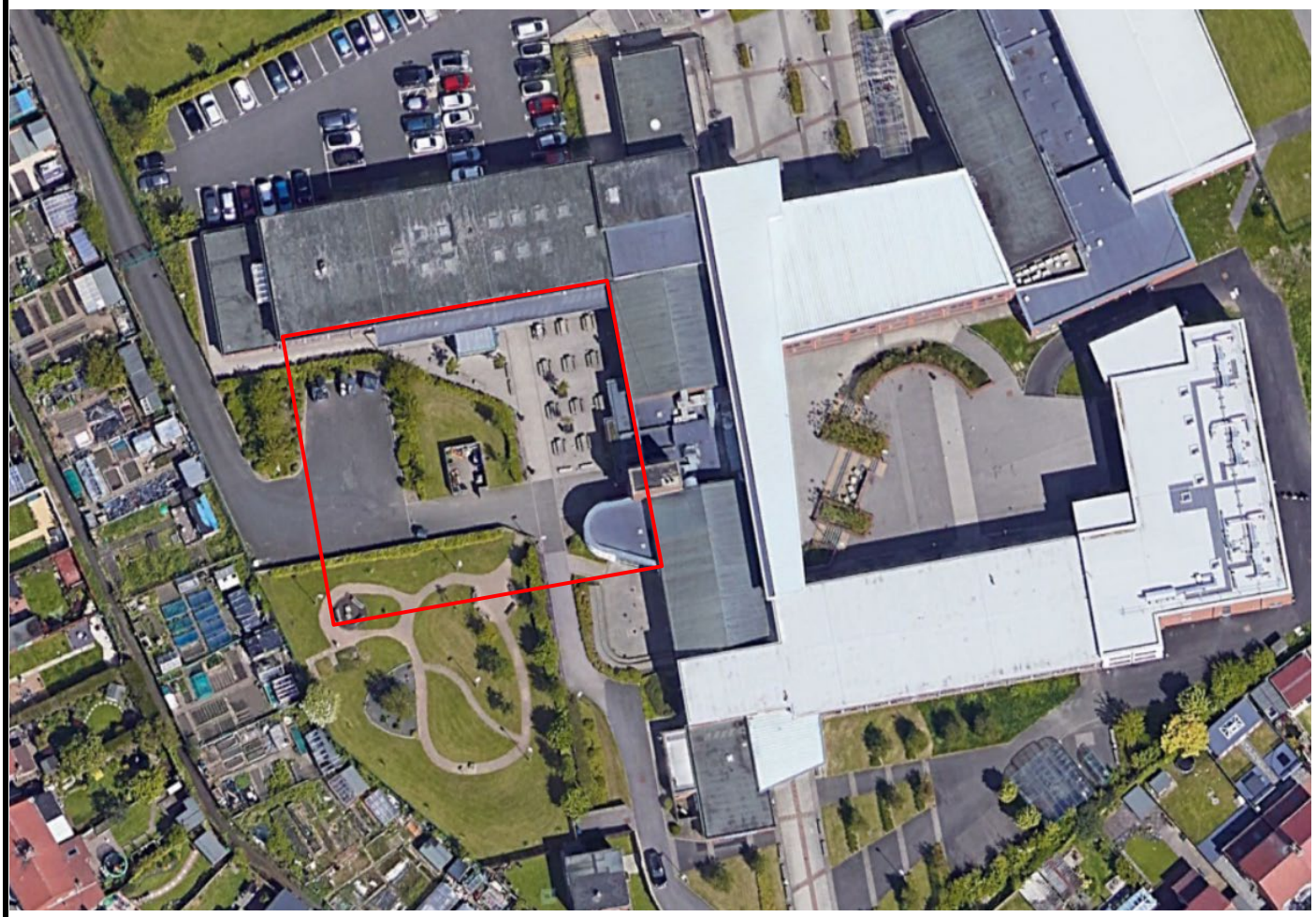
SITE LOCATION PLAN,
AERIAL PHOTOGRAPH,
SITE PHOTOGRAPHS,
EXISTING SITE LAYOUT PLAN, AND
PROPOSED DEVELOPMENT LAYOUT PLAN

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SITE LOCATION PLAN

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AERIAL PHOTOGRAPH

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SITE PHOTOGRAPHS

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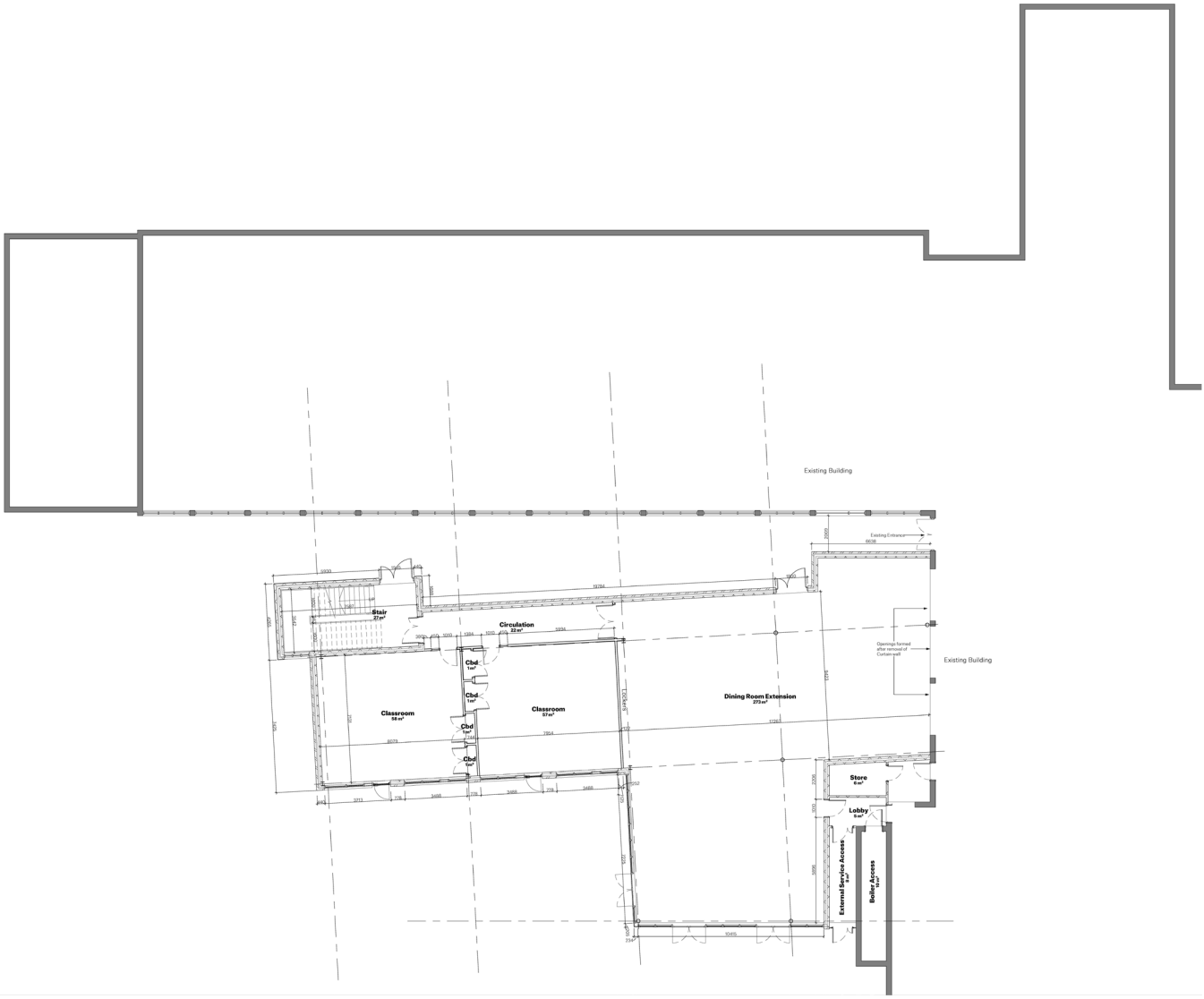
SITE PHOTOGRAPHS

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EXISTING SITE LAYOUT PLAN

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PROPOSED DEVELOPMENT LAYOUT PLAN

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Email: enquiries@geolconsultants.co.uk

APPENDIX II

THE COAL AUTHORITY, CONSULTANTS COAL MINING REPORT

3 Gladstone Terrace,
Gateshead, NE8 4DY
Tel. 0191 477 2020
Email: enquiries@geolconsultants.co.uk

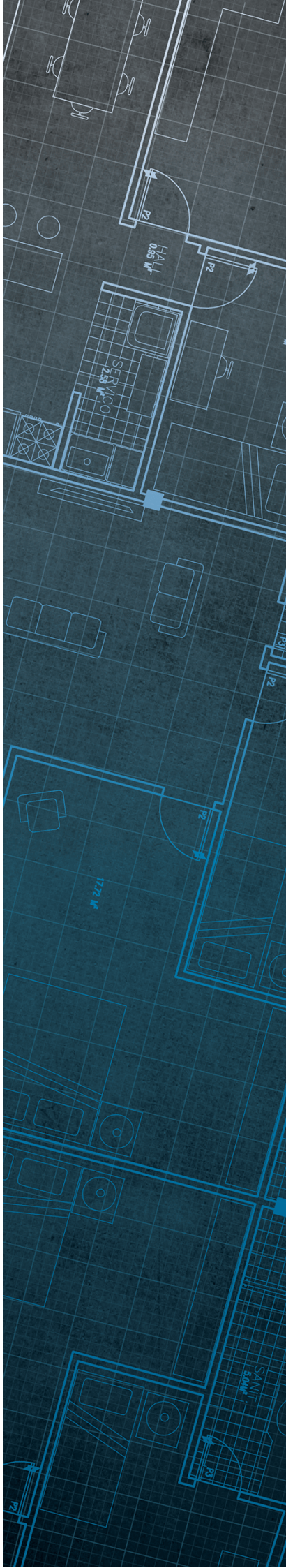
The Coal Authority

Consultants

Coal Mining Report

St Wilfrids Rc College
St Wilfrids Rc College
Temple Park Road
South Shields
South Tyneside
NE34 0QA

Date of enquiry:	**14 August 2020**
Date enquiry received:	**14 August 2020**
Issue date:	**14 August 2020**
Our reference:	**51002304076001**
Your reference:	**GEOL20-9553**



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

Paul Evans

Enquiry address

St Wilfrids Rc College
St Wilfrids Rc College
Temple Park Road
South Shields
South Tyneside
NE34 0QA



Approximate position of property

Map data

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How to contact us

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200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

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
HARTON	YARD	Coal	5139	295	North-East	4.3	South-West	120	1941
unnamed	YARD	Coal	513E	299	Beneath Property	4.0	South-West	120	1951
HARTON	MAUDLIN	Coal	512H	322	Beneath Property	5.1	South-West	180	1924
unnamed	MAUDLIN	Coal	512K	322	South-East	4.3	South-West	170	1914
unnamed	MAUDLIN	Coal	512I	327	West	3.8	South-West	180	1914
HARTON	BRASS THILL	Coal	3LU6	335	North-East	3.3	South-West	130	1965
unnamed	BRASS THILL	Coal	3LU2	341	North-East	2.7	South-West	90	1960
HARTON	HUTTON	Coal	3QAQ	355	East	3.6	South-West	190	1913
unnamed	HUTTON	Coal	3QAO	358	Beneath Property	3.8	South-West	190	1893
HARTON	HARVEY	Coal	3LW7	411	East	5.1	South-West	112	1952
unnamed	HARVEY	Coal	3LW9	413	South-East	3.1	South-West	112	1949

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

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Abandoned mine plan catalogue numbers

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

11871	D724	15028
D1237	D1238	D841
12624	D1060	D862

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

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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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 31 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.

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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.

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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.

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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.

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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.

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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.

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The Coal Authority

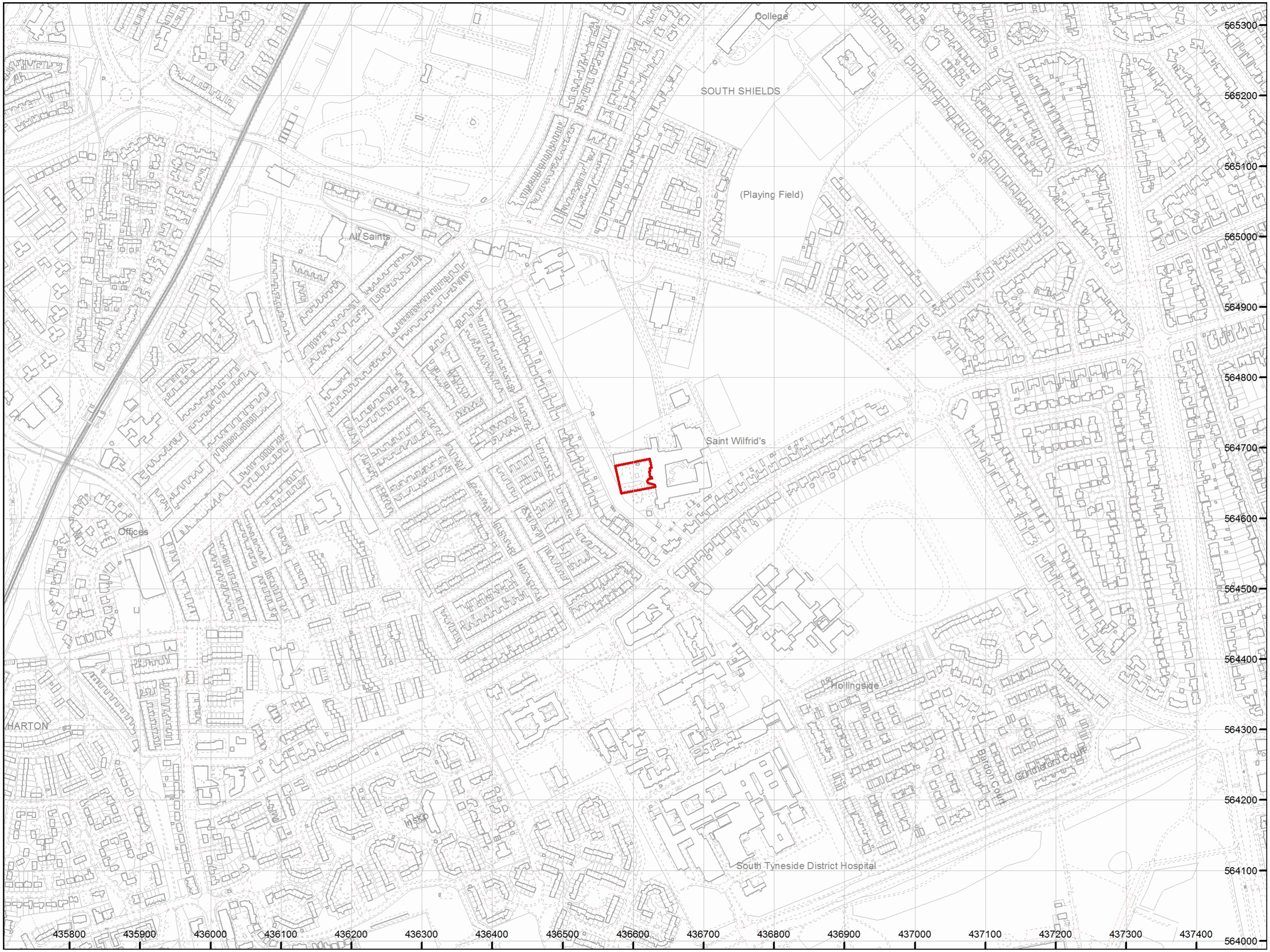
Summary of findings

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The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown



How to contact us
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+44 (0)1623 637 000 (International)
www.groundstability.com

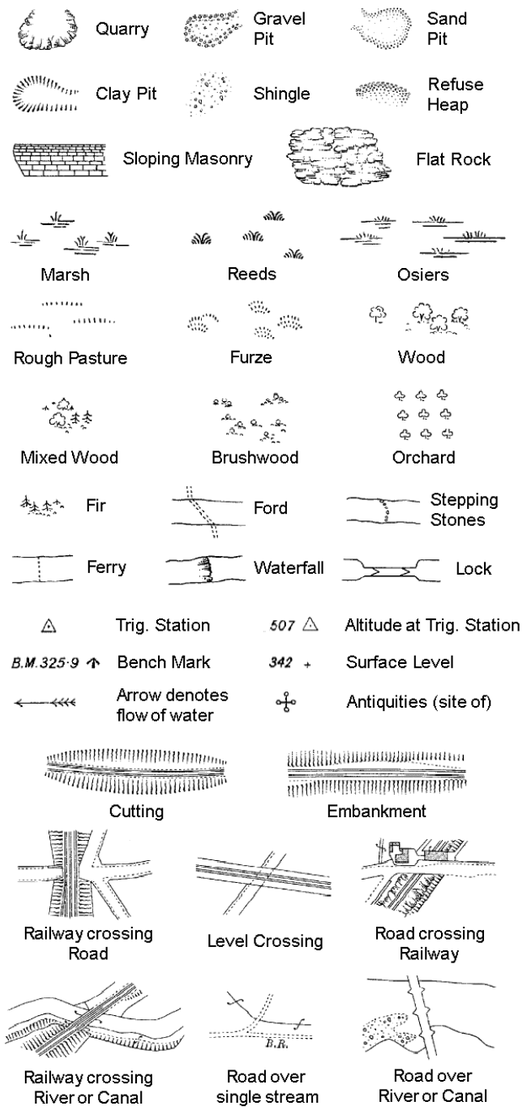
APPENDIX III

ORDNANCE SURVEY, HISTORICAL MAPS

3 Gladstone Terrace,
Gateshead, NE8 4DY
Tel. 0191 477 2020
Email: enquiries@geolconsultants.co.uk

Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

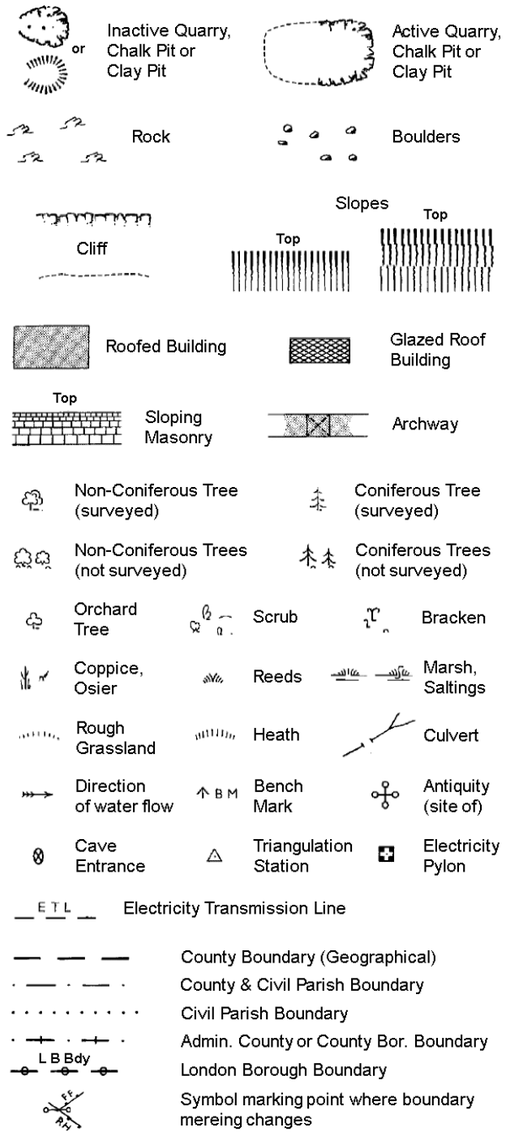
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

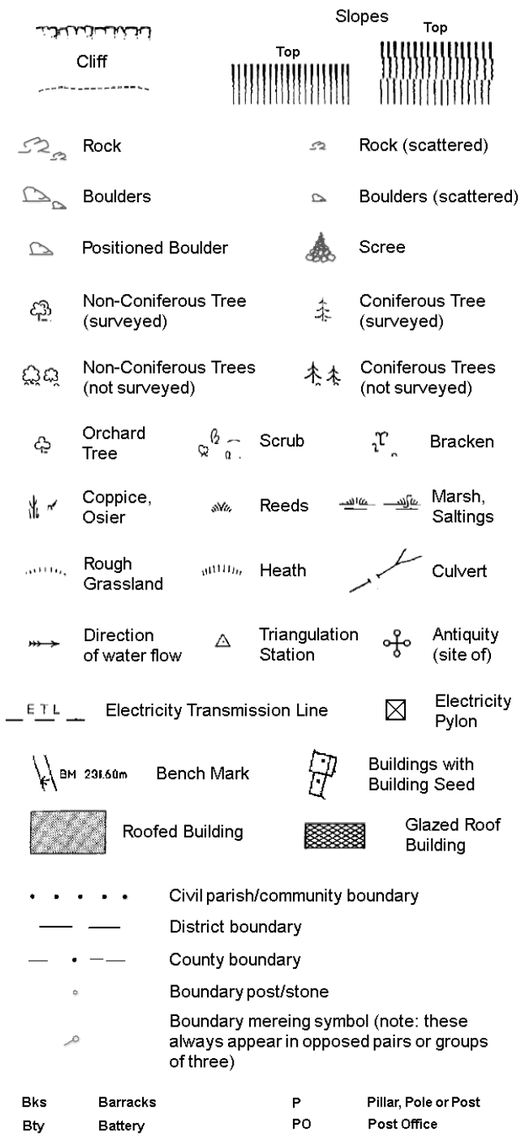
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

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



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

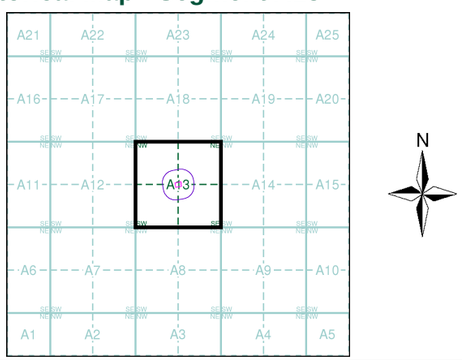
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

GEOL CONSULTANTS LTD

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Northumberland	1:2,500	1861	2
Durham	1:2,500	1874	3
Durham	1:2,500	1897	4
Durham	1:2,500	1916	5
Durham	1:2,500	1942	6
Ordnance Survey Plan	1:1,250	1956	7
Ordnance Survey Plan	1:2,500	1957	8
Ordnance Survey Plan	1:1,250	1966 - 1973	9
Ordnance Survey Plan	1:2,500	1970	10
Ordnance Survey Plan	1:1,250	1971 - 1986	11
Supply of Unpublished Survey Information	1:1,250	1973 - 1975	12
Additional SIMs	1:1,250	1979 - 1989	13
Ordnance Survey Plan	1:1,250	1985	14
Large-Scale National Grid Data	1:1,250	1993	15
Large-Scale National Grid Data	1:1,250	1994 - 1995	16
Historical Aerial Photography	1:2,500	1999	17

Historical Map - Segment A13



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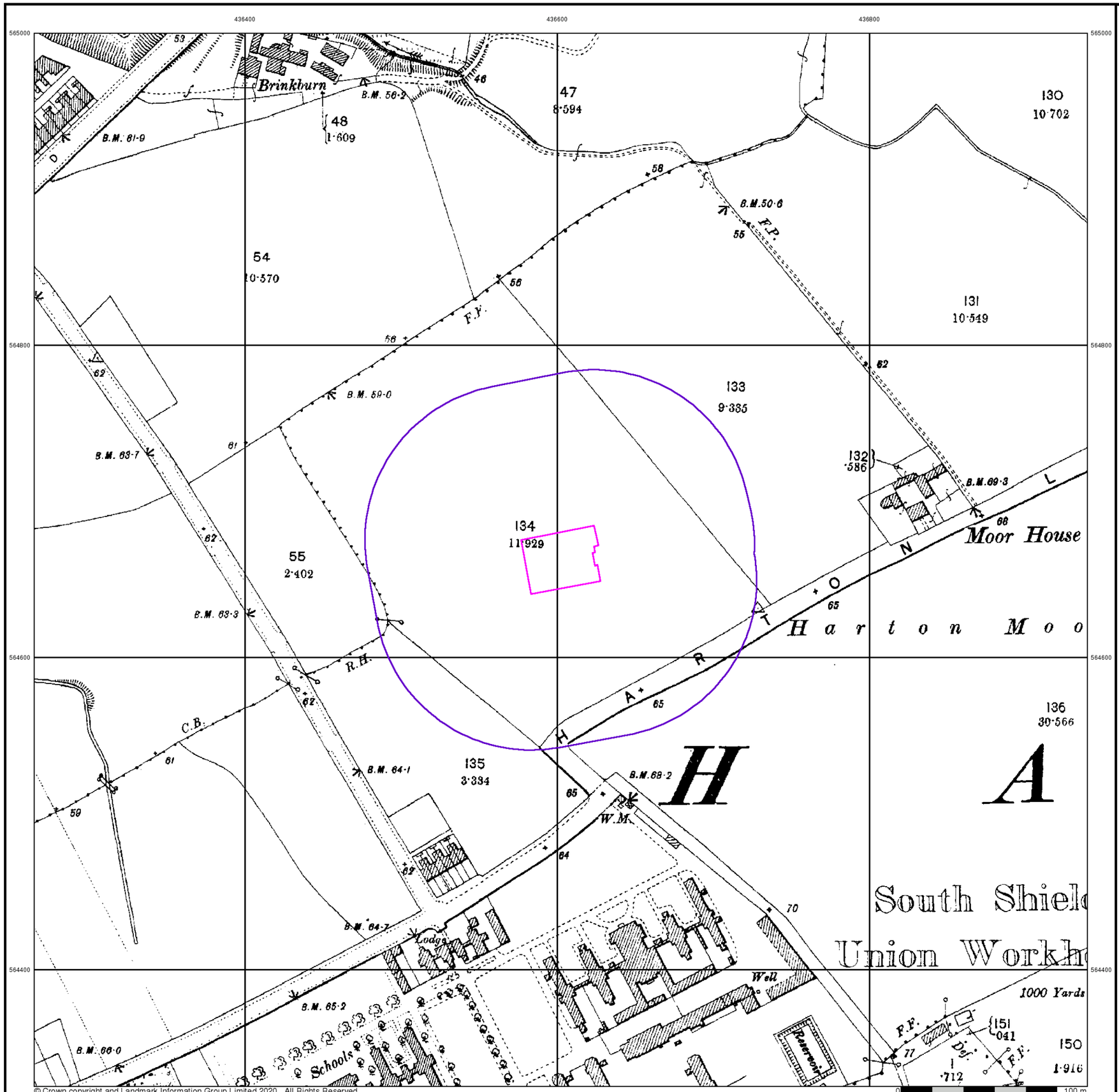
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Search Buffer (m):	100

Site Details

St. Wilfrids R C College, Temple Park Road, SOUTH SHIELDS, NE34 0QA

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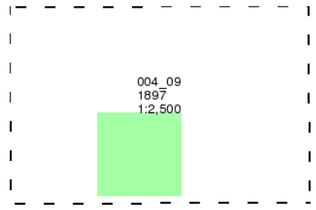
Durham

Published 1897

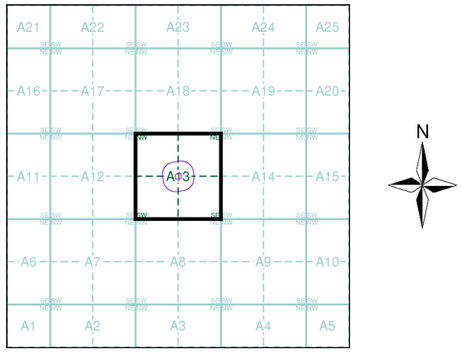
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered 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



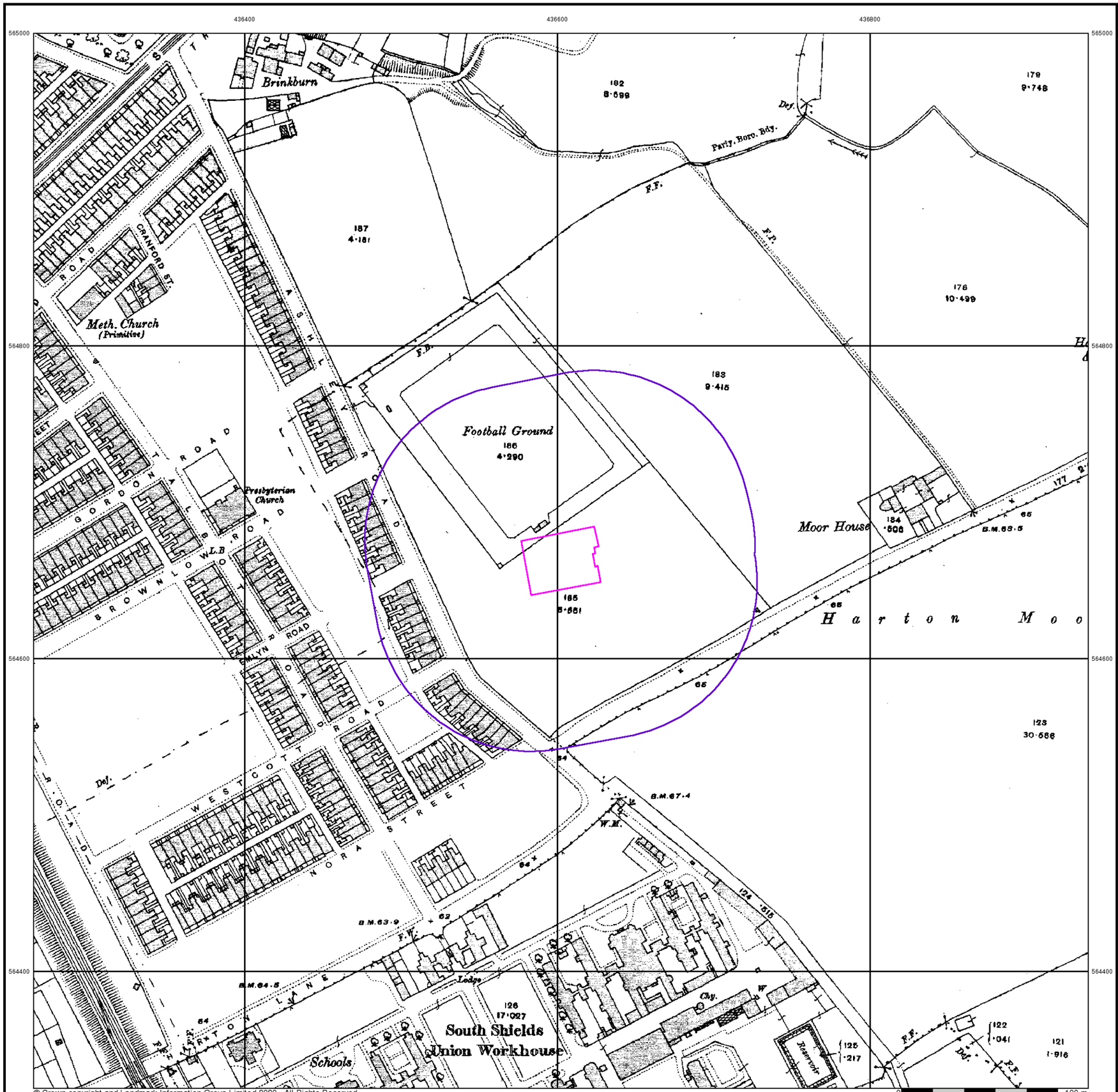
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Site Area (Ha):	0.17
Search Buffer (m):	100

Site Details

St. Wilfrids R C College, Temple Park Road, SOUTH SHIELDS, NE34 0QA

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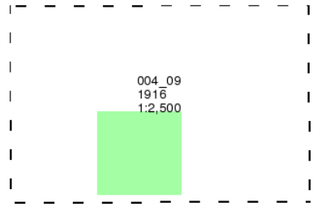
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Published 1916

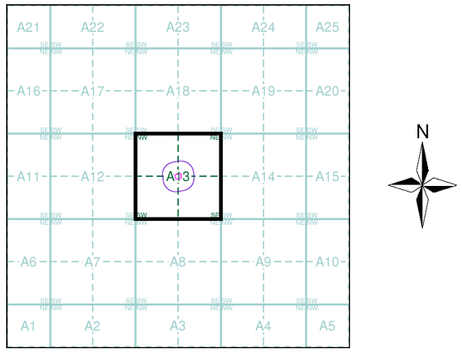
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered 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



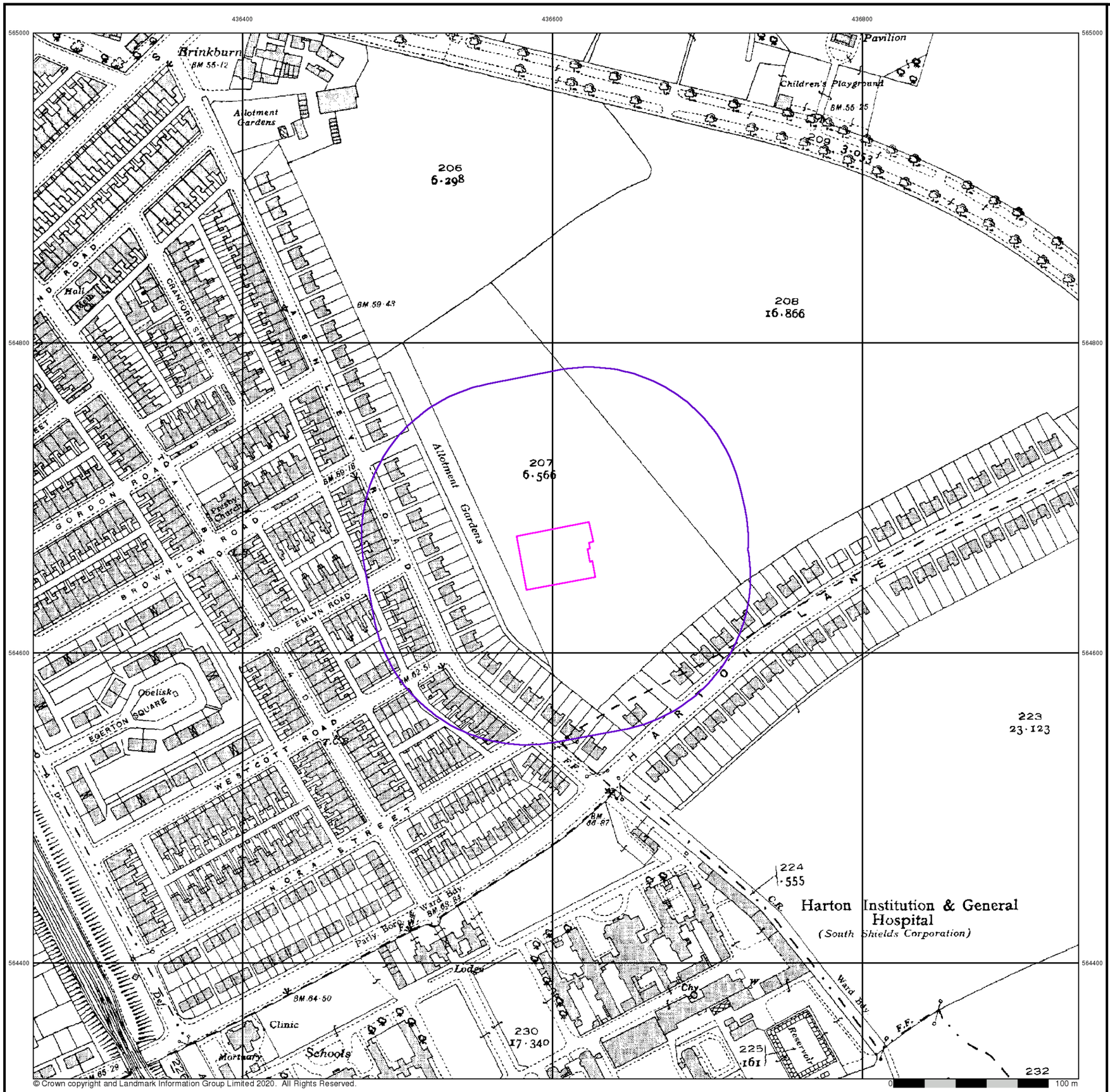
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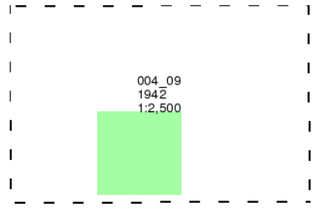
Durham

Published 1942

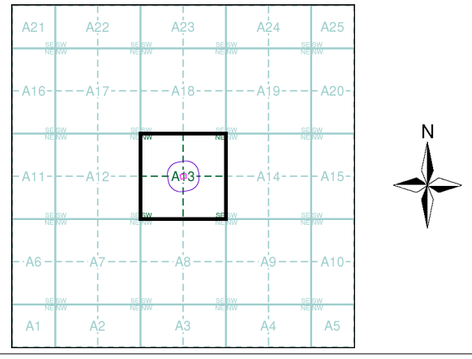
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Map Name(s) and Date(s)



Historical Map - Segment A13

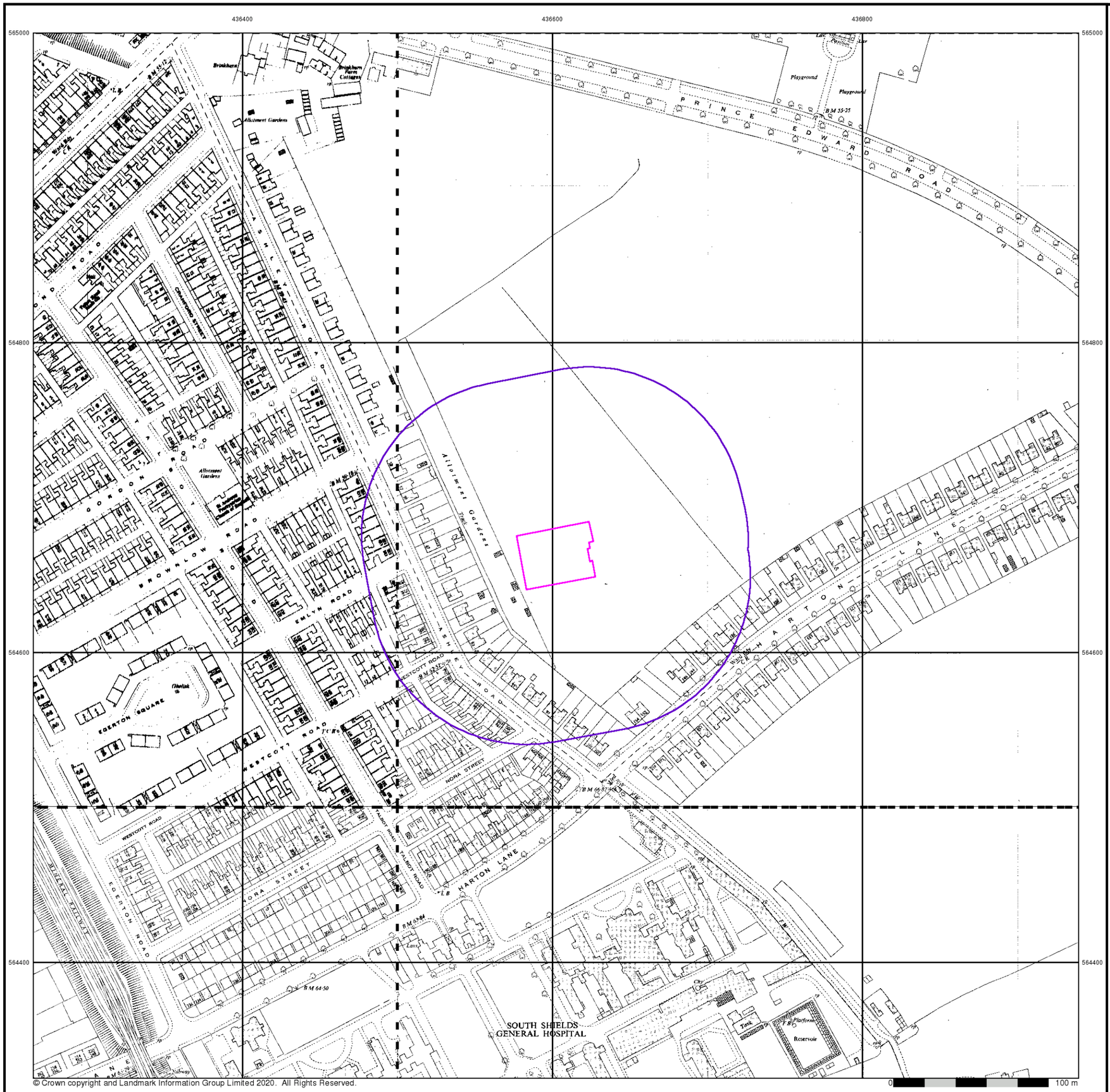


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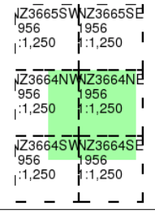
Ordnance Survey Plan

Published 1956

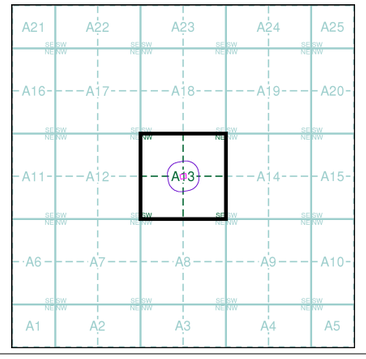
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Map Name(s) and Date(s)



Historical Map - Segment A13

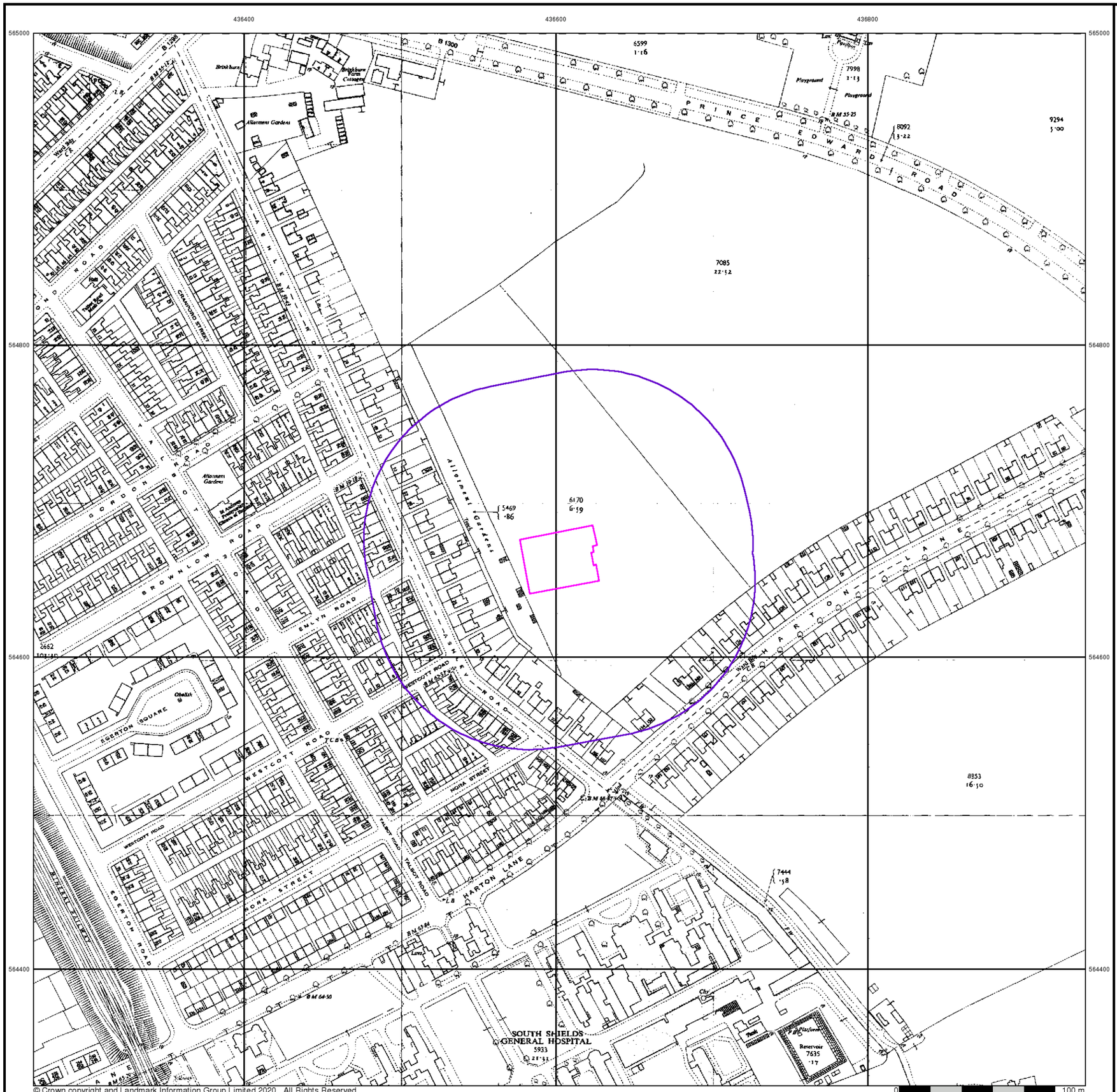


Order Details

Order Number:	253837524_1_1
Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	100

Site Details

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GEOL CONSULTANTS LTD

Ordnance Survey Plan

Published 1957

Source map scale - 1:2,500

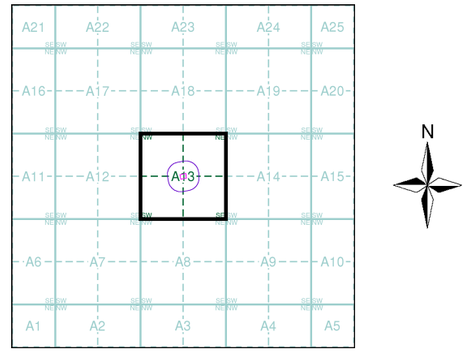
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

NZ3665
1957
1:2,500

NZ3664
1957
1:2,500

Historical Map - Segment A13



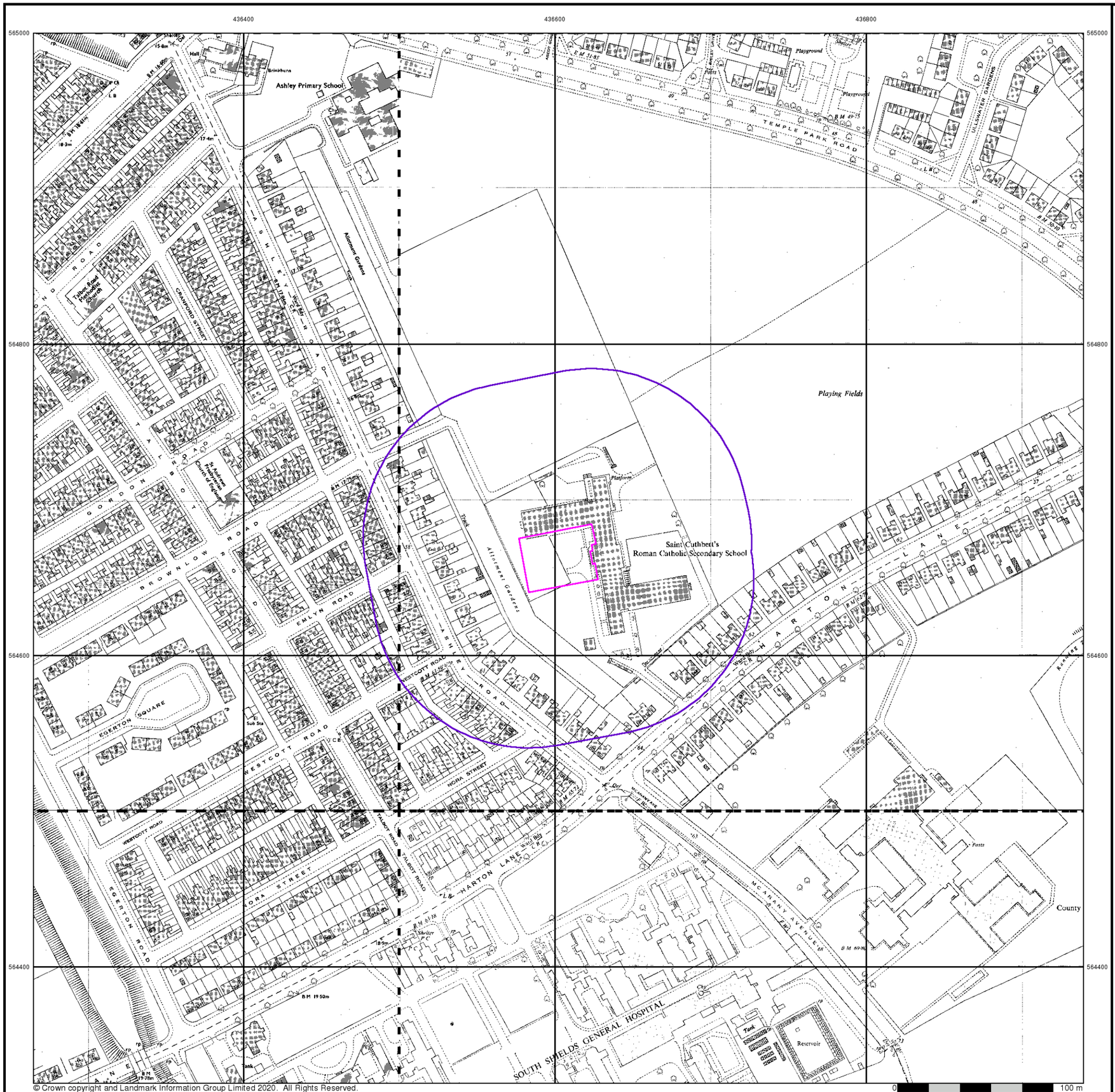
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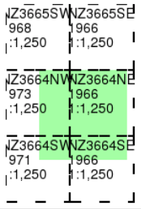
Ordnance Survey Plan

Published 1966 - 1973

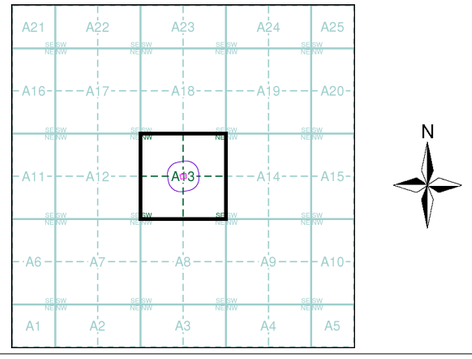
Source map scale - 1:1,250

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



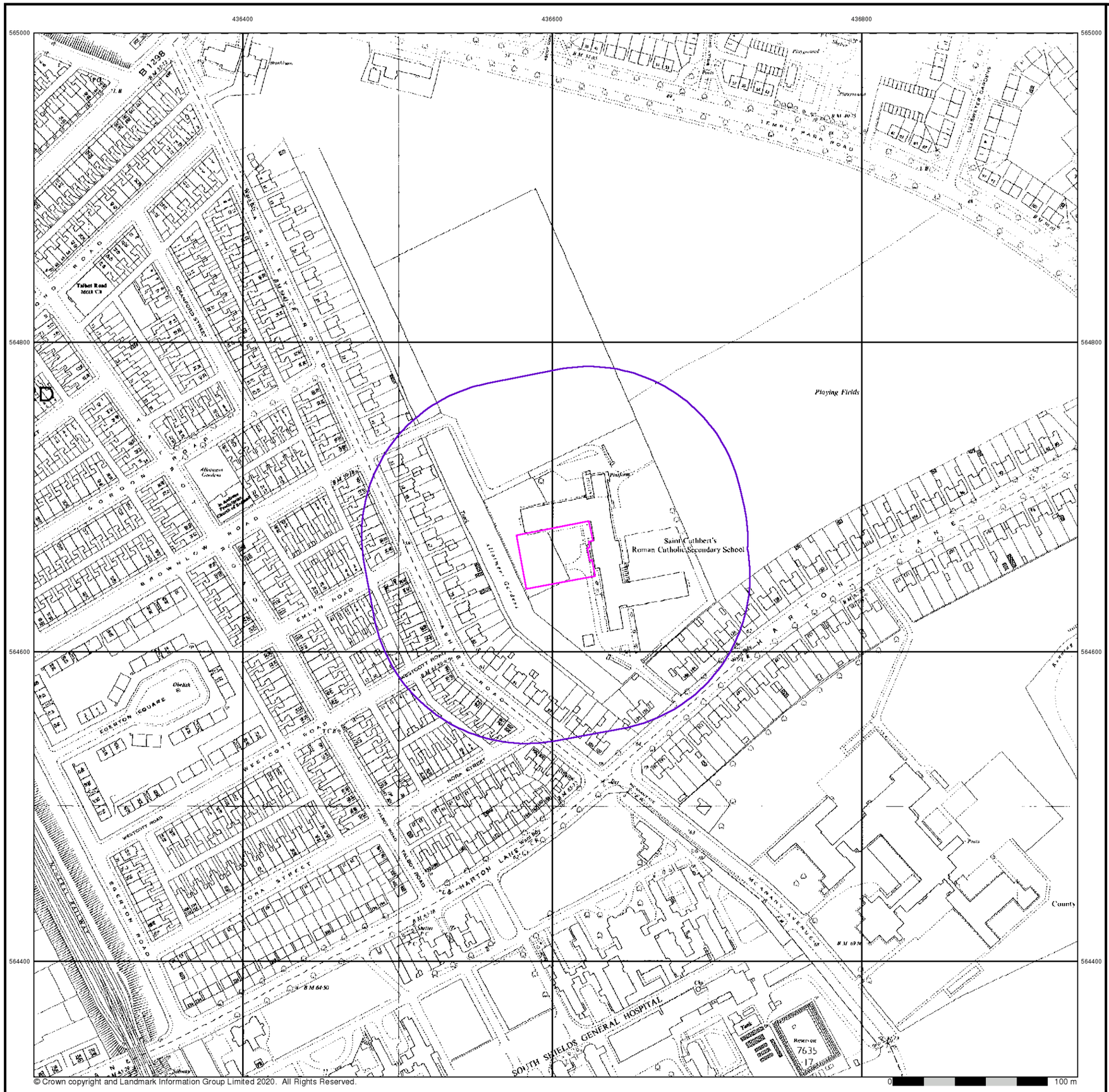
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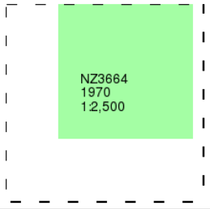
Ordnance Survey Plan

Published 1970

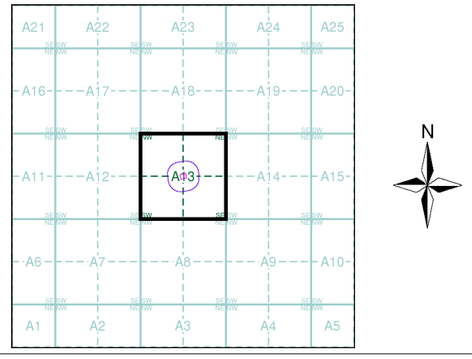
Source map scale - 1:2,500

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

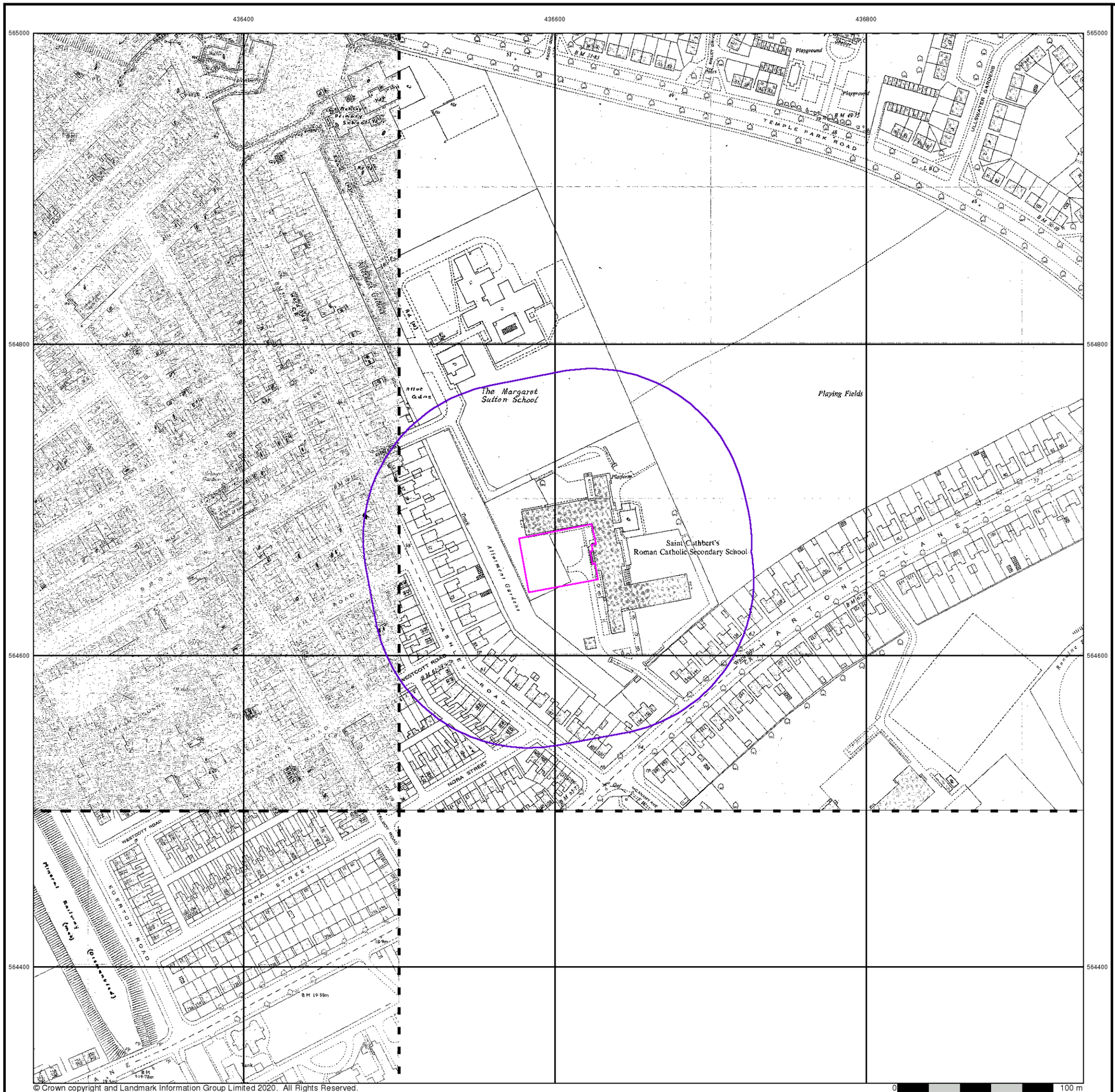


Order Details

Order Number:	253837524_1_1
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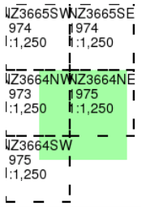
Supply of Unpublished Survey Information

Published 1973 - 1975

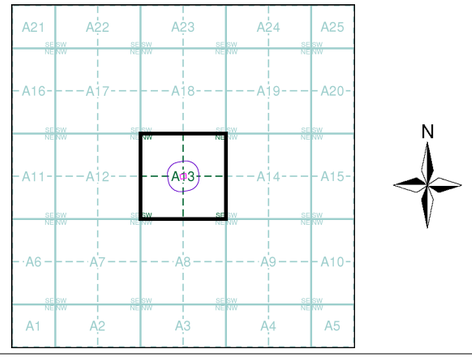
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



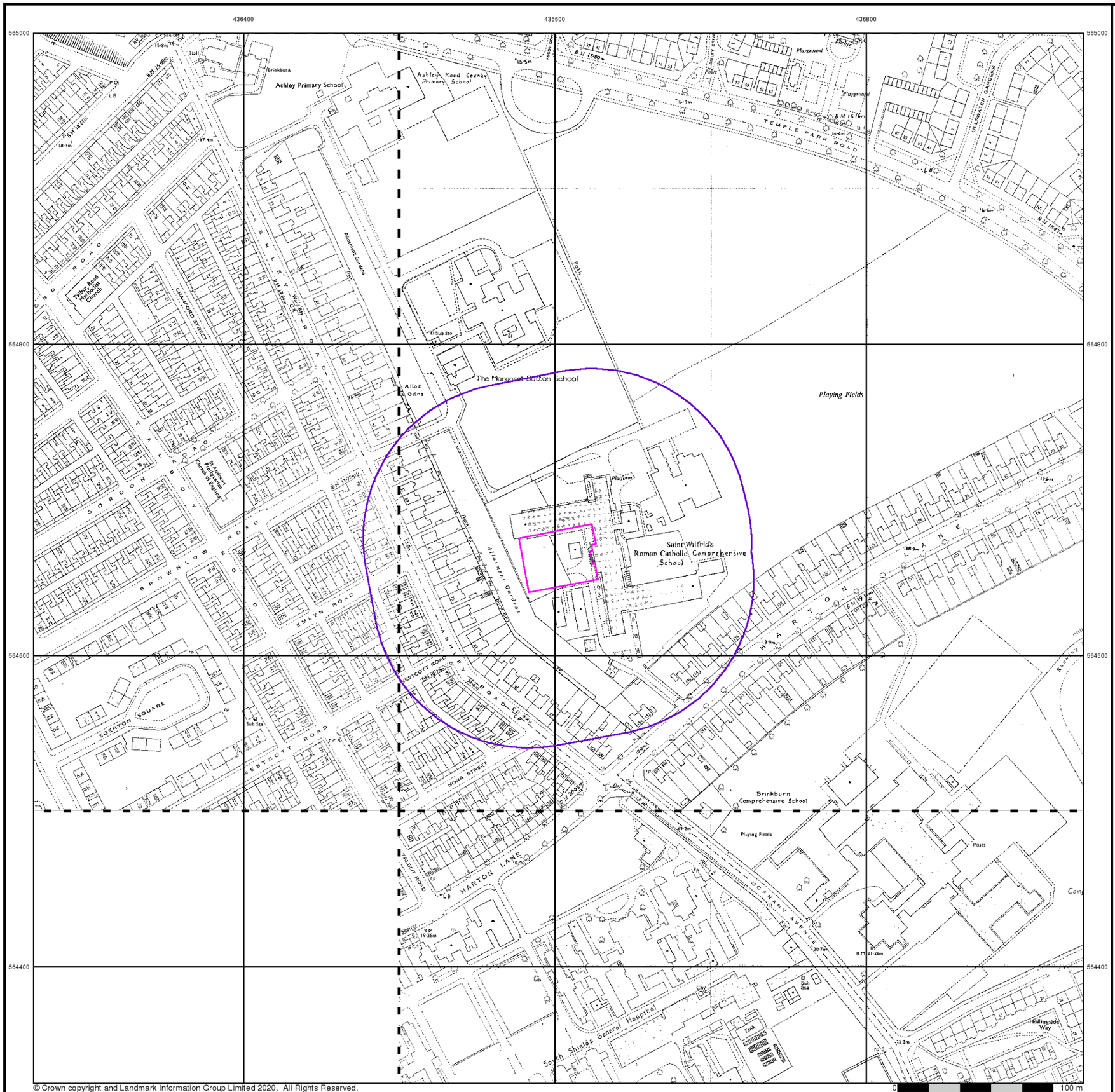
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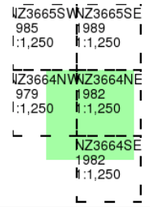
Additional SIMs

Published 1979 - 1989

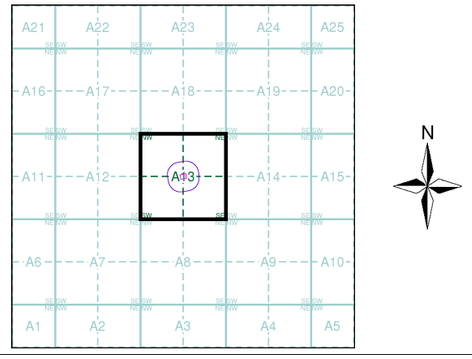
Source map scale - 1:1,250

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



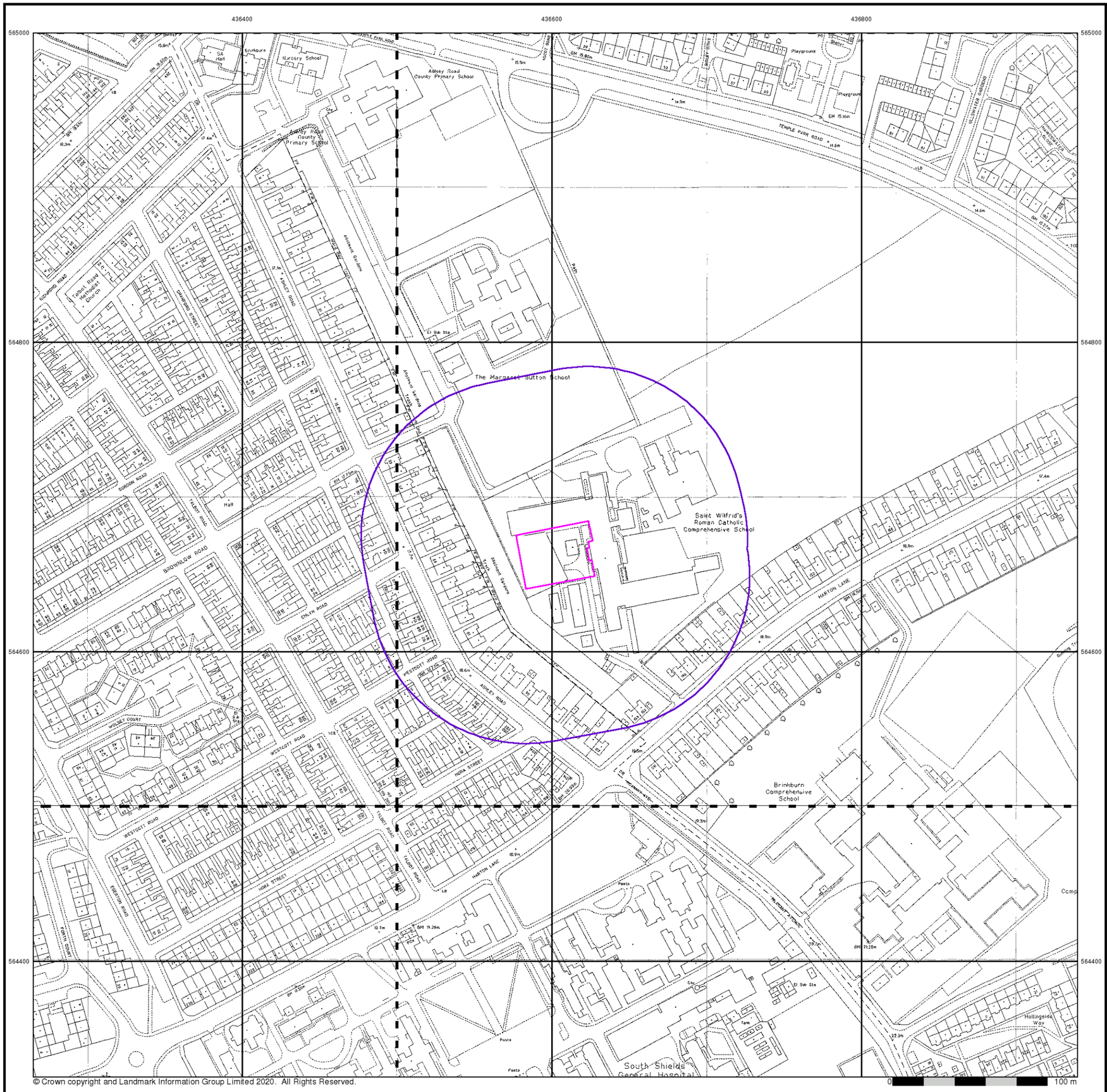
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Large-Scale National Grid Data

Published 1993

Source map scale - 1:1,250

'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.

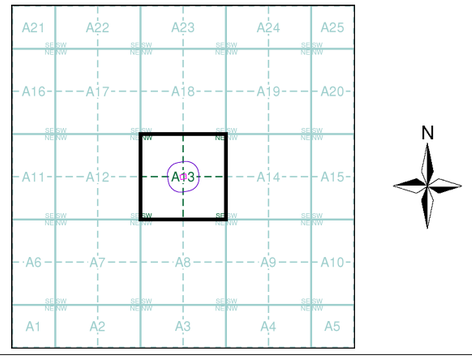
Map Name(s) and Date(s)

NZ3665SE 1993 1:1,250

NZ3664NW 1993 1:1,250 | NZ3664NE 1993 1:1,250

NZ3664SW 1993 1:1,250 | NZ3664SE 1993 1:1,250

Historical Map - Segment A13



Order Details

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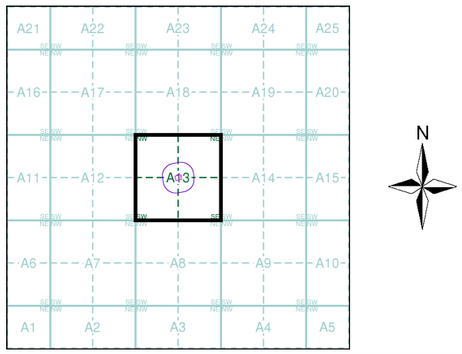
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Historical Aerial Photography

Published 1999

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

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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
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
Pylon
Electricity Transmission Line
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

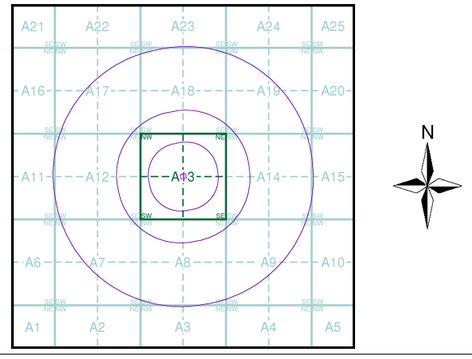
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or 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

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Durham	1:10,560	1862	3
Northumberland	1:10,560	1864	4
Durham	1:10,560	1898	5
Northumberland	1:10,560	1899	6
Durham	1:10,560	1921	7
Durham	1:10,560	1938	8
Ordnance Survey Plan	1:10,000	1951 - 1952	9
Ordnance Survey Plan	1:10,000	1967 - 1968	10
Ordnance Survey Plan	1:10,000	1976 - 1977	11
Sunderland	1:10,000	1976	12
Newcastle-upon-Tyne	1:25,000	1977	13
Ordnance Survey Plan	1:10,000	1986 - 1987	14
Ordnance Survey Plan	1:10,000	1993	15
10K Raster Mapping	1:10,000	2000	16
10K Raster Mapping	1:10,000	2006	17
VectorMap Local	1:10,000	2020	18

Historical Map - Slice A



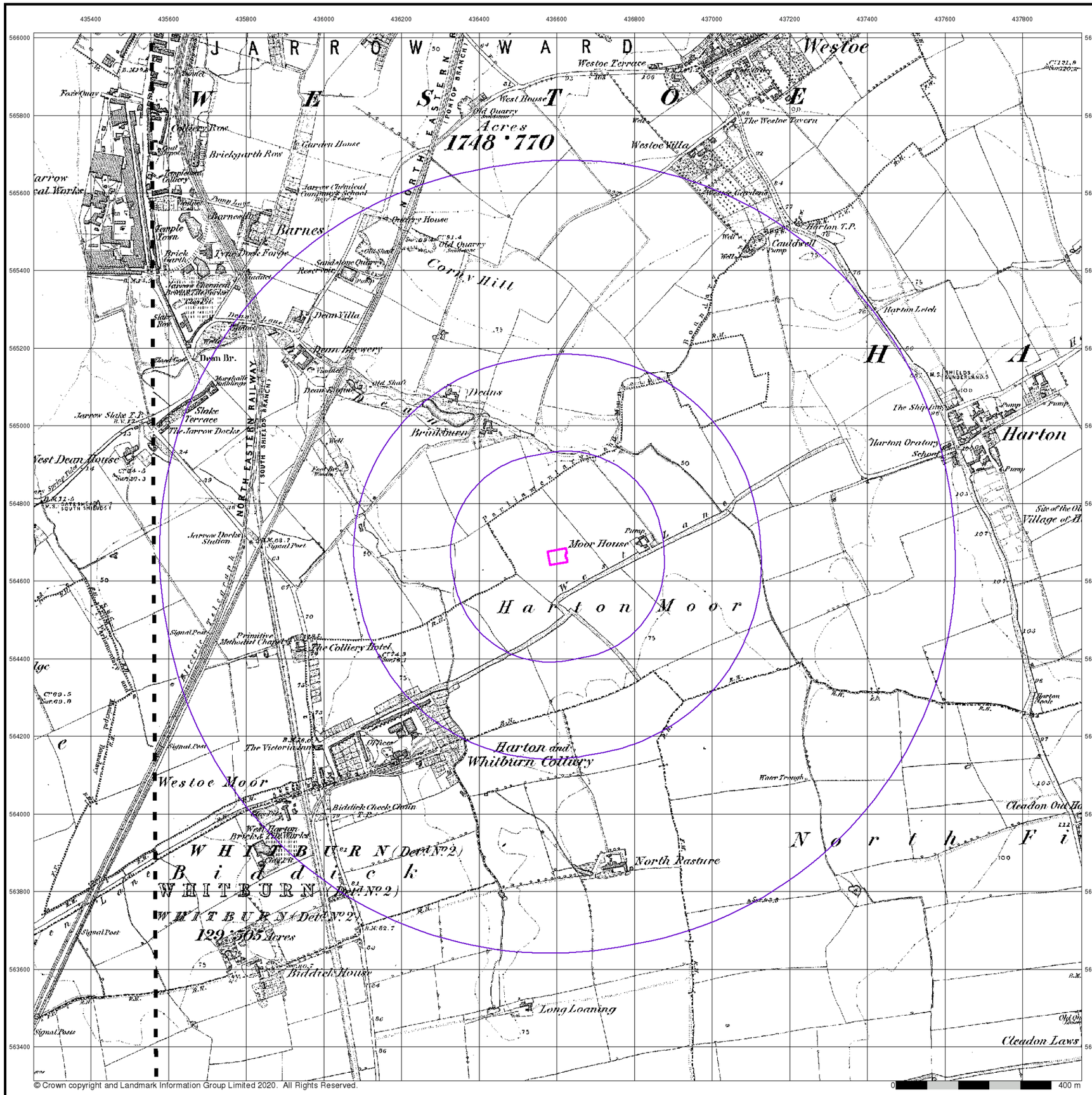
Order Details

Order Number: 253837524_1_1
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Search Buffer (m): 1000

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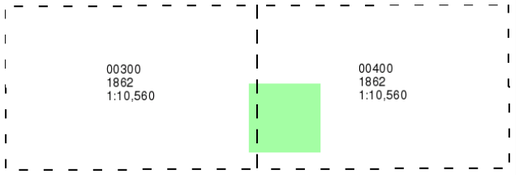
Durham

Published 1862

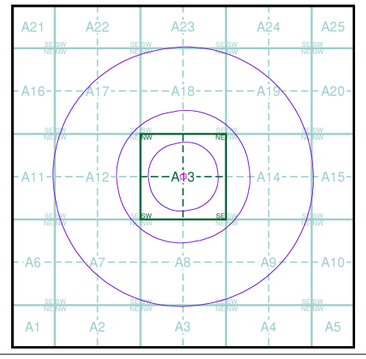
Source map scale - 1:10,560

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



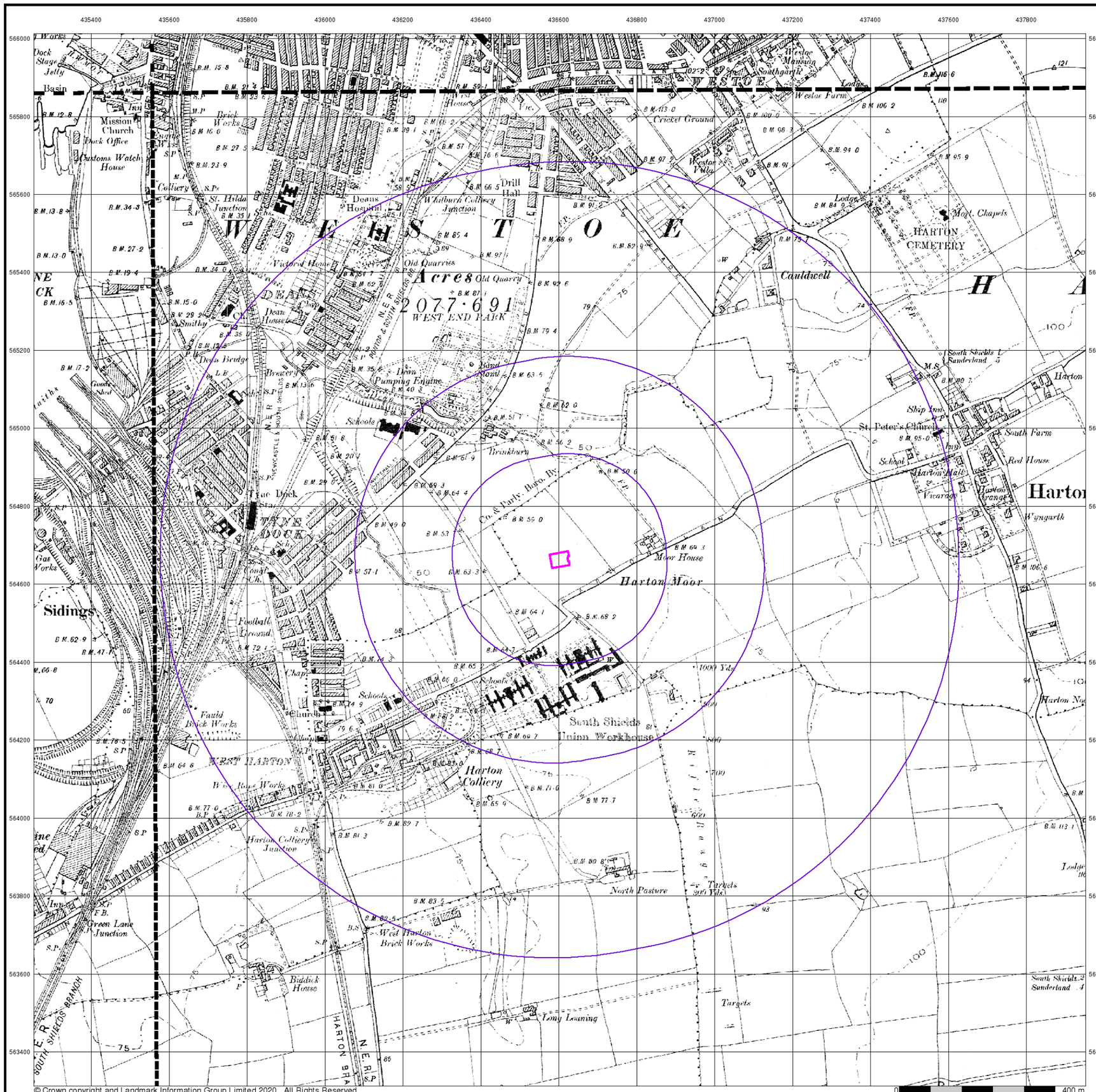
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Durham

Published 1898

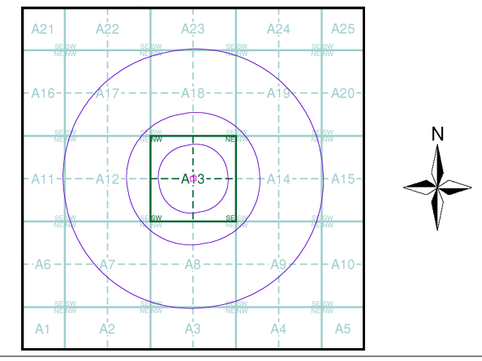
Source map scale - 1:10,560

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Map Name(s) and Date(s)

003NE 1898 1:10,560	004NW 1898 1:10,560
003SE 1898 1:10,560	004SW 1898 1:10,560

Historical Map - Slice A



Order Details

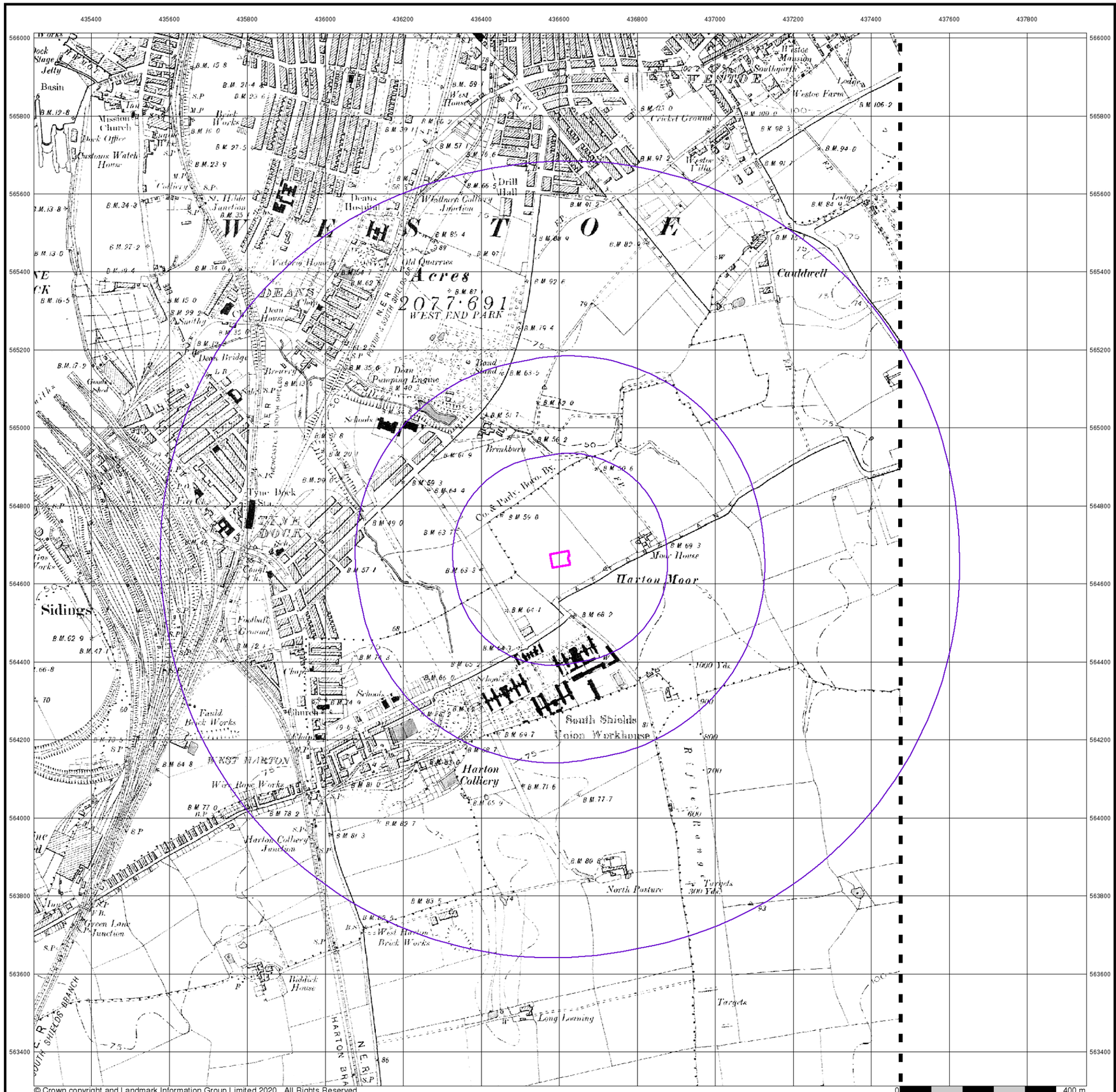
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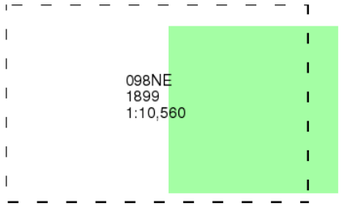
Northumberland

Published 1899

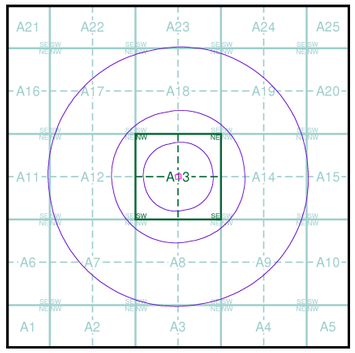
Source map scale - 1:10,560

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

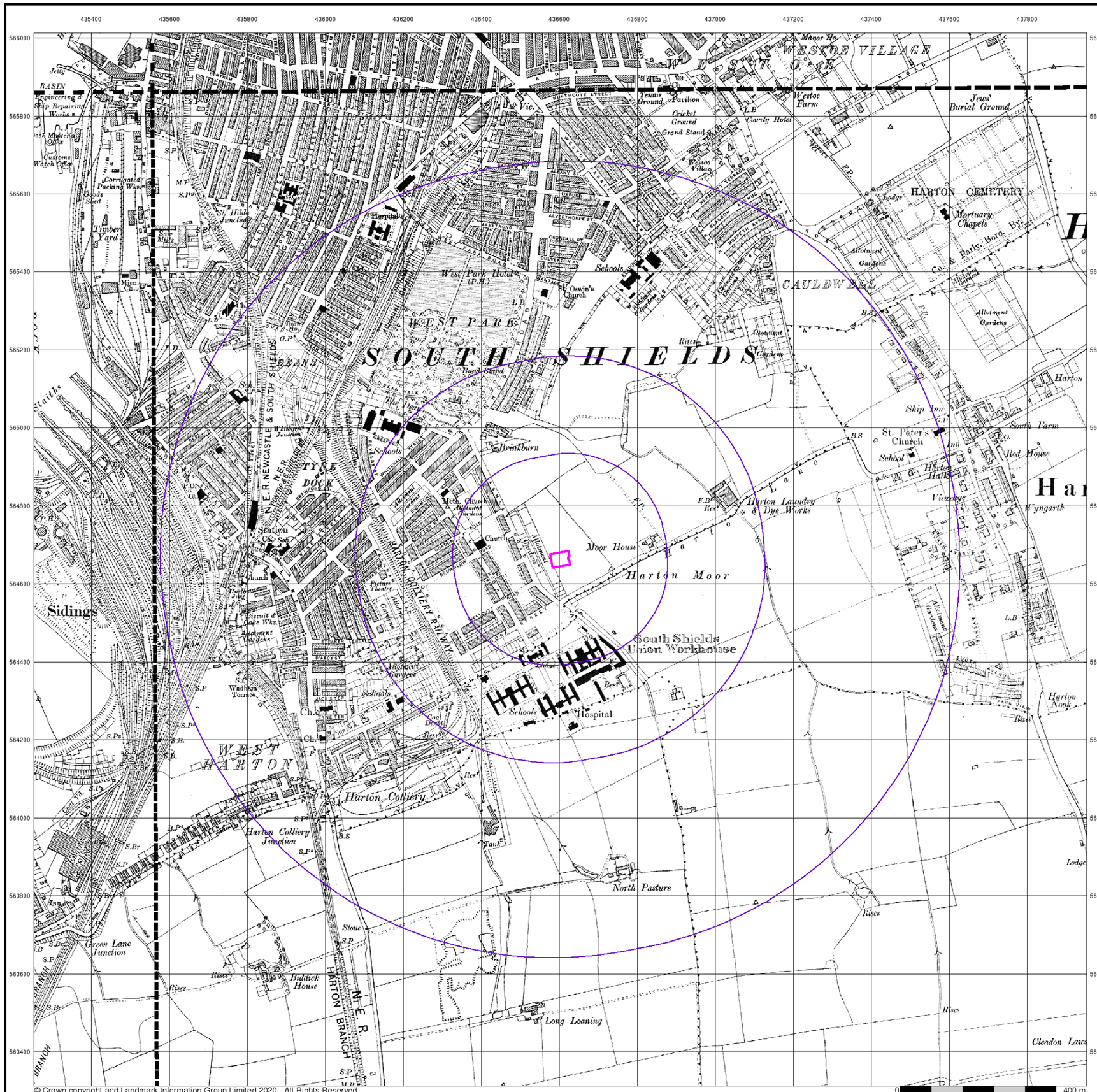


Order Details

Order Number:	253837524_1_1
Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

Site Details

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GEOL CONSULTANTS LTD

Durham

Published 1921

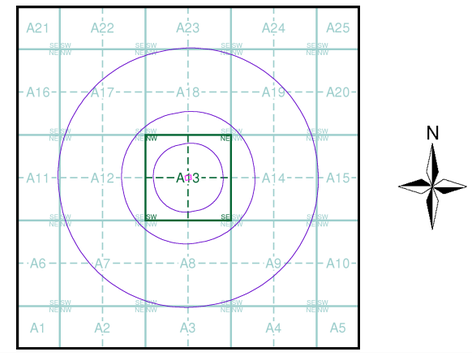
Source map scale - 1:10,560

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)

003NE 1921 1:10,560	004NW 1921 1:10,560
003SE 1921 1:10,560	004SW 1921 1:10,560

Historical Map - Slice A



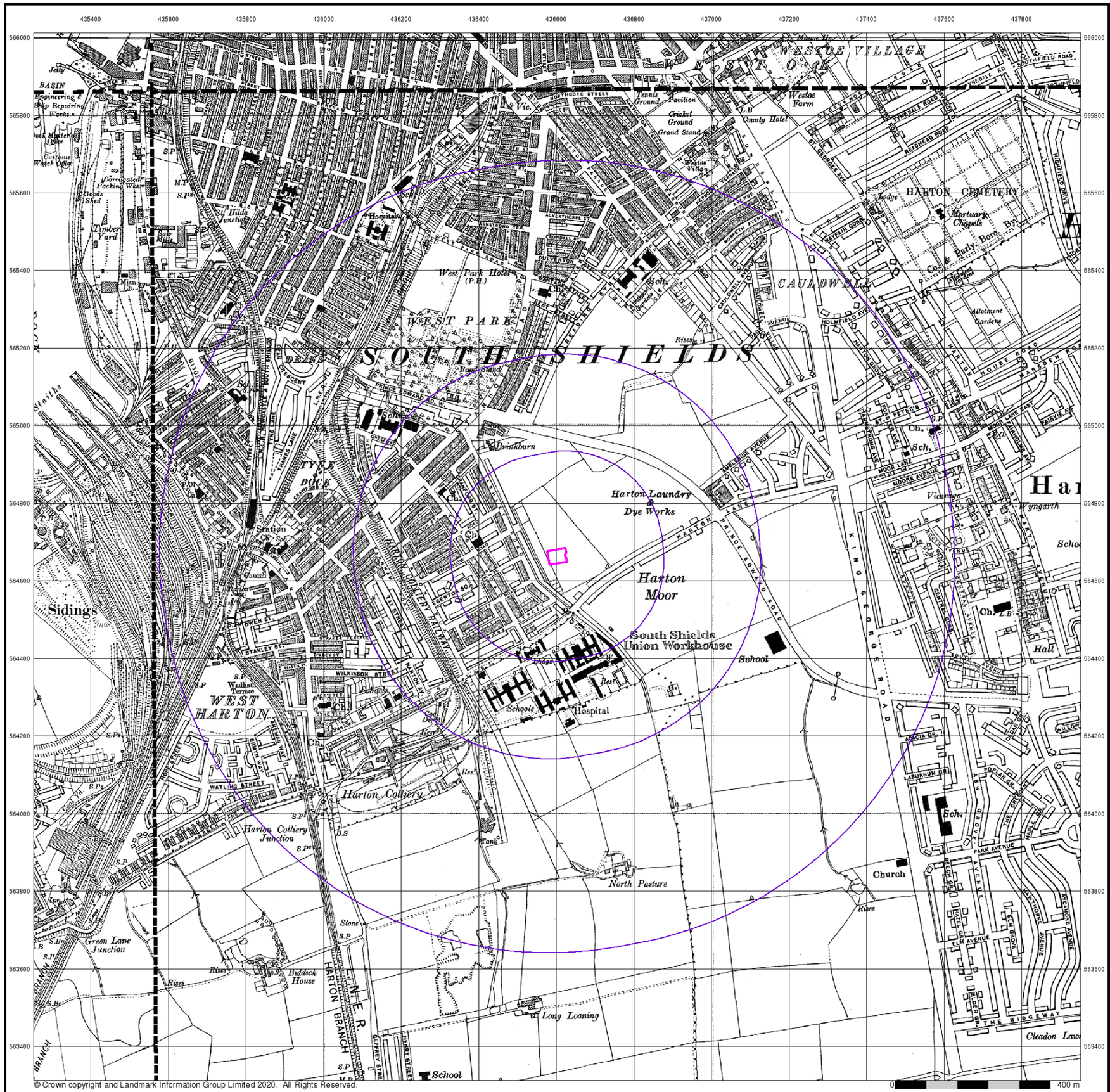
Order Details

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Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

Site Details

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GEOL CONSULTANTS LTD

Durham

Published 1938

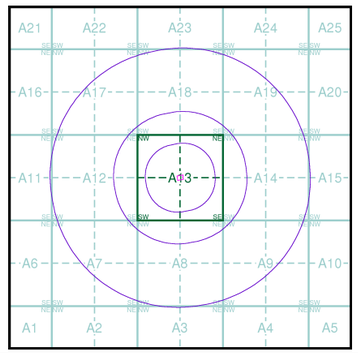
Source map scale - 1:10,560

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)

003NE 1938 1:10,560	004NW 1938 1:10,560
003SE 1938 1:10,560	004SW 1938 1:10,560

Historical Map - Slice A



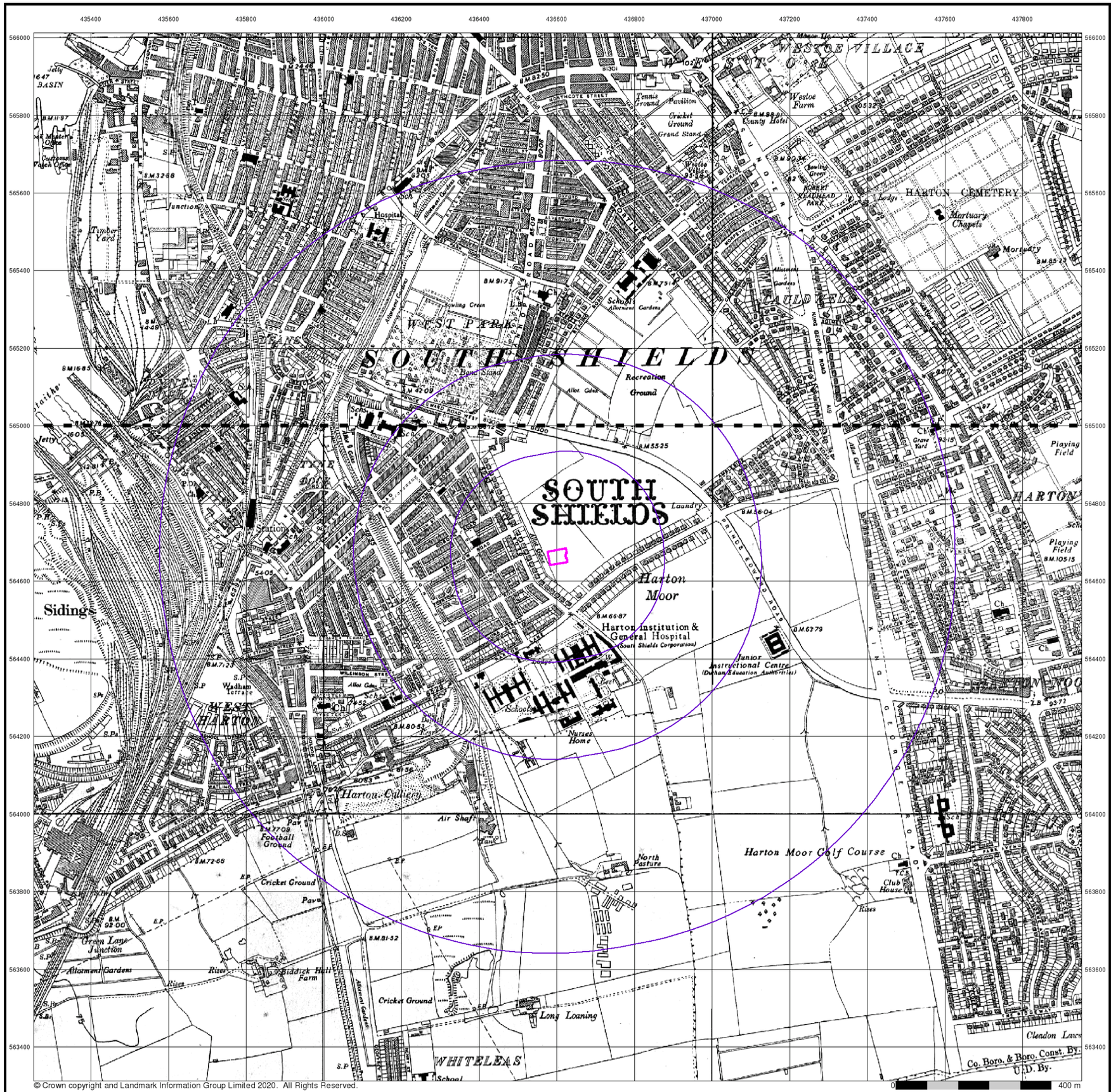
Order Details

Order Number:	253837524_1_1
Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

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Ordnance Survey Plan

Published 1951 - 1952

Source map scale - 1:10,000

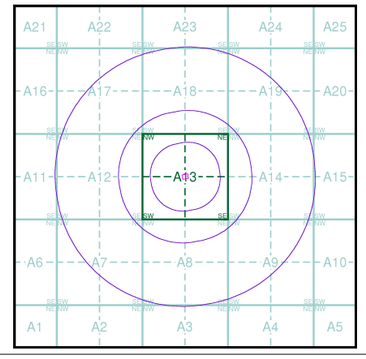
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)

NZ36NE
1952
1:10,560

NZ36SE
1951
1:10,560

Historical Map - Slice A



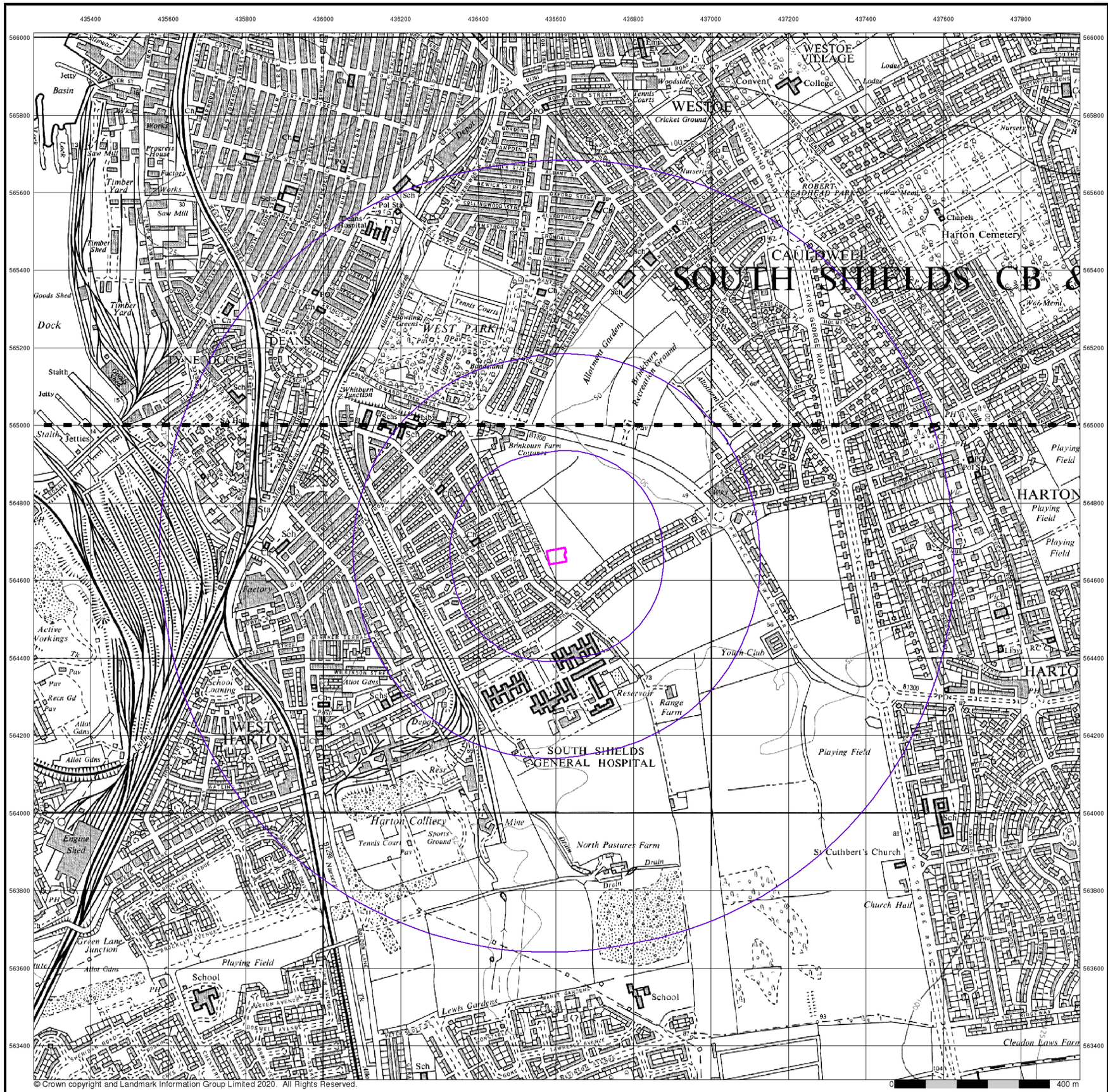
Order Details

Order Number:	253837524_1_1
Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

Site Details

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GEOL CONSULTANTS LTD

Ordnance Survey Plan

Published 1967 - 1968

Source map scale - 1:10,000

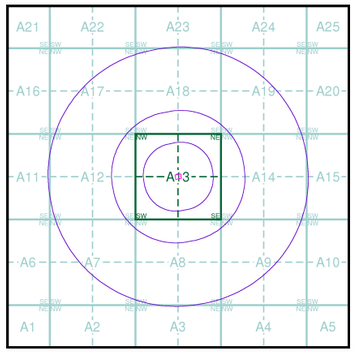
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)

NZ36NE
1967
1:10,560

NZ36SE
1968
1:10,560

Historical Map - Slice A



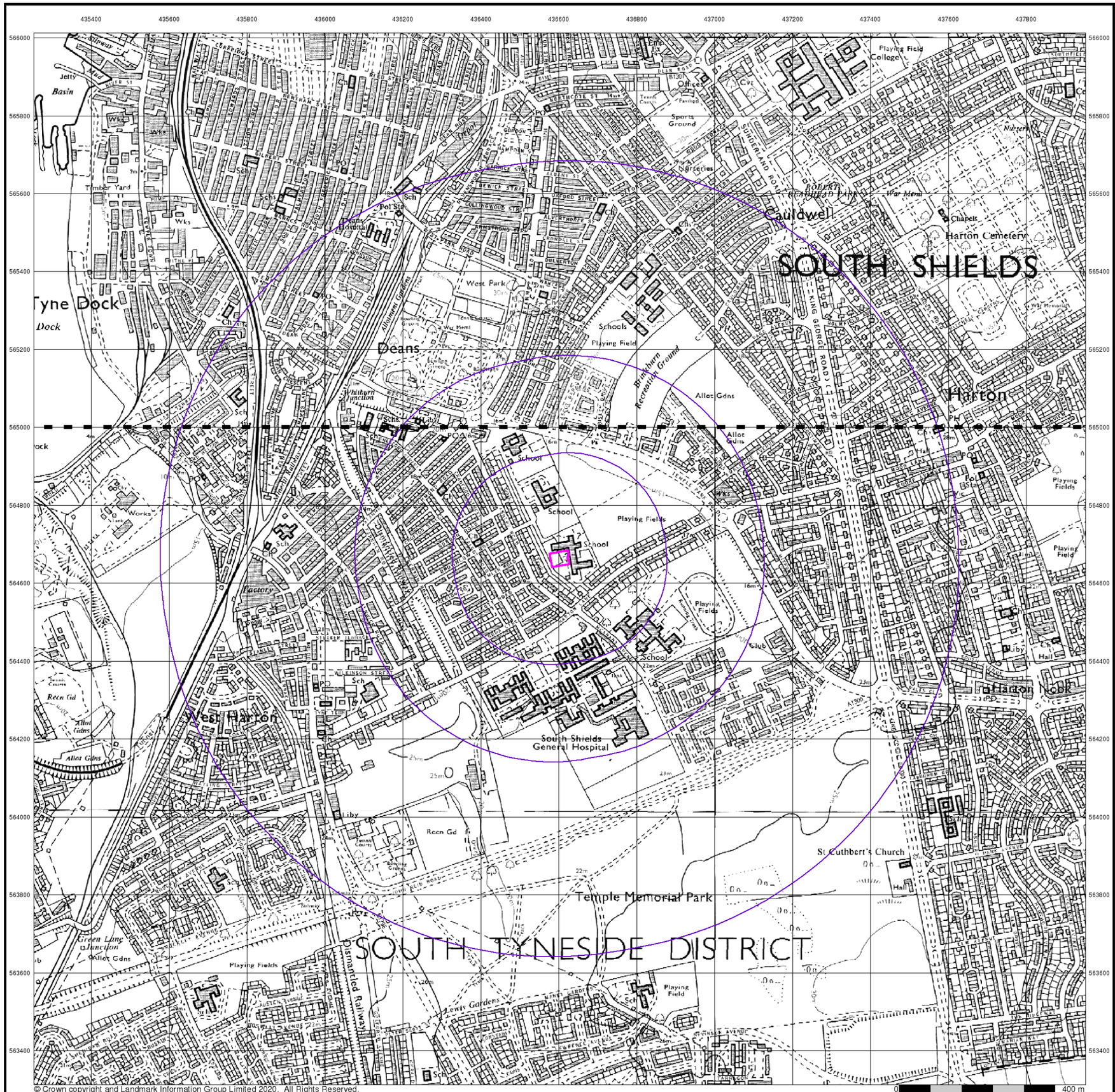
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Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

Site Details

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GEOL CONSULTANTS LTD

Ordnance Survey Plan

Published 1976 - 1977

Source map scale - 1:10,000

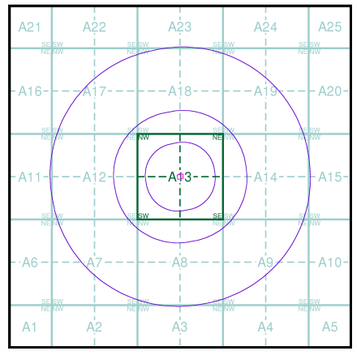
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)

NZ36NE
1976
1:10,000

NZ36SE
1977
1:10,000

Historical Map - Slice A



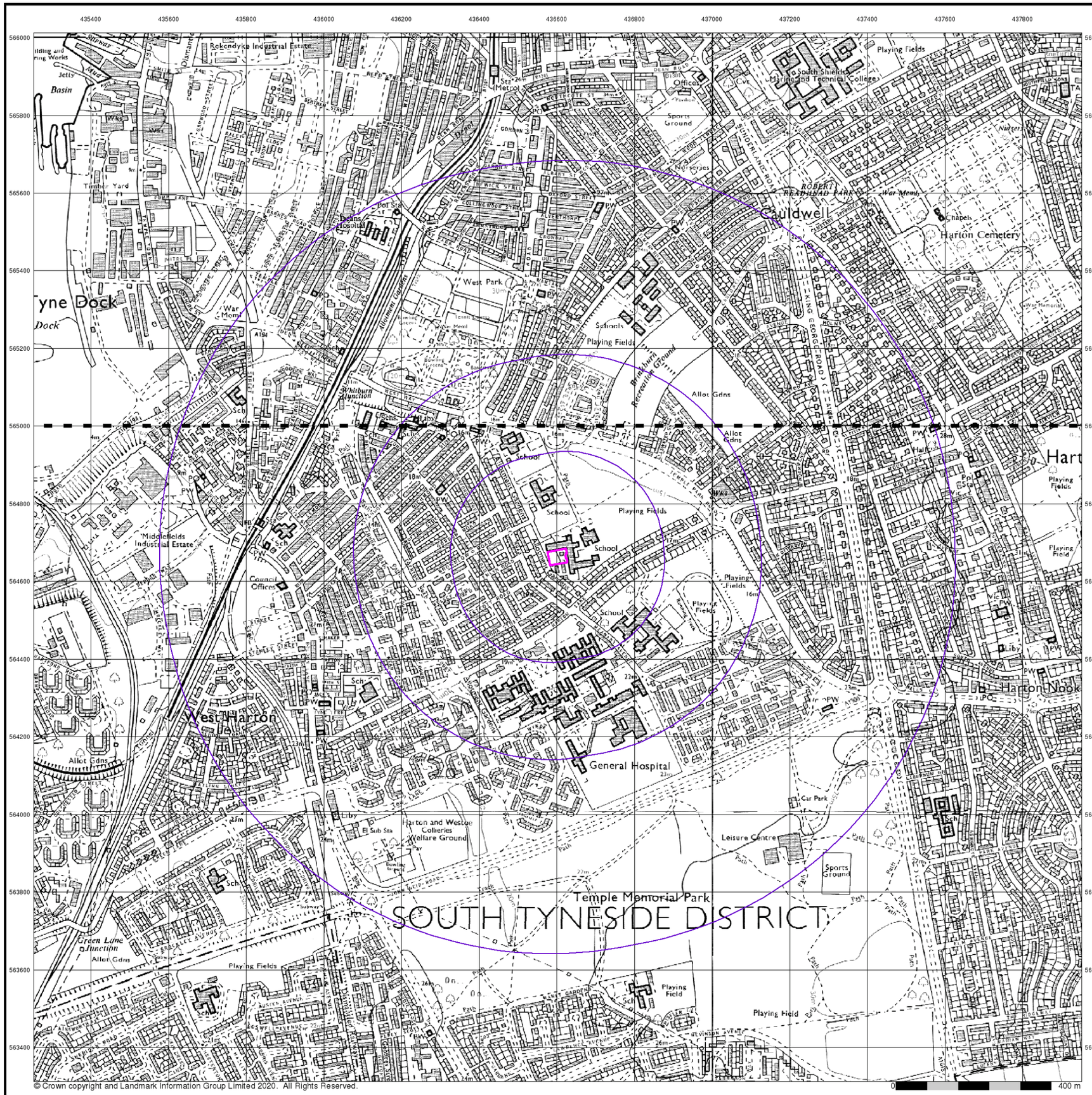
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Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
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Ordnance Survey Plan

Published 1986 - 1987

Source map scale - 1:10,000

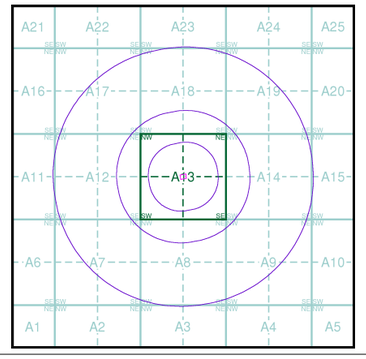
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)

NZ36NE
1986
1:10,000

NZ36SE
1987
1:10,000

Historical Map - Slice A



Order Details

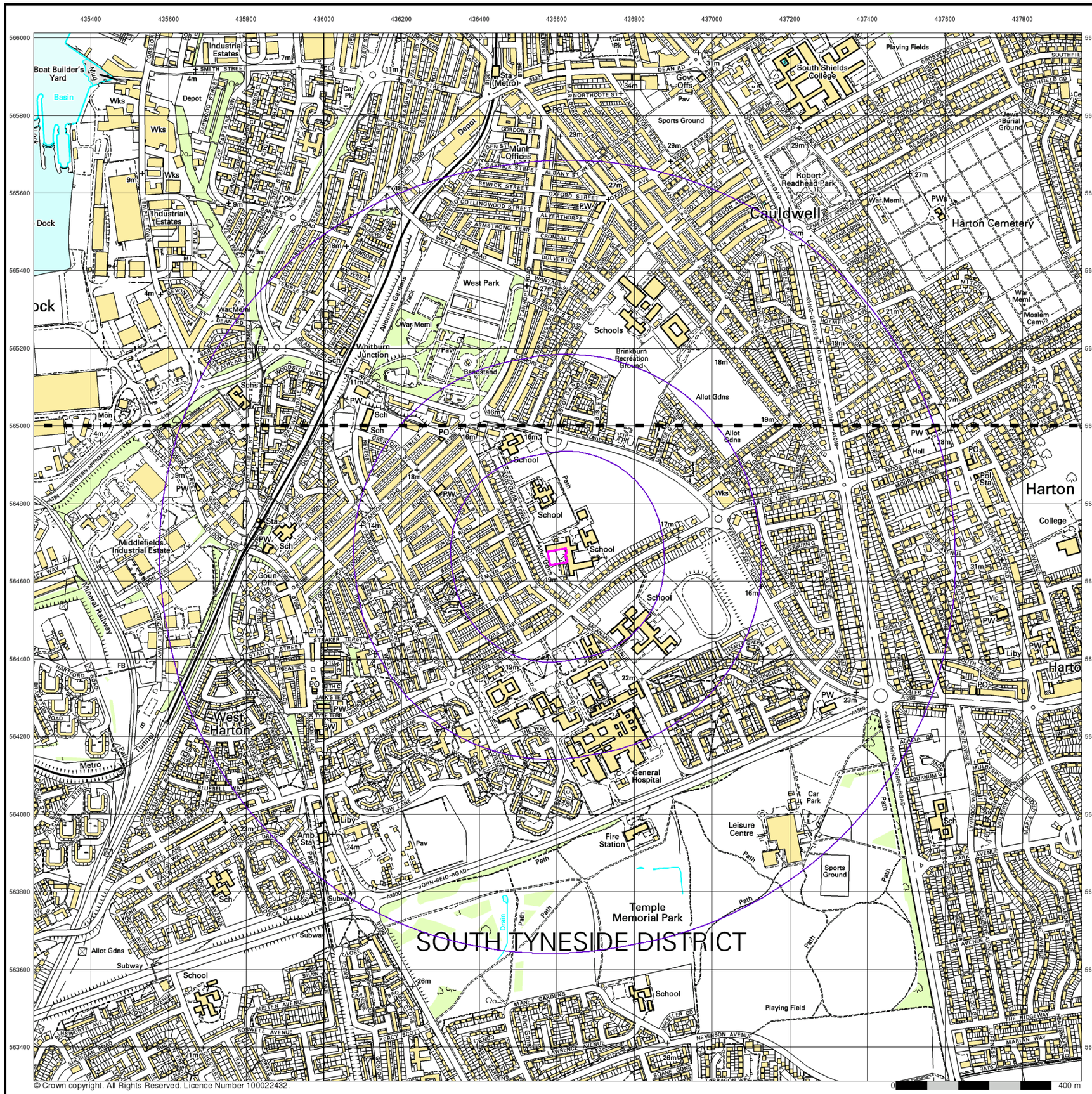
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Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

Site Details

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GEOL CONSULTANTS LTD

10k Raster Mapping

Published 2006

Source map scale - 1:10,000

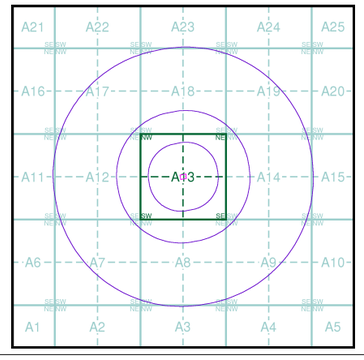
The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks 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)

NZ36NE
2006
1:10,000

NZ36SE
2006
1:10,000

Historical Map - Slice A



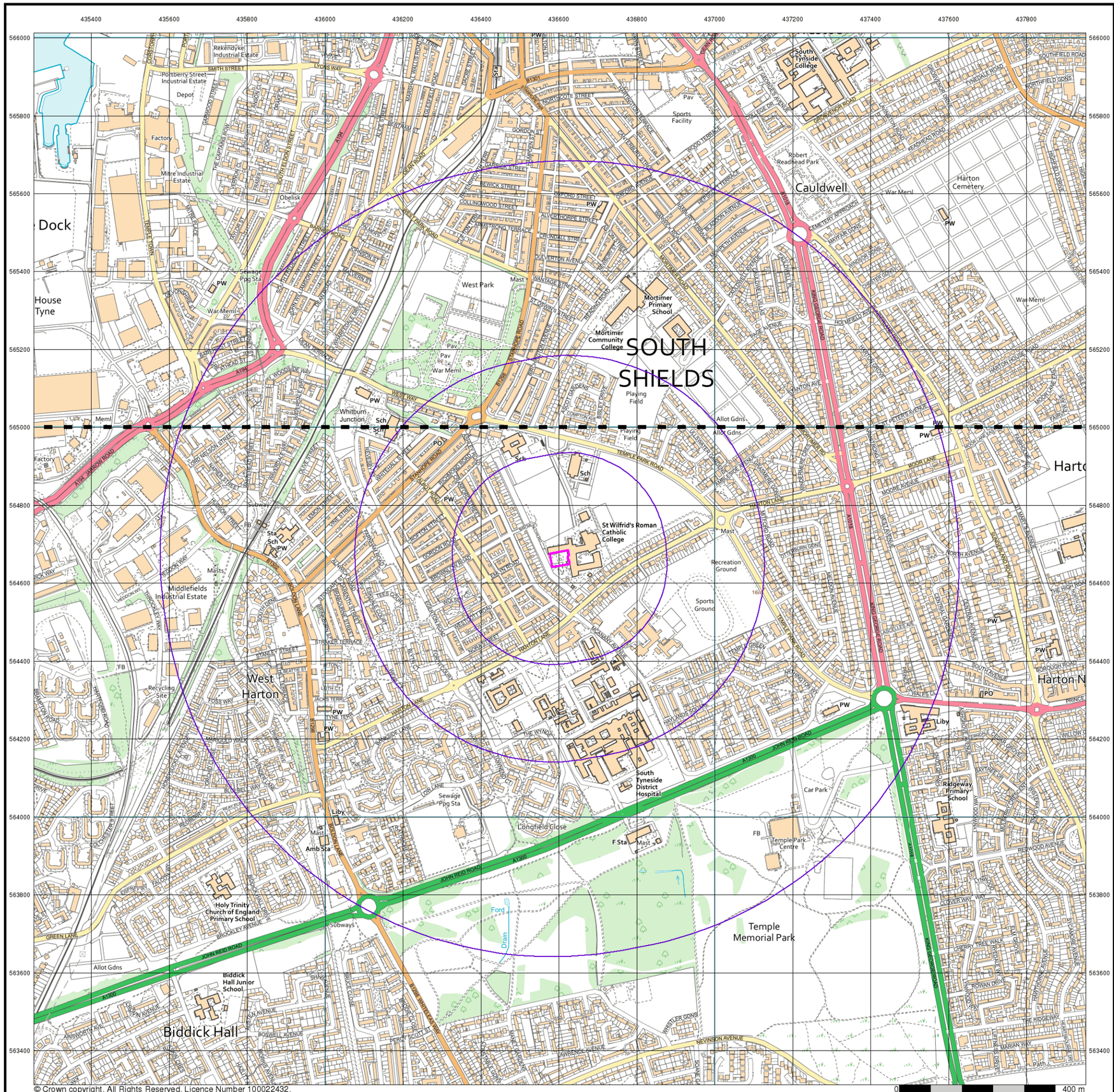
Order Details

Order Number:	253837524_1_1
Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

Site Details

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GEOL CONSULTANTS LTD

VectorMap Local

Published 2020

Source map scale - 1:10,000

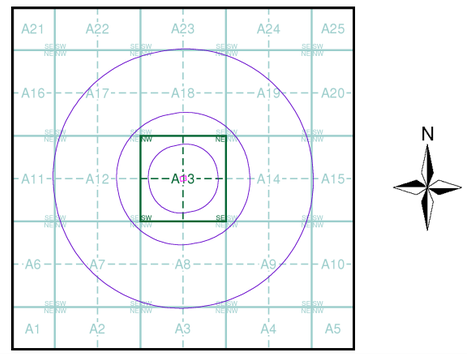
VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap 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)

NZ36NE 2020 Variable

NZ36SE 2020 Variable

Historical Map - Slice A



Order Details

Order Number:	253837524_1_1
Customer Ref:	GEOL20-9553
National Grid Reference:	436600, 564660
Slice:	A
Site Area (Ha):	0.17
Search Buffer (m):	1000

Site Details

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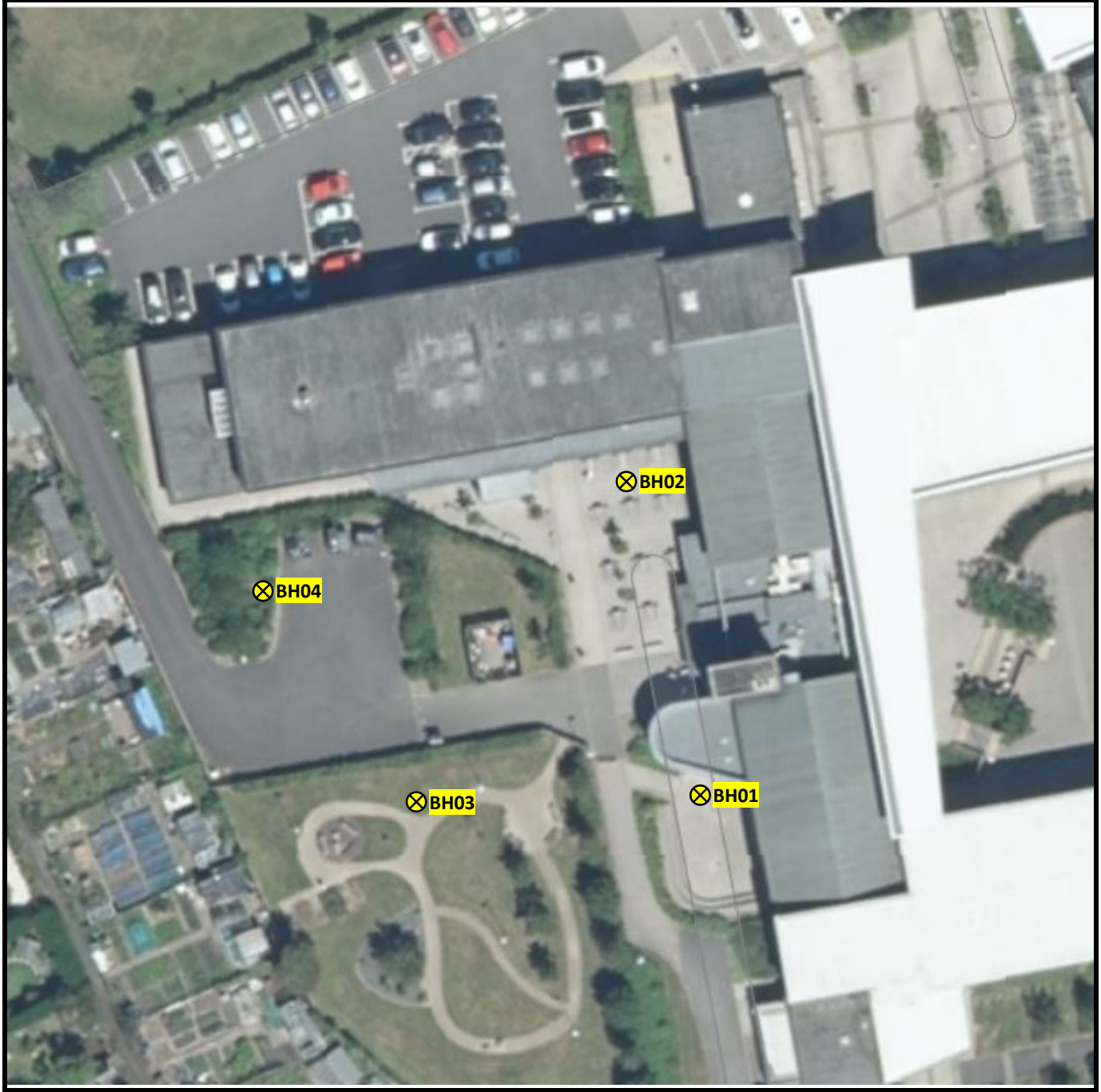
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

APPENDIX IV

BOREHOLE LOCATION PLAN AND BOREHOLE RECORD SHEETS

3 Gladstone Terrace,
Gateshead, NE8 4DY
Tel. 0191 477 2020
Email: enquiries@geolconsultants.co.uk

3 Gladstone Terrace
Gateshead
Tyne & Wear
NE8 4DY
Tel: 0191 477 2020
Email: enquiries@geolconsultants.co.uk



BOREHOLE LOCATION PLAN

Report Type: Preliminary Ground Investigation Data
Site Address: St. Wilfrid's RC School, Temple Park Road, South Shields, NE34 0QA
Project No.: GEOL20-9553

Windowless Sampling

Project Name: St. Wilfrids RC School	Client: Faithfull+Gould	Date: 04/09/2020
Location: Temple Park Road, South Shields, NE34 0QA	Contractor: Geol Consultants Limited	
Project No. : GEOL20-9553	Crew Name: RP	Drilling Equipment: Competitor Dart Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH01	WS		Richard Stripp	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.07			Paving slab (MADE GROUND).
					0.14			Dark brown fine to medium sand (MADE GROUND).
								Stiff (high strength) becoming firm (medium strength) medium brown and grey slightly silty laminated CLAY with grey silty partings (PELAW CLAY MEMBER).
		0.70	B					
		0.70	CBR	CBR=3%				
		0.70		HVP=80				
		1.00	B					
		1.00		HVP=80				
		1.50		HVP=54				
		2.00	B					
		2.00		HVP=58				
					2.50			Stiff (high strength) dark brown sandy gravelly CLAY with occasional small cobbles (PELAW CLAY MEMBER).
		3.00	B					
		3.00		HVP=100				
		4.00	B					
		4.00		HVP=120				
		4.00	SPT	N=26 (4,5/5,5,6,10)				
		5.00	SPT	N=34 (5,5/7,8,8,11)				
					5.45			End of Borehole at 5.45m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

WATER: Borehole remained dry during the exploratory period.

Windowless Sampling

Project Name: St. Wilfrids RC School	Client: Faithfull+Gould	Date: 04/09/2020
Location: Temple Park Road, South Shields, NE34 0QA	Contractor: Geol Consultants Limited	
Project No. : GEOL20-9553	Crew Name: RP	Drilling Equipment: Competitor Dart Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH02	WS		Richard Stripp	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.07			Paving slab (MADE GROUND).
		0.12 - 0.50	ES		0.12			Yellow fine to medium sand (MADE GROUND). Dark brown very gravelly sand with fragments of brick concrete sandstone (MADE GROUND).
		0.50	CBR	CBR=3%	0.50			Stiff (high strength) medium brown and grey slightly silty laminated CLAY with occasional grey silty partings and small cobbles (PELAW CLAY MEMBER).
		0.70	B					
		0.70		HVP=88				
		1.00	B					
		1.00		HVP=86				
					1.90			Stiff (high strength) dark brown sandy gravelly CLAY. Sand lense noted at 2.40m (PELAW CLAY MEMBER).
		2.00	B					
		2.00		HVP=84				
	▼	2.20	B					
		3.00	B					
		3.00		HVP=120				
	▽	4.00	B					
		4.00		HVP=100				
		4.00	SPT	N=22 (3,3/4,4,6,8)				
		4.90		HVP=120				
		5.00	SPT	N=33 (5,5/8,7,8,10)				
					5.45			End of Borehole at 5.45m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

WATER: Ingress recorded at 4.00m, rising to 2.25m upon completion of borehole.

Windowless Sampling

Project Name: St. Wilfrids RC School	Client: Faithfull+Gould	Date: 04/09/2020
Location: Temple Park Road, South Shields, NE34 0QA	Contractor: Geol Consultants Limited	
Project No. : GEOL20-9553	Crew Name: RP	Drilling Equipment: Competitor Dart Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH03	WS		Richard Stripp	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.00 - 0.17	ES					Grass overlying dark brown sandy gravelly clayey soil (MADE GROUND).
		0.17 - 0.40	ES		0.17			Light brown gravelly sand with large fragments of brick and concrete. Noted to become clayey towards base (MADE GROUND).
		0.40 - 0.56	ES		0.40			Medium brown and dark grey sandy gravelly clay (MADE GROUND).
					0.56			Stiff (high strength) medium brown and grey slightly silty laminated CLAY (PELAW CLAY MEMBER).
		0.80	CBR	CBR=4%				
		1.00	B					
		1.00		HVP=90				
		2.00	B					
		2.00		HVP=72				
					2.50			Stiff (high strength) dark brown sandy gravelly CLAY with occasional small cobbles (PELAW CLAY MEMBER).
		3.00	B					
		3.00		HVP=80				
		3.50		HVP=76				
		4.00	B					
		4.00	SPT	N=18 (3,2/4,3,4,7)				
		4.70	SPT	N=31 (4,5/8,8,6,9)				
					5.15			End of Borehole at 5.15m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

WATER: Borehole remained dry during the exploratory period.

Windowless Sampling

Project Name: St. Wilfrids RC School	Client: Faithfull+Gould	Date: 04/09/2020
Location: Temple Park Road, South Shields, NE34 0QA	Contractor: Geol Consultants Limited	
Project No. : GEOL20-9553	Crew Name: RP	Drilling Equipment: Competitor Dart Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH04	WS		Richard Stripp	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.00 - 0.25	ES					Grass overlying dark brown sandy gravelly clayey soil (MADE GROUND).
		0.25 - 0.40	ES		0.25			Dark brown sandy gravelly clay with occasional fragments of concrete and cinder (MADE GROUND).
		0.40 - 0.60	ES		0.40			Medium brown and dark brown sandy gravelly clay (MADE GROUND).
		0.75	B		0.60			Stiff (high strength) medium brown and grey slightly silty laminated CLAY with occasional grey silty partings (PELAW CLAY MEMBER).
		0.75	CBR	CBR=4%				
		1.00	B					
		1.00		HVP=86				
		1.50	B					
		2.00		HVP=80				
					2.70			Firm (medium strength) becoming stiff dark brown sandy gravelly CLAY with occasional small cobbles (PELAW CLAY MEMBER).
		3.00	B					
		3.00		HVP=62				
		4.00	B					
		4.00	SPT	N=24 (3,4/6,4,6,8)				
		5.00	SPT	N=38 (8,8/8,9,9,12)				
					5.45			End of Borehole at 5.45m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

WATER: Borehole remained dry during the exploratory period.

APPENDIX V

LABORATORY TESTING RESULTS

3 Gladstone Terrace,
Gateshead, NE8 4DY
Tel. 0191 477 2020
Email: enquiries@geolconsultants.co.uk

LABORATORY REPORT

4043

Contract Number: PSL20/4743

Report Date: 14 September 2020

Client's Reference: GEOL20-9553

Client Name: Geol Consultants Limited
3 Gladstone Terrace
Gateshead
NE8 4DY

For the attention of: Richard Stripp/Terry McMenam

Contract Title: St Wilfrids School, South Shields

Date Received: 9/9/2020
Date Commenced: 9/9/2020
Date Completed: 14/9/2020

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
S Royle (Laboratory Manager)	S Eyre (Senior Technician)	L Knight (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH01		S	1.50		Brown CLAY.
BH02		S	2.00		Brown CLAY.
BH03		S	0.80		Brown slightly gravelly CLAY.
BH03		S	2.00		Brown CLAY.
BH04		S	1.00		Brown CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH01		S	1.50		33			65	26	39	100	High plasticity CH.
BH02		S	2.00		26			62	25	37	100	High plasticity CH.
BH03		S	0.80		30			74	30	44	94	Very high plasticity CV.
BH03		S	2.00		32			68	28	40	100	High plasticity CH.
BH04		S	1.00		29			72	29	43	100	Very high plasticity CV.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

St Wilfrids School, South Shields

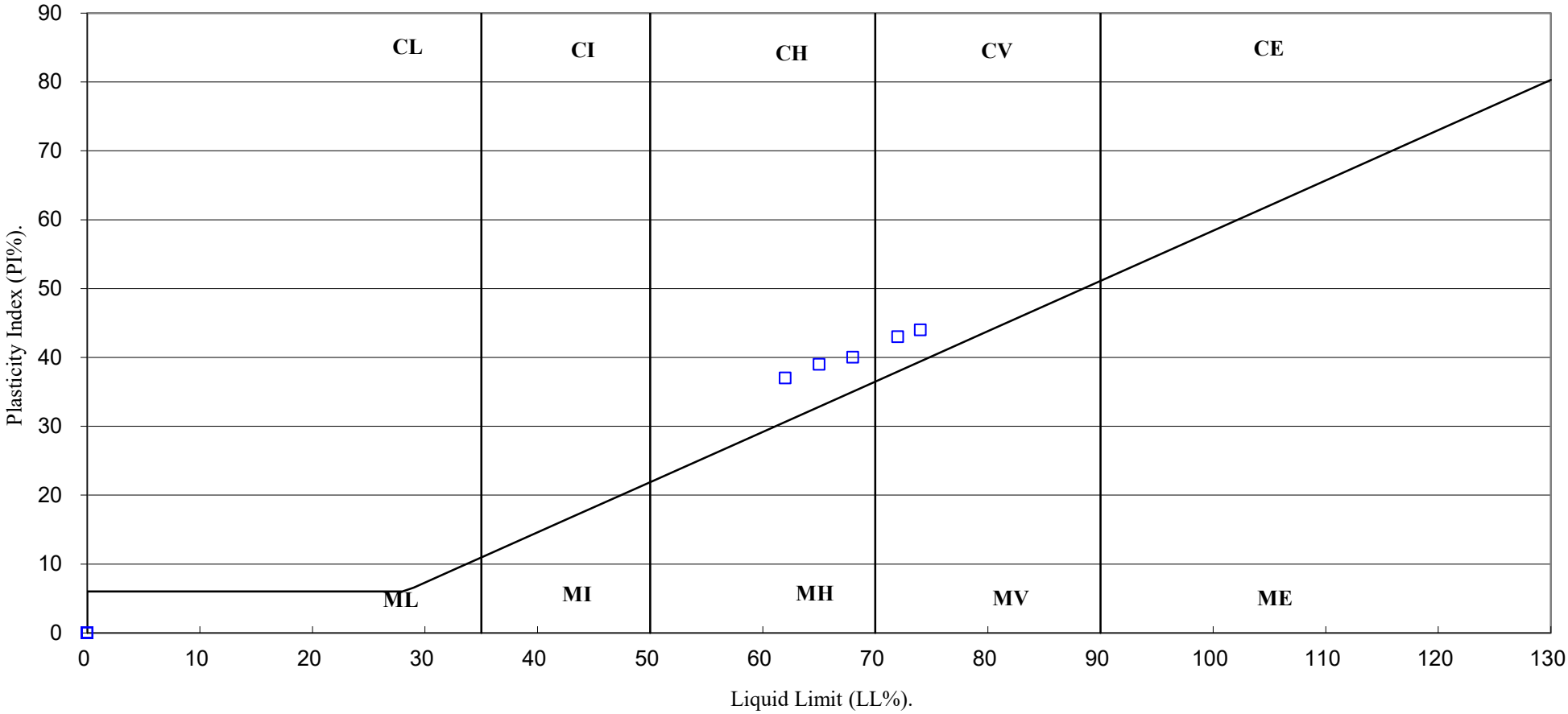
Contract No:

PSL20/4743

Client Ref:

GEOL20-9553

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	St Wilfrids School, South Shields	**Contract No:** PSL20/4743 **Client Ref:** GEOL20-9553

Certificate of Analysis

Certificate Number 20-17491

17-Sep-20

Client Geol-Consultants Ltd.
3, Gladstone Terrace
Gateshead
Tyne & Wear
NE8 4DY

Our Reference 20-17491

Client Reference Geol20-9553

Order No (not supplied)

Contract Title St Wilfrids School, South Shields

Description 9 Soil samples.

Date Received 11-Sep-20

Date Started 11-Sep-20

Date Completed 17-Sep-20

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By [redacted]

Adam Fenwick
Contracts Manager

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 20-17491
Client Ref Geol20-9553
Contract Title St Wilfrids School, South Shields

				Lab No	1725291	1725292	1725293	1725294	1725295	1725296	1725297
				Sample ID	BH01	BH02	BH02	BH03	BH03	BH03	BH04
				Depth	0.70	0.12-0.50	2.20	0.00-0.17	0.17-0.40	1.00	0.00-0.25
				Other ID							
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sampling Date	04/09/2020	04/09/2020	04/09/2020	04/09/2020	04/09/2020	04/09/2020	04/09/2020
				Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**								
Preparation											
Moisture Content	DETSC 1004	0.1	%		12		28	13		23
Metals											
Arsenic	DETSC 2301#	0.2	mg/kg		8.4		27	6.9		22
Cadmium	DETSC 2301#	0.1	mg/kg		0.3		0.6	0.2		0.5
Chromium	DETSC 2301#	0.15	mg/kg		25		28	15		29
Chromium III	DETSC 2301*	0.15	mg/kg		25		28	15		29
Chromium, Hexavalent	DETSC 2204*	1	mg/kg		< 1.0		< 1.0	< 1.0		< 1.0
Copper	DETSC 2301#	0.2	mg/kg		46		180	26		130
Lead	DETSC 2301#	0.3	mg/kg		50		280	40		220
Mercury	DETSC 2325#	0.05	mg/kg		0.42		2.3	0.12		2.2
Nickel	DETSC 2301#	1	mg/kg		22		34	10		32
Selenium	DETSC 2301#	0.5	mg/kg		< 0.5		< 0.5	< 0.5		< 0.5
Zinc	DETSC 2301#	1	mg/kg		110		250	70		200
Inorganics											
pH	DETSC 2008#		pH	7.9	10.2	8.2	7.4	10.2	7.5	7.3
Cyanide, Free	DETSC 2130#	0.1	mg/kg		< 0.1		0.2	< 0.1		0.2
Total Organic Carbon	DETSC 2084#	0.5	%		1.6		10	1.2		13
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	67	400	44	81	650	88	40
PAHs											
Naphthalene	DETSC 3301	0.1	mg/kg		< 0.1		< 0.1	< 0.1		2.2
Acenaphthylene	DETSC 3301	0.1	mg/kg		< 0.1		< 0.1	< 0.1		0.2
Acenaphthene	DETSC 3301	0.1	mg/kg		< 0.1		0.6	< 0.1		1.7
Fluorene	DETSC 3301	0.1	mg/kg		< 0.1		0.7	< 0.1		2.2
Phenanthrene	DETSC 3301	0.1	mg/kg		< 0.1		6.5	< 0.1		12
Anthracene	DETSC 3301	0.1	mg/kg		< 0.1		1.5	< 0.1		3.2
Fluoranthene	DETSC 3301	0.1	mg/kg		0.9		7.5	0.5		11
Pyrene	DETSC 3301	0.1	mg/kg		0.8		6.9	0.5		9.4
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg		< 0.1		3.9	< 0.1		4.2
Chrysene	DETSC 3301	0.1	mg/kg		0.5		4.8	< 0.1		4.4
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg		< 0.1		3.1	< 0.1		2.8
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg		< 0.1		1.6	< 0.1		1.6
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg		0.4		3.7	< 0.1		3.9
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg		< 0.1		1.1	< 0.1		1.0
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg		< 0.1		1.5	< 0.1		1.5
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg		< 0.1		1.7	< 0.1		1.5
PAH Total	DETSC 3301	1.6	mg/kg		2.6		45	< 1.6		62

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 20-17491
Client Ref Geol20-9553
Contract Title St Wilfrids School, South Shields

			Lab No	1725298	1725299
			Sample ID	BH04	BH04
			Depth	0.40-0.60	0.75
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	04/09/2020	04/09/2020
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Preparation					
Moisture Content	DETSC 1004	0.1	%	17	
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	7.5	
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	
Chromium	DETSC 2301#	0.15	mg/kg	20	
Chromium III	DETSC 2301*	0.15	mg/kg	20	
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	
Copper	DETSC 2301#	0.2	mg/kg	34	
Lead	DETSC 2301#	0.3	mg/kg	40	
Mercury	DETSC 2325#	0.05	mg/kg	0.13	
Nickel	DETSC 2301#	1	mg/kg	22	
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	
Zinc	DETSC 2301#	1	mg/kg	70	
Inorganics					
pH	DETSC 2008#		pH	9.5	8.4
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	
Total Organic Carbon	DETSC 2084#	0.5	%	1.8	
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	290	200
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 20-17491
Client Ref Geol20-9553
Contract Title St Wilfrids School, South Shields

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1725292	BH02 0.12-0.50	SOIL	NAD	none	Jordan Eadington
1725294	BH03 0.00-0.17	SOIL	NAD	none	Jordan Eadington
1725295	BH03 0.17-0.40	SOIL	NAD	none	Jordan Eadington
1725297	BH04 0.00-0.25	SOIL	NAD	none	Jordan Eadington
1725298	BH04 0.40-0.60	SOIL	NAD	none	Jordan Eadington

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 20-17491
Client Ref Geol20-9553
Contract St Wilfrids School, South Shields

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1725291	BH01 0.70 SOIL	04/09/20	PG		
1725292	BH02 0.12-0.50 SOIL	04/09/20	GJ 250ml, PT 1L		
1725293	BH02 2.20 SOIL	04/09/20	PG		
1725294	BH03 0.00-0.17 SOIL	04/09/20	GJ 250ml, PT 1L		
1725295	BH03 0.17-0.40 SOIL	04/09/20	GJ 250ml, PT 1L		
1725296	BH03 1.00 SOIL	04/09/20	PG		
1725297	BH04 0.00-0.25 SOIL	04/09/20	GJ 250ml, PT 1L		
1725298	BH04 0.40-0.60 SOIL	04/09/20	GJ 250ml, PT 1L		
1725299	BH04 0.75 SOIL	04/09/20	PG		

Key: P-Plastic G-Bag G-Glass J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report