Radcliffe Civic Hub

RADHUB-BEL-00-XX-RP-Y-0001

Approval in Principle for Secant & Contiguous Embedded Retaining Walls

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Document Control Sheet

Project Title: Radcliffe Civic Hub

Project Location: Radcliffe

Report Type: Approval in Principle for Secant & Contiguous Embedded Retaining Walls

Report Ref: RADHUB-BEL-00-XX-RP-Y-0001

Rev	Date	Author	Reviewer	Approver
P01	21/06/2024	K. Gupta	J. Binns	J. Binns

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APPENDICES

A Technical Approval Schedule (TAS)

B Designers Risk Assessment

C General Arrangement & Cross Section Drawings

D Ground Investigation Report

1 PROJECT DETAILS

Name of Project: Radcliffe Civic Hub

Name of Structure: Secant & Contiguous Embedded Retaining Walls

Structure Reference No.: TBC

Summary:

A new civic hub is to be constructed to provide a three-storey leisure and community centre for public use. The site is in Radcliffe, Metropolitan Borough of Bury, Greater Manchester, immediately north of River Irwell and northeast of a Lidl superstore carpark on Dale Street.

The site is roughly rectangular shaped parcel of land located off Dale Street, centred on Grid Reference E378525, N406951 as shown on the General Arrangement drawings presented in Appendix C.

The proposed redevelopment is founded on bearing piles and includes 2 No. embedded secant piled walls to the southeast and southwest and 1 No. contiguous piled wall to the northwest of the site which accommodate a swimming pool, climbing wall, fitness suite, library and community rooms. The redevelopment scheme requires technical approval in relation to CG300 Technical approval of highways structures which is done through the Approval in Principle (AiP) process in relation to the surrounding highways assets. Specifically, there are public access area that surround the development in additional to the adjacent highways, Dale Street and Church Street, which are approximately 6m northwest and 12m southwest, respectively. This AiP submission relates to the secant and contiguous embedded retaining walls.

The retained walls will act as a temporary cantilever and are propped by the basement slab in the permanent condition. The proposed front of wall level for the secant walls varies between 60.70mOD and 61.30mOD in the temporary and permanent conditions, respectively, as shown on the Ground Floor Details in Appendix C.

Byland Engineering Limited (BEL) have been commission by Alan Johnson Partnership (AJP) to produce an Approval in Principle (AIP) for the permanent embedded retaining walls.

2 HIGHWAY DETAILS

2.1 Type of Highway

The site is encompassed by public access footpaths and a Lidl superstore carpark. The site is near 2 No. highways, Church Street is located approximately 12m southeast to the site and Dale Street approximately 6m northeast to the site.

2.2 Permitted traffic speed

20-30mph

2.3 Existing restrictions

Not applicable

3 SITE DETAILS

3.1 Obstacles crossed

Not applicable. AIP document relates to the retaining structures adjacent to public walkways, a superstore carpark and existing 2 No. highways.

4 PROPOSED STRUCTURE

4.1 Description of Structure and Design Working Life

The proposed works comprise 3 No. retaining wall structures of secant and contiguous pile types. These are summarised in Table 1 below.

Wall Type	Closest Public Structure	Proposed Back of Wall Level (mOD)	Proposed Front of Wall Level (mOD)	Retained Height (m)	Cross Section
Secant 1	Lidl superstore carpark & public access footpaths	64.212	60.70 (temp) 61.30 (perm)	3.51 (temp) 2.91 (perm)	PS09 & PS10
Secant 2	Public access footpaths towards Church Street	64.143	60.70 (temp) 61.30 (perm)	3.44 (temp) 2.84 (perm)	PS04 & PS05
Contiguous	Dale Street & Public access footpaths	64.774	60.70 (temp) 61.30 (perm)	4.07 (temp) 3.47 (perm)	PS11

The walls will be unpropped cantilevers in the temporary stage, with propping provided by the basement slab in the permanent condition.

The current wall design based is for secant and contiguous pile walls with a reinforced concrete basement slab and capping beam.

The scheme general arrangements and sections drawing are presented in Appendix C.

The design life of the retaining wall will be 60 years.

4.2 Structural Type

The proposed structure comprises 2 No. secant pile embedded retaining walls and 1 No. contiguous pile embedded retaining wall with a reinforced concrete basement slab and capping beam. The piles are 600 diameter replacement type cast in-situ of reinforced concrete at 750mm centres for contiguous walls and up to 900mm centres (structural members) for secant pile walls.

4.3 Foundation Type

The structure is an embedded secant and contiguous retaining walls with vertical and lateral structural loads.

4.4 Span Arrangements

The SLS retained heights vary between 2.8m and 4.1m.

An overdig allowance shall apply in the ULS case as per the Eurocode requirement of 10% or 500mm (whichever is lesser) overdig for the planned excavation level. .

4.5 Articulation Arrangements

Not applicable

4.6 Classes and Levels

In accordance with BS EN 1990 (2002) + A1 (2005) Appendix B the following classes are proposed:

4.6.1 Consequence Class

The consequence class is CC2.

The structures covered are public highway where consequences of failure are medium.

4.6.2 Reliability Class

The reliability class is RC2 and K_{FI}=1.0.

4.6.3 Inspection Class

The inspection class is IL2.

4.7 Road Restraint Systems Requirements

Not applicable

4.8 Proposals for Water Management

Groundwater is expected at relatively shallow depths and the secant piles will restrict groundwater ingress into the basement. Groundwater bodies were encountered in the Glaciofluvial Deposits (between 60.14mOD to 64.19mOD) and Pennine Middle Coal Measures (PMCM) strata (between 60.93mOD to 60.97mOD).

4.9 Proposed Arrangements for Future Maintenance and Inspection

4.9.1 Traffic Management

Not necessary.

4.9.2 Arrangements for Future Maintenance and Inspection of Structure. Access Arrangements to Structure

Not necessary – buried structure, behind a lining wall so inspection is not required.

4.10 Environment and Sustainability

A contiguous and secant pile embedded walls have been proposed to provide a durable combined temporary and permanent solution and prevent excessive deformation. High cement replacement concrete will be specified to reduce carbon emissions.

4.11 Durability, Material and Finishes

All concrete reinforcement shall be grade B500 in accordance with BS EN 10080 (2005) and provided with a minimum design cover of 75mm piles or 40mm reinforcement cast within formwork.

Concrete element	Concrete Grade	XC Class	DC Class
Reinforced concrete capping beam	Min. C28/35	XC2	DC2
Reinforced Concrete piles	Min. C28/35	XC2	DC2

Table 1 - Concrete Grade and Exposure Conditions

4.12 Risks and Hazards Considered for Design, Execution, Maintenance & Demolition. Consultation with and/or agreement from Overseeing Organisation

A Designer's Risk Assessment is presented in Appendix B.

Other safety risks and hazards during execution, concerning the safety of people in and around the construction site, are to be identified through the Contractor's Risk Assessment and Method Statement (RAMS).

4.13 Estimated cost of the proposed structure together with other structural forms considered (including where appropriate proprietary manufactured structure), and the reasons for their rejection (including comparative whole life costs with dates of estimates)

The cost of the proposed structure is to be confirmed.

4.14 Proposed Arrangement for Construction

4.14.1 Construction of Structure

The construction sequence for the retaining walls is as follows:

1. Isolate / diverted / remove services
2. Construct piling platform
3. Install secant / contig piled retaining wall
4. Construct capping beam
5. Excavate to formation level
6. Construct basement slab as permanent prop to the wall
7. Raise liner walls & ground floor slabs (where applicable)
8. Construct superstructure

4.14.2 Traffic Management

The need for site traffic management during construction should be considered as part of the Contractor's risk assessment and method statement, giving due consideration to the transport vehicles attending the site.

4.14.3 Service Diversions

There are a number of existing services on the site which will be isolated, diverted or removed as necessary. Refer to combined services plan in Appendix C.

4.14.4 Interface with Existing Structures

Previous buildings are present on the site, these are to be / have been demolished.

5 DESIGN CRITERIA

5.1 Actions

5.1.1 Permanent Actions

Lateral earth pressures to be determined from the characteristic soil parameters in accordance with BS EN 1997-1.

5.1.2 Snow, Wind and Thermal Actions

Snow and thermal actions not applicable. Wind actions are considered on the superstructure that will be transferred to the piled walls.

5.1.3 Actions relating to normal traffic under AW regulations and C&U regulations

Surcharge values given in BS 8002:2015 Table 7 have been adopted which are considered more onerous than the load models given in the UK National Annex to BS EN 1991-2.

Public walkways are approximately 8m in width behind the wall on the northern and southern side of the site for which a surcharge of 5kPa would apply. However, a characteristic variable action of 10kPa is adopted to allow for occasional maintenance vehicles.

5.1.4 Actions relating to General Order Traffic under STGO regulations

Not applicable.

5.1.5 Footway or Footbridge variable actions

Surcharge values given in BS 8002:2015 Table 7 have been adopted which are considered more onerous than the load models given in the UK National Annex to BS EN 1991-2.

A surcharge of 5kPa is recommended for footways, cycle tracks and footbridges. Public walkways are present directly behind all of the embedded retaining walls and are approximately 8m in width. However, a characteristic variable action of 10kPa is adopted immediately behind the embedded retaining walls to allow for the potential access and egress of maintenance vehicles.

5.1.6 Actions relating to Special Order Traffic, provision for exceptional abnormal indivisible loads including the location of vehicle track on deck cross-section

Not applicable.

5.1.7 Accidental Actions

None.

5.1.8 Actions during Construction

The embedded retaining walls will be designed for a temporary variable construction load of 10kPa.

5.1.9 Any special action not covered above

Not applicable.

5.2 Heavy or high load route requirements and arrangements being made to preserve the route, including any provisions for future heavier loads or future widening

Not applicable.

5.3 Minimum headroom provided

Not applicable.

5.4 Set out measures that will be incorporated into the design to minimise maintenance

Design to incorporate appropriate concrete. An embedded wall is a maintenance free structure and durability is ensured.

5.5 Authorities consulted and any special conditions required

Metropolitan Borough of Bury.

5.6 Standards and documents listed in the Technical Approval Schedule

Refer to Appendix A.

5.7 Proposed departures from standards given in 5.6

None.

5.8 Proposed method of Dealing with Aspects not Covered by Standards in 5.6

None.

5.9 Proposed safety critical fixings

None.

6 STRUCTURAL ANALYSIS

6.1 Methods of Analysis for Superstructure, Substructure and Foundations

1. The embedded wall will be analysed in accordance with BS EN 1997-1 (2013).
2. The design will assume fully drained (long-term) conditions.
3. The analysis will be undertaken using the Geosolve Wallap software which is designed for checking the stability of retaining wall structures using limit equilibrium analysis in accordance with BS EN 1997-1 (2013).
4. The design load effects (bending moments and shear forces) will then be used to verify the structural design in accordance with BS EN 1992-1-1:2004 (Eurocode 2).

6.2 Description and Diagram of Idealised Structure to be used for Analysis

Retained earth and vehicular surcharge loading apply pressure onto the back of the embedded retaining wall. The embedded wall resists these applied forces through passive resistance in front of the wall. An idealised diagram of the structure is shown in Figure 1.

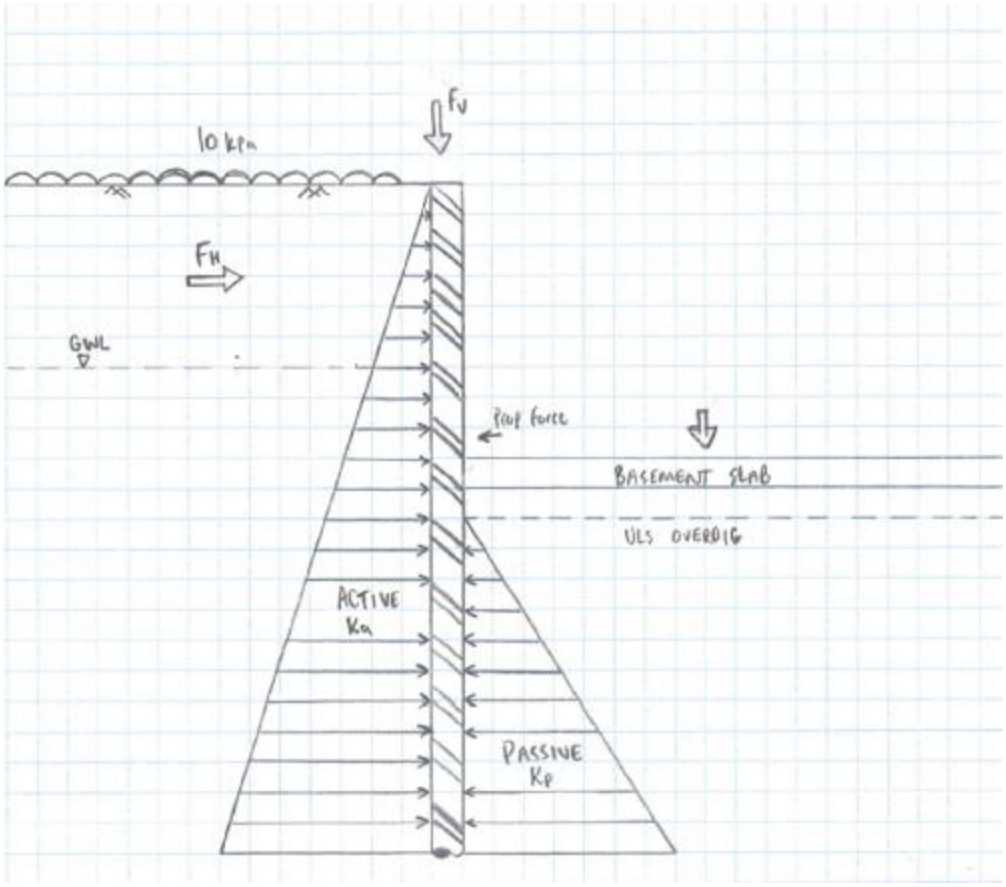


Figure 1 – Idealised diagram Radcliffe Civic Hub Retained Walls

6.3 Assumptions Intended for Calculation of Structural Element Stiffness

Stiffness of the wall piles will be based on the geometric section properties. Wall stiffness therefore = E.I.

For piles, a Young's Modulus of 2,000,000MPa is adopted.

The moment of inertia is based on the diameter and spacing of the piles used.

6.4 Proposed Soil Parameters to be used in the Design

The proposed geotechnical design parameters have been adopted based on the descriptions of the soil, in-situ and laboratory tests undertaken and correlation to published data as summarised in Table 3. Refer to the ID Geoenvironmental Limited Geoenvironmental Appraisal Report 5238-G-R001 in Appendix D.

Stratum	Unit Weight (kN/m^3)	K_o	Effective Cohesion c' (kPa)	Effective Angle of Friction $\Phi'_{p;k}$ (°)
Clayey Sand	20	0.50	0	30
M-c Sand	20	0.43	0	35
Ext weak Mudstone	20	1.00	0	30
Very weak Mudstone	20	1.00	5	32

Table 2 - Geotechnical Design Parameters

7 GEOTECHNICAL CONDITIONS

7.1 Acceptance of recommendations of the Ground Investigation Report to be used in the design and reasons for any proposed changes

Proposed soil parameters summarised in Section 6.4 are derived from the soil descriptions, in-situ and laboratory tests undertaken and correlation to published data from the ground investigation report (Appendix D).

The site ground conditions typically comprise Made Ground proven to depths of between 0.6mbGL – 1.8mbGL underlain by Glaciofluvial Sheet Deposits that reduce in elevation from the north to southwest. The Glaciofluvial Sheet Deposits are proven to depths of between 3.0mbGL to 5.2mbGL. Bedrock geology comprises Mudstone of Pennine Middle Coal Measure Formation was encountered below the Glaciofluvial Sheet Deposits. The Mudstone bedrock was penetrated to maximum depth of 18.0mbGL in BH07.

7.2 Summary of design for highway structure in the Ground Investigation Report

The ground investigation exploratory holes are summarised as follows:

Exploratory Hole No.	Approx. Ground Level (mOD)	Depth (m) & Elevation at base in brackets (mOD)		
		Made Ground	Glaciofluvial Sheet Deposits	PMCM Mudstone
WS01	63.98	0.55* (NP)	-	-
WS01A	64.09	1.00* (NP)	-	-
WS01B	63.97	0.90 (63.07)	4.20 (59.77)	6.70* (NP)
WS02	64.45	1.50 (62.95)	5.20 (59.25)	5.80* (NP)
WS03	63.34	0.95* (NP)	-	-
WS03A	64.36	1.40 (62.95)	4.90 (59.46)	5.10* (NP)
WS04	63.63	1.60 (62.03)	3.50 (60.13)	3.60* (NP)
BH05	64.10	0.60 (63.50)	3.00 (61.10)	13.50* (NP)
BH06	65.62	0.60 (65.02)	3.20 (64.42)	13.50* (NP)
BH07	64.13	1.80 (62.33)	4.30 (59.83)	18.00* (NP)

* =total thickness not penetrated, NP=base not proven

Table 4 - Summary of Radcliffe Civic Hub ground conditions

7.3 Differential settlement to be allowed for in the design of the structure

A lateral deflection limit of 20mm and 10mm for vertical loading is proposed.

8 CHECKING

8.1 Proposed Category of Structure and Design Supervision Level

Category 1 based on CG300 Clause 3.8(3) with Design Supervision Level 2 (DSL2) as per CD350.

8.2 If Category 3, the name of the proposed independent checker

Not applicable.

8.3 Erection proposals or temporary works for which Types S and P Proposals will be required, listing structural parts of the permanent structure affected with reasons

An embedded wall provides both temporary and permanent retention and therefore additional temporary works are not required other than a piling platform.

9 DRAWINGS AND DOCUMENTS

9.1 List of Drawings and documents accompanying the submission

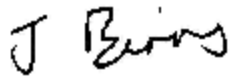
Appendix A: Technical Approval Schedule

Appendix B: Designer's Risk Assessment

Appendix C: Scheme General Arrangement & Section Drawings

Appendix D: Ground Investigation Report

10 THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed: 

Name: James Binns

Position held: Geotechnical Engineer & Director

Engineering Qualifications: BSc MSc CEng MICE FGS

Name of Organisation: Byland Engineering Limited

Date: 21/06/2024

11 THE ABOVE HAS BEEN RECOMMENDED FOR AGREEMENT SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW

Signed _____

Name _____

Position held _____

Engineering Qualifications _____

TAA _____

Date _____

12 THE ABOVE IS REJECTED / AGREED SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW

Signed _____

Name _____

Position held _____

Engineering Qualifications _____

TAA _____

Date _____

Appendix A

Technical Approval Schedule

Technical Approval Schedule (TAS)

Schedule of Documents Relating to Design of Highway Bridges and Structures

(All documents are taken to include revisions current as of 26 February 2024)

The Designer is responsible for ensuring that the standards and references given in the schedule are correct and up to date.

Tick all the documents used (ü)

Eurocodes and associated UK National Annexes				
Used	**Reference**	**Title**	**Amendment / Corrigenda**	**Notes**
	Eurocode 0	***Basis of structural design***		
P	BS EN 1990:2002 +A1:2005	Eurocode 0: Basis of structural design	+A1:2005 Incorporating corrigenda December 2008 and April 2010	See CD 350 section 7 for additional guidance. This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1990:2023
P	NA to BS EN 1990:2002 + A1:2005	UK National Annex to Eurocode 0 Basis of structural design	National Amendment No.1	See CD 350 section 7 for additional guidance.
	Eurocode 1	***Actions on structures***		
P	BS EN 1991-1-1:2002	Eurocode 1: Actions on structures. General Actions. Densities, self-weight, imposed load for buildings	Corrigenda December 2004 and March 2009	
P	NA to BS EN 1991-1-1:2002	UK National Annex to Eurocode 1: Actions on structures. General Actions. Densities, self-weight, imposed load for buildings	Corrigenda July 2019	
	BS EN 1991-1-3:2003 +A1:2015	Eurocode 1: Actions on structures. General Actions. Snow loads	+A1:2015 Incorporating corrigenda December 2004 and March 2009	
	NA to BS EN 1991-1-3:2003+A1:2015	UK National Annex to Eurocode 1: Actions on structures. General Actions. Snow loads	+A2:2018 Incorporating corrigenda June 2007, December 2015 and October 2018	
P	BS EN 1991-1-4:2005 +A1:2010	Eurocode 1: Actions on structures. General Actions. Wind actions	+A1:2010 Corrigenda July 2009 and January 2010	
P	NA to BS EN 1991-1-4:2005 + A1:2010	UK National Annex to Eurocode 1: Actions on structures. General Actions. Wind actions	National Amendment No.1	
	BS EN 1991-1-5:2003	Eurocode 1: Actions on structures. General Actions. Thermal actions	Corrigenda December 2004 and March 2009	
	NA to BS EN 1991-1-5:2003	UK National Annex to Eurocode 1: Actions on structures. General Actions. Thermal actions	-	
	BS EN 1991-1-6:2005	Eurocode 1: Actions on structures. General Actions. Actions during execution	Corrigenda July 2008, November 2012 and February 2013	

Eurocodes and associated UK National Annexes				
Used	**Reference**	**Title**	**Amendment / Corrigenda**	**Notes**
	NA to BS EN 1991-1-6:2005	UK National Annex to Eurocode 1: Actions on structures. General Actions. Actions during execution	-	
	BS EN 1991-1-7:2006 +A1:2014	Eurocode 1: Actions on structures. General Actions. Accidental actions	+A1: 2014 Corrigendum February 2010	
	NA+A1 to BS EN 1991-1-7:2006+A1:2014	UK National Annex to Eurocode 1: Actions on structures. Part 1-7 : Accidental actions	+A1:2014 Incorporating corrigenda August 2014 and November 2015	See CD 350 for additional guidance.
P	BS EN 1991-2:2003	Eurocode 1: Actions on structures. Traffic loads on bridges	Corrigenda December 2004 and February 2010	See CD 350 section 7 for additional guidance.
P	NA +A1:2020 to BS EN 1991-2:2003	UK National Annex to Eurocode 1: Actions on structures. Traffic loads on bridges	Corrigendum No.1 Amendment June 2020	See CD 350 section 7 for additional guidance.
	Eurocode 2	***Design of concrete structures***		
P	BS EN 1992-1-1:2004 + A1:2014	Eurocode 2: Design of concrete structures– Part 1-1: General rules and rules for buildings	Incorporating corrigendum January 2008, November 2010 and January 2014	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1992-1-1:2023
P	NA + A2:2014 to BS EN 1992-1-1:2004 + A1:2014	UK National Annex to Eurocode 2: Design of concrete structures – Part 1-1: General rules and rules for buildings		
	BS EN 1992-2:2005	Eurocode 2: Design of concrete structures – Part 2: Concrete bridges – Design and detailing rules	Corrigendum July 2008	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1992-1-1:2023
	NA to BS EN 1992-2:2005	UK National Annex to Eurocode 2: Design of concrete structure – Part 2: Concrete bridges – Design and detailing rules	-	
	BS EN 1992-3:2006	Eurocode 2: Design of concrete structures – Part 3: Liquid retaining and containment structures	-	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1992-1-1:2023
	NA to BS EN 1992-3:2006	UK National Annex to Eurocode 2: Design of concrete structures – Part 3: Liquid retaining and containment structures	-	
	BS EN 1992-4:2018	Eurocode 2: Design of concrete structures – Part 4: Design of fastenings for use in concrete		
	NA to BS EN 1992-4:2018	UK National Annex to Eurocode 2: Design of concrete structures – Part 4: Design of fastenings for use in concrete		
	Eurocode 3	***Design of steel structures***		
	BS EN 1993-1-1:2005 + A1:2014	Eurocode 3: Design of steel structures – Part 1-1 General rules and rules for buildings	Corrigenda February 2006 and April 2009	
	NA + A1:2014 to BS EN 1993-1-1:2005 + A1:2014	UK National Annex to Eurocode 3: Design of steel structures – Part 1-1 General rules and rules for buildings	-	
	BS EN 1993-1-3:2006	Eurocode 3: Design of steel structures – Part 1-3 General rules – Supplementary rules for cold-formed members and sheeting	Corrigendum November 2009	

Eurocodes and associated UK National Annexes				
Used	**Reference**	**Title**	**Amendment / Corrigenda**	**Notes**
	NA to BS EN 1993-1-3:2006	UK National Annex to Eurocode 3: Design of steel structures – Part 1-3 Supplementary rules for cold-formed members and sheeting	-	
	BS EN 1993-1-4:2006 + A2:2020	Eurocode 3: Design of steel structures – Part 1-4 General rules – Supplementary rules for stainless steels	+ A1:2015 Amendment No. 1 + A2:2020 Amendment No. 2	Supersedes BS EN 1993-1-4:2006 + A1:2015
	NA+A1:15 to BS EN 1993-1-4:2006+A1:2015	UK National Annex to Eurocode 3: Design of steel structures – Part 1-4 Supplementary rules for stainless steels	+ A1:2015 Amendment No. 1	
	BS EN 1993-1-5:2006+A2:2019	Eurocode 3: Design of steel structures – Part 1-5 Plated structural elements	Corrigendum April 2009, +A1:2017 Amendment No. 2, +A2:2019	
	NA+A1:2016 to BS EN 1993-1-5:2006	UK National Annex to Eurocode 3: Design of steel structures – Part 1-5 Plated structural elements	+ A1:2016 Amendment No. 1	
	BS EN 1993-1-6:2007+ A1:2017	Eurocode 3: Design of steel structures – Part 1-6 Strength and stability of shell structures	+ A1:2017 Amendment No. 1	
	BS EN 1993-1-7:2007	Eurocode 3: Design of steel structures – Part 1-7 Plated structures subject to out of plane loading	Corrigendum April 2009	
	BS EN 1993-1-8:2005	Eurocode 3: Design of steel structures – Part 1-8 Design of joints	Corrigenda December 2005, September 2006, July 2009 and August 2010	
	NA to BS EN 1993-1-8:2005	UK National Annex to Eurocode 3: Design of steel structures – Part 1-8 Design of joints	-	
	BS EN 1993-1-9:2005	Eurocode 3: Design of steel structures – Part 1-9 Fatigue	Corrigenda December 2005, September 2006 and April 2009	
	NA to BS EN 1993-1-9:2005	UK National Annex to Eurocode 3: Design of steel structures – Part 1-9 Fatigue	-	
	BS EN 1993-1-10:2005	Eurocode 3: Design of steel structures – Part 1-10 Material toughness and through-thickness properties	Corrigenda December 2005, September 2006 and March 2009	
	NA to BS EN 1993-1-10:2005	UK National Annex to Eurocode 3: Design of steel structures – Part 1-10 Material toughness and through thickness properties	-	
	BS EN 1993-1-11:2006	Eurocode 3: Design of steel structures – Part 1-11 Design of structures with tension components	Corrigendum April 2009	
	NA to BS EN 1993-1-11:2006	UK National Annex to Eurocode 3: Design of steel structures – Part 1-11 Design of structures with tension components	-	
	BS EN 1993-1-12:2007	Eurocode 3: Design of steel structures – Part 1-12 Additional rules for the extension of EN 1993 up to steel grades S 700	Corrigendum April 2009	
	NA to BS EN 1993-1-12:2007	UK National Annex to Eurocode 3: Design of steel structures – Part 1-12 Additional rules for the extension of EN 1993 up to steel grades S 700	-	
	BS EN 1993-2:2006	Eurocode 3: Design of steel structures – Part 2 Steel bridges	Corrigendum July 2009	

Eurocodes and associated UK National Annexes				
Used	**Reference**	**Title**	**Amendment / Corrigenda**	**Notes**
	NA + A1:2012 to BS EN 1993-2:2006	UK National Annex to Eurocode 3: Design of steel structures – Part 2 Steel bridges	+ A1:2012	
P	BS EN 1993-5:2007	Eurocode 3: Design of steel structures – Part 5 Piling	Corrigendum May 2009	
P	NA + A1:2012 to BS EN 1993-5:2007	UK National Annex to Eurocode 3: Design of steel structures – Part 5 Piling	+ A1:2012	
	Eurocode 4	***Design of composite steel and concrete structures***		
	BS EN 1994-1-1:2004	Eurocode 4: Design of composite steel and concrete structures – Part 1-1 General rules and rules for buildings	Corrigendum April 2009	
	NA to BS EN 1994-1-1:2004	UK National Annex to Eurocode 4: Design of composite steel and concrete structures – Part 1-1 General rules and rules for buildings	-	
	BS EN 1994-2:2005	Eurocode 4: Design of composite steel and concrete structures – Part 2 General rules and rules for bridges	Corrigendum July 2008	
	NA to BS EN 1994-2:2005	UK National Annex to Eurocode 4: Design of composite steel and concrete structures – Part 2 General rules and rules for bridges	-	
	Eurocode 5	***Design of timber structures***		
	BS EN 1995-1-1:2004 + A2:2014	Eurocode 5: Design of timber structures – Part 1-1 General – common rules and rules for buildings	+ A2:2014 Incorporating corrigendum June 2006	
	NA to BS EN 1995-1-1:2004 + A1:2008	UK National Annex to Eurocode 5: Design of timber structures – Part 1-1 General – common rules and rules for buildings	+ A1:2014	
	BS EN 1995-2:2004	Eurocode 5: Design of timber structures – Part 2 Bridges	-	
	NA to BS EN 1995-2:2004	UK National Annex to Eurocode 5: Design of timber structures – Part 2 Bridges	-	
	Eurocode 6	***Design of masonry structures***		
	BS EN 1996-1-1:2005+A1:2012	Eurocode 6: Design of masonry structures – Part 1-1 General rules for reinforced and unreinforced masonry structures	+A1:2012 Corrigenda February 2006 and July 2009	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1996-1-1:2022
	NA to BS EN 1996-1-1:2005 +A1:2012	UK National Annex to Eurocode 6: Design of masonry structures – Part 1-1 General rules for reinforced and unreinforced masonry structures	+A1:2012	
	BS EN 1996-2:2006	Eurocode 6: Design of masonry structures – Part 2 Design considerations, selection of materials and execution of masonry	Corrigendum September 2009	
	NA to BS EN 1996-2:2006	UK National Annex to Eurocode 6: Design of masonry structures – Part 2 Design considerations, selection of materials and execution of masonry	Corrigendum No.1	
	BS EN 1996-3:2006	Eurocode 6: Design of masonry structures – Part 3 Simplified calculation methods for unreinforced masonry structures	Corrigendum October 2009	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1996-1-1:2022
	NA +A1:2014 to BS EN 1996-3:2006	UK National Annex to Eurocode 6: Design of masonry structures – Part 3 Simplified calculation methods for unreinforced masonry structures	+A1:2014	

Eurocodes and associated UK National Annexes				
Used	**Reference**	**Title**	**Amendment / Corrigenda**	**Notes**
	Eurocode 7	***Geotechnical design***		
P	BS EN 1997-1:2004+A1:2013	Eurocode 7: Geotechnical design – Part 1 General rules	+A1:2013 Corrigendum February 2009	
P	NA+A1 to BS EN 1997-1:2004+A1:2013	UK National Annex to Eurocode 7: Geotechnical design – Part 1 General rules	+A1:2013 Incorporating Corrigendum No.1, Amendment 1 – July 2014 and Amendment 2 - 2022	
	BS EN 1997-2:2007	Eurocode 7: Geotechnical design – Part 2 Ground investigation and testing	Corrigendum June 2010	
	NA to BS EN 1997-2:2007	UK National Annex to Eurocode 7: Geotechnical design – Part 2 Ground investigation and testing	-	
	Eurocode 8	***Design of structures for earthquake resistance***		
	BS EN 1998-1:2004 + A1:2013	Eurocode 8: Design of structures for earthquake resistance – Part 1 General rules, seismic actions and rules for buildings	Corrigendum June 2009, January 2011 and March 2013	
	NA to BS EN 1998-1:2004	UK National Annex to Eurocode 8: Design of structures for earthquake resistance – Part 1 General rules, seismic actions and rules for buildings	-	
	BS EN 1998-2:2005+A2:2011	Eurocode 8: Design of structures for earthquake resistance – Part 2 Bridges	Corrigenda February 2010 and February 2012	
	NA to BS EN 1998-2:2005	UK National Annex to Eurocode 8: Design of structures for earthquake resistance – Part 2 Bridges	-	
	BS EN 1998-5:2004	Eurocode 8: Design of structures for earthquake resistance – Part 5 Foundations, retaining structures and geotechnical aspects	-	
	NA to BS EN 1998-5:2004	UK National Annex to Eurocode 8: Design of structures for earthquake resistance – Part 5 Foundations, retaining structures and geotechnical aspects	-	
	Eurocode 9	***Design of aluminium structures***		
	BS EN 1999-1-1:2007 + A2:2013	Eurocode 9: Design of aluminium structures– Part 1-1 General structural rules	+ A2:2013 Incorporating corrigendum March 2014	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1999-1-1:2023
	NA to BS EN 1999-1-1:2007 + A1:2009	UK National Annex to Eurocode 9: Design of aluminium structures – Part 1-1 General structural rules	National Amendment No.1 Corrigendum No.1	
	BS EN 1999-1-3:2007 + A1:2011	Eurocode 9: Design of aluminium structures – Part 1-3 Structures susceptible to fatigue	+ A1:2011	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1999-1-3:2023
	NA to BS EN 1999-1-3:2007 + A1:2011	UK National Annex to Eurocode 9: Design of aluminium structures – Part 1-3 Structures susceptible to fatigue	+ A1:2011	
	BS EN 1999-1-4:2007 +A1:2011	Eurocode 9: Design of aluminium structures – Part 1-4 Cold formed structural sheeting	+ A1:2011 Corrigendum November 2009	This document is to be used until 30 March 2028. After which it will be superseded by BS EN 1999-1-4:2023

Eurocodes and associated UK National Annexes				
Used	**Reference**	**Title**	**Amendment / Corrigenda**	**Notes**
	NA to BS EN 1999-1-4:2007	UK National Annex to Eurocode 9: Design of aluminium structures – Part 1-4 Cold formed structural sheeting	-	

BSI Published Documents			
Used	**Reference**	**Title**	
For guidance only unless clauses are otherwise specified in CD 350 Appendix A.			
	PD 6687-1:2020	Background paper to the UK National Annexes to BS EN 1992-1 and BS EN 1992-3	Supersedes PD 6687-1:2010 See CD 350 clauses 3.6, 4.1, 4.2 and Appendix A for additional guidance. Clause 3.6 in CD 350 refers to clause 2.5 in PD 6687-1, this is now clause 4.5 in PD 6687-1 Clause 4.2 in CD 350 refers to clause 2.22 in PD 6687-1, this is now clause 4.21.4 in PD 6687-1
	PD 6687-2:2008	Recommendations for the design of structures to BS EN 1992-2:2005	See CD 350 clauses 4.1, 4.2 and Appendix A for additional guidance.
	PD 6688-1-1:2011	Recommendations for the design of structures to BS EN 1991-1-1	See CD 350 Appendix A for additional guidance.
	PD 6688-1-4:2015	Background paper to the UK National Annex to BS EN 1991-1-4	See CD 350 Appendix A for additional guidance.
	PD 6688-1-7:2009 +A1:2014	Recommendations for the design of structures to BS EN 1991-1-7	See CD350 clause 3.7 and Appendix B for additional guidance.
	PD 6688-2:2011	Recommendations for the design of structures to BS EN 1991-2	See CD 350 Appendix A for additional guidance.
P	PD 6694-1:2011 + A1:2020	Recommendations for the design of structures subject to traffic loading to BS EN 1997-1	Incorporating Corrigendum 1 Jan 2022 & Corrigendum 2 Jul 2023
	PD 6695-1-9:2008	Recommendations for the design of structures to BS EN 1993-1-9	See CD 350 Appendix A for additional guidance.
	PD 6695-1-10:2009	Recommendations for the design of structures to BS EN 1993-1-10	See CD 350 Appendix A for additional guidance.
	PD 6695-2:2008 + A1:2012 Incorporating Corrigendum No.1	Recommendation for the design of bridges to BS EN 1993	See CD 350 Appendix A for additional guidance.
	PD 6696-2:2007 + A1:2012	Background paper to BS EN 1994-2 and the UK National Annex to BS EN 1994-2	See CD 350 Appendix A for additional guidance.
	PD 6698:2009	Recommendations for the design of structures for earthquake resistance to BS EN 1998	See CD 350 section 7 for additional guidance.
	PD 6702-1:2009+A1:2019	Structural use of aluminium. Recommendations for the design of aluminium structures to BS EN 1999	Amended 31 May 2019
	PD 6703:2009	Structural bearings – Guidance on the use of structural bearings	

BSI Published Documents			
Used	**Reference**	**Title**	
	PD 6705-2:2020	Structural use of steel and aluminium. Execution of steel bridges conforming to BS EN 1090-2. Guide	Replaces PD 6705-2:2010 + A1:2013
	PD 6705-3:2009	Recommendations on the execution of aluminium structures to BS EN 1090-3	

Execution Standards referenced in British Standards or Eurocodes			
Used	**Reference**	**Title**	
	BS EN 1090-1:2009+A1:2011	Execution of steel structures and aluminium structures - Part 1: Requirements for conformity assessment of structural components	
	BS EN 1090-2:2018	Execution of steel structures and aluminium structures. Technical requirements for the execution of steel structures	Supersedes BS EN 1090-2:2008+A1:2011
	BS EN 1090-3:2019	Execution of steel structures and aluminium structures – Part 3: Technical requirements for aluminium structures	Supersedes BS EN 1090-3:2008
	BS EN 13670:2009 Incorporating corrigenda October 2015 and November 2015	Execution of concrete structures	
P	BS EN 206:2013+A2:2021	Concrete – Specification, performance, production and conformity	Supersedes BS EN 206:2013+A1:2016
	BS EN 1317-1:2010	Road Restraint Systems – Part 1 – Terminology and general criteria for test methods	
	BS EN 1317-2:2010	Road Restraint Systems – Part 2 – Performance classes, impact test acceptance criteria and test methods for safety barriers.	
	BS EN 1317-3:2010	Road Restraint Systems – Part 3 – Performance classes, impact test acceptance criteria and test methods for crash cushions.	
	DD ENV 1317-4:2002	Road Restraint Systems – Part 4 – Performance classes, impact test acceptance criteria and test methods for terminals and transitions of safety barriers.	*Draft BS EN 1317-4 for public comment published in June 2012*
	BS EN 1317-5:2007+A2:2012	Road Restraint Systems – Part 5 - Product requirements and evaluation of conformity for vehicle restraint systems	Incorporating corrigendum August 2012 *Draft prEN 1317-5 for public comment published in December 2013*
	PD CEN/TR 16949:2016	Road Restraint System – Pedestrian restraint system - Pedestrian parapets	*Bsi Published Document / CEN Technical Report published in July 2016* *(This document should not be used. The requirements of BS 7818:1995 apply.)*
	Draft prEN 1317-7	Road restraint systems - Part 7: Performance classes, impact test acceptance criteria and test methods for terminals of safety barriers	*Draft prEN 1317-7 for public comment published in June 2012* *(This document should not be used. All terminals should continue to be in accordance with ENV1317-4.)*

Execution Standards referenced in British Standards or Eurocodes			
Used	**Reference**	**Title**	
	PD CEN/TS 17342:2019	Road restraint systems - Motorcycle road restraint systems which reduce the impact severity of motorcyclist collisions with safety barriers	*Replaces* PD CEN/TS 1317-8:2012 *(This document should not be used.)*
	PD CEN/TR 17081:2018	Design of fastenings for use in concrete – Plastic design of fastenings with headed and post-installed fasteners	
	BS EN 1337-1:2000	Structural bearings – Part 1: General Design Rules	
	BS EN 1337-2:2004	Structural bearings – Part 2: Sliding elements	
	BS EN 1337-3:2005	Structural bearings – Part 3: Elastomeric bearings	
	BS EN 1337-4:2004	Structural bearings – Part 4: Roller bearings	Corrigendum No.1 March 2007
	BS EN 1337-5:2005	Structural bearings – Part 5: Pot bearings	
	BS EN 1337-6:2004	Structural bearings – Part 6: Rocker bearings	
	BS EN 1337-7:2004	Structural bearings – Part 7: Spherical and cylindrical PTFE bearings	
	BS EN 1337-8:2007	Structural bearings – Part 8: Guide bearings and restraint bearings	
	BS EN 1337-9:1998	Structural bearings – Part 9: Protection	
	BS EN 1337-10:2003	Structural bearings – Part 10: Inspection and maintenance	Corrigendum No.1 November 2003
	BS EN 1337-11:1998	Structural bearings – Part 11: Transport, Storage and Installation.	
	BS EN 10025-1:2004	Hot rolled products of structural steels Part 1: General technical delivery conditions.	
	BS EN 10025-2:2019	Hot rolled products of structural steels Part 2: Technical delivery conditions for non-alloy structural steels.	Supersedes BS EN 10025-1:2004
	BS EN 10025-3:2019	Hot rolled products of structural steels Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels.	Supersedes BS EN 10025-3:2004
	BS EN 10025-4:2019	Hot rolled products of structural steels Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels.	Supersedes BS EN 10025-4:2004
	BS EN 10025-5:2019	Hot rolled products of structural steels – Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance	Supersedes BS EN 10025-5:2004
	BS EN 10025-6:2019	Hot rolled products of structural steels – Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition.	Supersedes BS EN 10025-6:2004+A1:2009
P	BS EN 10080:2005	Steel for the reinforcement of concrete – Weldable reinforcing steel - General	
	BS EN 10210-1:2006	Hot finished structural hollow sections of non-alloy and fine grain steels – Part 1: Technical delivery conditions	
	BS EN 10210-2:2019	Hot finished structural hollow sections – Part 2: Tolerances, dimensions and sectional properties	Supersedes BS EN 10210-2:2006
	BS EN 10248-1:1923	Hot rolled sheet piling of non alloy steels. Technical delivery conditions	Supersedes BS EN 10248-1:1996
	BS EN 10248-2:1996	Hot rolled sheet piling of non alloy steels. Tolerances on shape and dimensions	
	BS EN 12063:1999	Execution of special geotechnical work. Sheet pile walls.	
	BS EN 13369: 2023	Common Rules for precast concrete products	Supersedes BS EN 13369: 2018

Execution Standards referenced in British Standards or Eurocodes			
Used	**Reference**	**Title**	
	BS EN 14388:2005	Road traffic noise reducing devices	There is a 2015 version, however the 2015 version is not harmonised.
	BS EN 15050:2007 + A1:2012	Precast concrete products – Bridge elements	See CD 350 clause 3.8.1 for additional guidance.
	BS EN 15258:2008	Precast concrete products - Retaining wall elements	

British Standards			
Used	**Reference**	**Title**	
P	BS 4449:2005 +A3:2016	Steel for the reinforcement of concrete	No longer covers plain round bar. (See BS4482 up to 12mm dia, see BS EN 10025-1 for larger sizes and dowels. See BS EN 13877-3 for dowel bars in concrete pavements.)
	BS 5896:2012	Specification for high tensile steel wire and strand for the prestressing of concrete	
P	BS 7818:1995	Specification for pedestrian restraint systems in metal	Incorporating Corrigendum No.1 May 2004 and Corrigendum No.2 September 2006 Currently the requirements of BS 7818:1995 are to be used instead of PD CEN/TR 16949:2016
P	BS 8002:2015	Code of practice for earth retaining structures	
	BS 8004:2015 +A1 2020	Code of practice for foundations	Amendment +A1:2020
	BS 8006-1:2010+A1:2016	Code of practice for strengthened/reinforced soils and other fills	
P	BS 8500-1:2023	Concrete – Complementary British Standard to BS EN 206: Method of specifying and guidance for the specifier.	Supersedes BS 8500-1:2015+A2:2019
P	BS 8500-2:2023	Concrete – Complementary British Standard to BS EN 206 : Specification for constituent materials and concrete.	Supersedes BS 8500-2:2015+A2:2019
P	BS 8666:2020	Scheduling, dimensioning, bending and cutting of steel reinforcement for concrete	Supersedes BS 8666:2005

The Manual Contract Document for Highway Works (MCHW)			
Used	**Reference**	**Title**	
P	MCHW Volume 1: October 2022	Specification for Highway Works	*Specification compliant with the execution standards must be used. A Departure is necessary for the parts where a compliant revision has not been published.* *Amendments October 2022* *Supersedes April 2022 version*

The Manual Contract Document for Highway Works (MCHW)			
Used	**Reference**	**Title**	
P	MCHW Volume 2: October 2022	Notes for guidance on the Specification for Highway Works	*Notes for guidance compliant with the execution standards must be used. A Departure is necessary for the parts where a compliant revision has not been published.* *Amendments October 2022* *Supersedes November 2021 version*
	MCHW Volume 3: February 2017	Highway Construction Details	

The Design Manual for Roads and Bridges (DMRB)			
Used	**Reference**	**Title**	
	GG 101 Revision 0.1.0	Introduction to the Design Manual for Roads and Bridges	Replaces GG 101 Revision 0
	GG 102 Revision 0	Quality Management Systems for Highway Design	Replaces GD 02/16
	GG 103 Revision 0	Introduction and general requirements for sustainable development and design	
	GG 104 Revision 0	Requirements for Safety Risk Assessment	Replaces GD04/12 and IAN 191/16
	GG 184 Revision 0	Specification for the use of Computer Aided Design	Replaces IAN 184/16
P	CG 300 Revision 0.1.0	Technical approval of highway structures	Supersedes BD 2/12
	CG 302 Revision 0	As-built, operational and maintenance records for highway structures	Supersedes BD 62/07
	CG 303 Revision 0	Quality assurance scheme for paints and similar protective coatings	Supersedes BD 35/14
	CG 305 Revision 0	Identification marking of highway structures	Supersedes BD 45/93
	CG 501 Revision 2	Design of highway drainage systems	Supersedes HD 33/16, TA 80/99
	CD 127 Revision 1.0.1	Cross-sections and headrooms	Replaces TD 27/05 and TD 70/08
P	CD 350 Revision 0	The design of highway structures	Supersedes BD 100/16, BA 57/01, BD 57/01 and IAN 124/11
	CD 351 Revision 0	The design and appearance of highway structures	Supersedes BA 41/98
	CD 352 Revision 0	Design of road tunnels	Supersedes BD 78/99
	CD 353 Revision 0	Design criteria for footbridges	Supersedes BD 29/17
	CD 354 Revision 1	Design of minor structures	Supersedes BD 94/17
	CD 355 Revision 0	Application of whole-life costs for design and maintenance of highway structures	Replaces BD 36/92 and BA 28/92
	CD 356 Revision 1	Design of highway structures for hydraulic action	Supersedes BA 59/94
	CD 357 Revision 1	Bridge expansion joints	Replaces BD 33/94, BA 26/94, IAN 168/12 and IAN 169/12

The Design Manual for Roads and Bridges (DMRB)			
Used	**Reference**	**Title**	
	CD 358 Revision 2	Waterproofing and surfacing of concrete bridge decks	Replaces BD 47/99, BA 47/99 and IAN 96/07
	CD 359 Revision 0	Design requirements for permanent soffit formwork	Supersedes BA 36/90 and IAN 131/11
	CD 360 Revision 2	Use of compressive membrane action in bridge decks	Supersedes BD 81/02
	CD 361 Revision 0	Weathering steel for highway structures	Supersedes BD 7/01
	CD 362 Revision 1	Enclosure of bridges	Replaces BD 67/96 and BA 67/96
	CD 363 Revision 0	Design rules for aerodynamic effects on bridges	Replaces BD 49/01
	CD 364 Revision 0	Formation of continuity joints in bridge decks	Replaces BA 82/00
	CD 365 Revision 1	Portal and cantilever signs/signals gantries	Replaces BD 51/14, IAN 193/16, BE 7/04
	CD 366 Revision 0	Design criteria for collision protection beams	Replaces BD 65/14
	CD 367 Revision 0	Treatment of existing structures on highways widening schemes	Replaces BD 95/07
	CD 368 Revision 0	Design of fibre reinforced polymer bridges and highway structures	Replaces BD 90/05
	CD 369 Revision 0	Surface protection for concrete highway structures	Replaces BA 85/04
	CD 371 Revision 0	Strengthening highway structures using fibre-reinforced polymers and externally bonded steel plates	Replaces BD 85/08, BD 84/02
	CD 372 Revision 0	Design of post-installed anchors and reinforcing bar connections in concrete	Supersedes IAN 104/15
	CD 373 Revision 0	Impregnation of reinforced and prestressed concrete highway structures using hydrophobic pore-lining impregnants	Supersedes BD 43/03
	CD 374 Revision 0	The use of recycled aggregates in structural concrete	Supersedes BA 92/07
	CD 375 Revision 1	Design of corrugated steel buried structures	Supersedes BD 12/01
	CD 376 Revision 0	Unreinforced masonry arch bridges	Replaces BD 91/04
P	CD 377 Revision 4	Requirements for road restraint systems	Supersedes TD 19/06
P	CD 622 Revision 1	Managing geotechnical risk	Replaces HD 22/08, BD 10/97 and HA 120/08
	CS 461 Revision 0	Assessment and upgrading of in-service parapets	Supersedes BA 37/92 and IAN 97/07
	GD 304 Revision 2	Designing health and safety into maintenance	Replaces IAN 69/15
	LA 104 Revision 1	Environmental assessment and monitoring	Supersedes HA 205/08, HD 48/08, IAN 125/15, and IAN 133/10
	LA 106 Revision 1	Cultural heritage assessment	Supersedes HA 208/07, HA 60/92, HA 75/01
	LA 110 Revision 0	Material assets and waste	Supersedes IAN 153/11
	LA 113 Revision 1	Road drainage and the water environment	Supersedes HD 45/09

The Design Manual for Roads and Bridges (DMRB)			
Used	**Reference**	**Title**	
	LD 119 Revision 0	Roadside environmental mitigation and enhancement	Formerly LA 119, which superseded HA 65/94 and HA 66/95

Interim Advice Notes		
Used	**Reference**	**Title**
	IAN 105/08	Implementation of construction (design and management) 2007 and the withdrawal of SD 10 and SD 11

Miscellaneous			
Used	**Reference**	**Title**	
	CIRIA C543	Bridge Detailing Guide	
	CIRIA C686	Safe Access for Maintenance and Repair	
P	CIRIA C760	Guidance on embedded retaining wall design	
	CIRIA C766	Control of cracking caused by restrained deformation in concrete	Supersedes C660

Appendix B

Designers Risk Assessment

2813 – Radcliffe Civic Hub
Design Risk Assessment for Secant & Contiguous Embedded Retaining Walls

Hazard No	Hazard Description	Undesirable event and/or Consequence	Phase C, O, M, D *	Initial Risk Before Control			Mitigation	Residual Risk After Control		
				P	C	R		P	C	R
001	Services	Injury or death to personnel due electrocution or explosion	C	4	5	20	· Service plans to be reviewed in advance of the works · All services identified to be ground truthed and any exclusion zones established · Pile locations to be scanned with a Cable Avoidance Tool before works commence	1	5	5
002	Working platform	Injury or death to personnel due to rig instability	C	4	5	20	· A suitable working platform for the required piling rig must be provided.	1	5	5
003	Ground conditions weaker than expected	Excessive deflection and collapse, injury to personnel and increased cost	C/O	2	4	8	· Carefully observe conditions during installation / excavation and report any concerns to the designer.	2	4	8
004	Ground conditions stronger than expected	Excessive deflection and collapse, injury to personnel and increased cost	C/O	2	4	8	· Carefully observe conditions during installation / excavation and report any concerns to the designer.	2	4	8
005	Construction sequence	Excessive deflection and collapse, injury to personnel and increased cost	C	3	5	15	· The construction sequence must be followed.	1	5	5
006	Working in proximity to piling rig	Injury or death to personnel	C	3	3	9	· Exclusion zones to be provided around piling rigs and non-essential personnel to be kept clear of the piling zone.	2	3	6
007	Installation tolerances	Excessive deflection and increased cost	C	2	4	8	· Tolerances are as specified in the ICE SPERW 3rd edition and are ±75mm plan position and 1 in 75 verticality.	1	4	4
008	Wall edge	Injury or death to personnel / pedestrians	C/O/M	3	4	12	· Edge protection to be provided behind all retaining structures	1	4	4

* C=construction, O=operation, M=maintenance, D=demolition.

Scoring System

Probability (P)	Very Likely (5)	Likely (4)	Probable (3)	Unlikely (2)	Negligible (1)
Consequence (C)	Very High (5)	High (4)	Medium (3)	Low (2)	Very Low (1)

Risk (R) = P x C

Where risk score exceeds 8, risk control is required.

Compiled:	**Kashish Gupta**	**Approved:**	**James Binns**
Date:	**20th June 2024**	**Date:**	**21st June 2024**

Appendix C

Scheme General Arrangement & Section Drawings



SOFTWORKS

NOTE:
ALL TREES IN ABEYANCE AWAITING FURTHER UNDERGROUND SERVICE COORDINATION

EXISTING TREE RETAINED

SEMI-MATURE TREE
- Container grown
- See softworks drawing for more information

SENSORY PLANTING
- See planting schedule for information on sizes/density
- Species as per sensory planting schedule on page
- 50mm bark mulch to top
- 300 topsoil
- 200 subsoil

ORNAMENTAL PLANTING
- See planting schedule for information on sizes/density
- 50mm bark mulch to top
- 300 topsoil
- 200 subsoil

EXISTING BANDSTAND SEDUM ROOF
Product: Sedum Blanket System SGS02
Material: Pre-grown blanket of sedum planting on growing medium
Size: 151mm total depth. 25mm sedum, 80mm growing medium, 46mm drainage board and protection fleece
Supplier: Sky Gardens Green Solutions or equal and approved
Other: Sedum roof, drainage and fixing as per engineer's design and details. To use existing bandstand drainage points and discharge points.

NATIVE HEDGEROW
Species: Hedge planting with native species. Bushy form with no gaps.
Size: Maintained at 1000mm height. 1.2-1.5m rootballed single row.
Other: Timber post and wire fence to rear
Refer to Softworks schedule for more detail

CLIMBING SPECIES
Species: Native, evergreen and flowering species to climb up tensile wire system.
- See planting schedule for information on sizes/density.
Other: To be supported by S3i tensile wire system affixed to building as per supplier's recommendations
See climber detail drawing for more information.

FURNITURE

F01 MEMORIAL TO ARENA ATTACK
- Relocated within Piazza/Bridge Square
- New plinth, see details for more information

F02 TIMBER LINEAR SEATING
Product: Based on Hyde Bench by Baily Streetscene
Material: Modular hot-dipped galvanised frame with polyester powder coating. FSC hardwood timber slats. Stainless steel powder coated arm rest.
Size: 9000 L total x 630 W x 450mm H
Colour: Timber natural, frame RAL Anthracite grey 7016
Finish: Polyester powder coating
Supplier: Baily Streetscene or equal and approved as agreed with local authority
Other: With arm and back rests. Bespoke corner unit.

F03 HANDRAILS TO STEPS
Handrail, Posts & Structure
Material: Stainless steel
Size: 50mm diameter profile handrail, height above pitch line and landing 1100mm
Finish: Satin polished finish
Other: See steps details for more information

F04 EXISTING RADCLIFFE CLOCK
- Relocated and raised with new stone seating plinth to perimeter
- See details for more information

F05 CYCLE STANDS
Product: Marshalls Essential or equal and approved
Material: Stainless streel
Size: 750 L above ground x 798mm W
Finish: Brush satin
Supplier: Marshalls Street Furniture or equal and approved

F06 CYCLE SHELTER
Product: Custom based onBlox B Cycle Shelter or equal and approved
Material: Timber cladding and steel frame
Size: 2200 H x 2700 W x 3900mm L
Supplier: Broxap equal and approved
Other: All details and fixing as per supplier's drawings
To house 5no. cycle stands (10 spaces)
To include roof, internal lighting and lockable gates

F07.1 / F07.2 / F07.3 TIMBER COMMUNAL TABLE AND SEATING
Product: Bespoke timber communal table and seating
Material: Modular hot-dipped galvanised frame with polyester powder coating. FSC hardwood timber slats. Stainless steel powder coated arm rest.
Size: Various sizes, see details for more information. Type 1: 1130 W, Type 2: 630 W, Type 3: 660 W x 2000 L x 450mm H
Colour: Timber natural, frame RAL Anthracite grey 7016
Finish: Polyester powder coating
Supplier: Baily Streetscene or equal and approved as agreed with local authority
Other: With arm and back rests depending on type. Arm rest overhangs seat edge as anti-skate.

F08 COLLAPSABLE BOLLARDS
Product: Kent Stainless Steel Coffin Bollard or equal and approved
Material: Stainless steel
Size: 900mm H from ground level x 101mm Ø
Supplier: Kent Stainless Steel or equal and approved
Colour: Contrasting banding RAL TBC
Finish: Stainess steel. Polyester powder coating banding
Other: Requires 200mm below ground foundation

F09 STATIC BOLLARDS
Product: Rhinoguard 25/10 protective bollard or equal and approved
Material: Stainless steel
Size: 1000H from ground level x 75mm Ø
Supplier: Marshalls Street Furniture or equal and approved
Colour: Contrasting banding RAL TBC
Finish: Stainess steel. Polyester powder coating banding

F10 BIRD & BAT BOXES
- See Ecological Enhancnement drawing for more information

F12 BALUSTRADE TO RAMP
Material: Flat bar powder coated steel
Size: See details for more information
Colour: TBC
Other: To meet loading class 2 - 15Kn

F13 TREE GRILLE
Product: Recessed tree grille frame with space for pavers
Material: Galvanised steel frame
Size: 1800 x 1800 mm frame, 498mm Ø aperture
Supplier: Jones of Owestry or equal and approved
Other: Gravel infill to aperture

F14 LITTER BIN
Product: Box Litter Bin(or equal and approved)
Supplier: Artform urban furniture (or equal and approved)
Material: Powder coated steel and UK sourced timber
Size: 517 W x 1005 L x 400mm H with 150 litre capacity
Colour: Timber: Natural. Metalwork: RAL 7016 anthracity grey 3% gloss.
To be compliant with Bury Councils Performance Specification:
1. Possess a capacity of 120-240 litres;
2. Contain a Galvanised liner zinc coated steel;
3. Be free standing;
4. Provide 360 Degree access;
5. Contain a narrow aperture to prevent commercial waste being deposited;
6. The base should contain drainage holes in addition to, up to five mounting holes, (template to be supplied);
7. Possess a Key less locking system;
8. Ground fitting;
Pre drilled for ground fitting - ground fixings to be included
9. Co-mingled litter and dog waste logo placed on the bin;
10. Stainless Steel Cigarette stub plate;

F16 DOOR PROTECTION HOOPS [F16]
Product: BX14/ DB Door Barrier or equal and approved
Finish: RAL 7016 (anthracite grey)
Size: 450 W x 1020 H (including root for submerged fising). 42mm diameter
Supplier: Broxap [Tel: 01782564411]
Fixing: Root fixing.
Other: To include lower and upper flat plate crossbars.
To be located 100mm from open door.

F17 BIN STORAGE SCREEN
Product: Composite Timber Cladding and Galvanised Steel Posts
Size: -Overall height 2.2m above ground height. See detail drawing for more information.
-Posts 2190 x 100 x 100mm
-Panel 2050 H x 1070mm W standard
-Single leaf gate 2050 H x 965mm W
-Skirting trim to perimeter 10 x 70mm
Material: Composite timber cladding board and skirting trim
Colour: TBC with Architects to tie into Hub building
Supplier: Neotimber or equal and approved
Other: -Posts set 15mm from sustation facade
-Design Intent only. Steelwork to be reviewed by structural engineer.
-All posts: Galvanised
-Concealed fixings throughout
-Any visible screw heads/bolts to match main cladding colour
-Hinges to be either a standard dark grey or black
-Locks & Handles to be stainless steel
-Locking method to be agreed with Bury Council Waste Management Team
-Full vertical slats to be achieved - frame sizes to be adjusted to suit final cladding product as required
-Installed with circa 140mm above ground level for clearance, depending on finish levels
-Foundations to engineer's details and specification
-In-Line Hydraulic Gate Closer by GateMaster Ltd to be installed as part of closing mechanism

F18 SANDSTONE BOULDERS WITH TIMBER TOP
Location: Piazza/Bridge Square
Material: Red sandstone with FSC hardwood timber slatted top.
Supplier: Boulder by CED or equal and approved. Timber top by Woodscape or equal and approved. Polyester powder-coated arm rests.
Colour: Natural boulder and timber top
Size: various L x 400-600mm H typical. See details for more information
Foundations: Concrete to engineers specification
Other: To be devoid of sharp corners and be comfortable to the touch subject to quality visit. Some to include arm rests.

F19 DOG LOOP POINT FIXED INTO EXISTING WALL
Location: Near band stand
Material: Galvanised steel eye plate with BZP steel fixed snap hook
Product: Equestrian Snap Hook & Wall Plate
Supplier: GS Products or equal approved
Size: 50x50mm fixing plate, 85mm L snap hook

M&E

L01 FEATURE LIGHTING COLUMN
LUMINAIRE HEADS
Product: Metronomis LED Fluid BDS670
Supplier: Phillips or equal approved
Colour: Anthracite grey RAL 7016 (or if not available similar colour Phillips Ultra Dark Grey)
Colour Temperature: 4000K

COLUMN
Material: Aluminum
Pole height: 4m
Colour: Anthracite grey RAL 7016 (or if not available similar colour Phillips Ultra Dark Grey)
Other: See engineer's drawings for more information

L02 LIGHTING COLUMN
LUMINARE HEADS
Product: Phillips Digistreet BGP761 LED94-/740 I DX10 DGR 32-48
Supplier: Phillips or equal and approved
Colour: Anthracite grey RAL 7016 (or if not available similar colour Phillips Ultra Dark Grey)
Dimensions: 107 x 236 x 860mm
Notes: To adoptable standards. Tapered column.
Other: See engineer's drawings for more information

L03 CATENARY OVERHEAD LIGHTING
Product: City Soul BSP530 T25 1 xLED75-4S/740 DS50 lamp(s): LED75-4S/740
candela file 'BSP530 T25 1 xLED75-4S740 DS50.ldt'
Supplier: Phillips or similar approved
Colour: Standard
Other: See engineer's drawings for more information

CCTV CCTV LOCATIONS
Specification subject to adoptable standards
Refer to drawing for column locations
Other: See engineer's drawings for more information

L05 LIGHTING COLUMN - REMOVED AND RE-ERECTED (WSP)
Remove from store and re-erect existing road lighting column (8m nominal height) and lumnaire.

Refer to WSP drawing 70092923-WSP-HLG-RCHUB-DR-LI-0002 P01 for information.

L06 LIGHTING COLUMN (WSP PROPOSED)
Proposed mallatite galvanized steel road lighting column (bury sign column b4730) of 10m nominal height with planted base including a post top adaptor with 60mm spigot complete with a post top mounted philips digistreet medium (bgp762 dw10 22klm 80 led cw) led luminaire installed at zero degree tilt and a new philips city touch cms node. lantern shall run at 50% light output and set to 11klm (as agreed with bmbc)i

Refer to WSP drawing 70092923-WSP-HLG-RCHUB-DR-LI-0002 P01 for information.

L07 EXISTING COLUMN RETAINED (WSP)
Existing column and luminare to remain

Refer to WSP drawing 70092923-WSP-HLG-RCHUB-DR-LI-0002 P01 for information.

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NOTES:
1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

KEY

Project Redline Boundary
Unadopted Area
Existing Site Structures - no proposed works

HARDWORKS

P01.1 / P01.2 CONCRETE PAVING WITH NATURAL AGGREGATE FINISH
Location: Site wide
Material: Kellen - Lisico or equal and approved
Manufacturer: Hardscape Ltd or equal and approved
Colour:Tagenta E
Size: W150mm x L 300mm x D 80mm to vehicular [P01.1] & D 62mm to pedestrian [P01.2]
Bond/Finish: Stretcher.

P02 CORDUROY WARNING PAVING
Location: To top and bottom of steps in public realm
Material: Corduroy concrete units
Manufacturer: Marshalls or equal and approved
Colour: Contrasting tone to adjacent paving
Size: 400mm L x 400mm W x 50mm D
Bond: Stack bond

P03 SANDSTONE CUT BOULDERS
Location: Site wide
Material: Red sandstone with artwork opportunity integrated TBC
Supplier: CED or equal and approve
Colour: Natural
Size: 1000mm L x 600mm H
Foundations: Concrete to engineers specification
Other: To be devoid of sharp corners and be comfortable to the touch subject to quality visit

P05 GRANITE STEPS
Material: Granite
Colour: Royal White steps and midnight black nosing
Finish: Steps and nosings flamed
Supplier: Hardscape or equal and approved
Size: W 300 x L 915 x D 190. Top step W 400. 50x50mm nosing
Other: Artwork opportunity on risers
Refer to details for more information

P06 RAMP TO HUB BUILDING
Ramp
Material: Insitu, fine smooth finished cast high-quality concrete wall, tapering with ramp. Brushed concrete pavings.
Size: See details for more information.
Other: Subject to further design detail with engineers

Cladding/Coping
Material: Brick cladding to wall.
Size: 215 x 102.5 x 65mm
Colour: TBC with architect
Manufacturer: TBC with architect
Appearence: Creased

Balustrade
Material: Flat bar powder coated steel
Size: See details for more information
Colour: TBC
Other: To meet loading class 2 - 15Kn

P07 HEADER COURSE
Location: Site wide
Material: Kellen - Lisico (or equal and approved)
Manufacturer: Hardscape Ltd or equal and approved
Colour: Tagenta E
Size: W150mm x L 200mm x D70mm
Finish: Lisico
Bond: Stretcher

P08 EXISTING RETAINING WALL RELOACTED
Location: South of long term secure cycle store
Material: As existing
Other: Existing wall relocated to accomodate long term secure cycle store, repointed and made good as required

P09 PROPOSED RETAINING WALL
Location: East of long term secure cycle store
Material: To match existing adjacent retained wall
Manufacturer: Hardscape Ltd or equal and approved
Colour: To match existing
Size: To match existing brick sizes. Overall 250mm D x 550mm H x various D
Finish: To match existing
Bond: To match existing

P11 EROSION CONTROL GRAVEL
Material: Graded stone/gravel for erosion control to engineer's specification
Manufacturer: To engineer's specification
Size: To engineer's specification, 50mm consolidated depth
Location: To planter edges at kerb inlets

P12 IN-SITU CONCRETE TO BIN STORE
Material: In-situ concrete
Colour: As cast
Layout/bond:Tamped finish to encourage run-off towards Market Walk
Size: Depth as per engineer's recommendation.

Revision	Date	Description	Drawn	Apprvd.
S3-C01	03-04-2024	Construction	JTO	RM
S3-P16	08-02-24	Bin store update	JTO	RM
S3-P15	28-06-2023	Highway & Binstore updates	RM	RM
S3-P14	26-05-2023	Stage 04 Issue	JTO	RM
S2-P13	10-05-2023	Interim Stage 04 Issue (WIP)	RM	RM
S2-P12	23-02-2023	BIN STORE SHOWN	RM	RM
S2-P11	17-02-2023	FOR PLANNING	RM	RM
S2-P10	13-02-2023	FOR COMMENT	JTO	RM
S2-P09	06-02-2023	FOR COMMENT	RM	RM
S2-P08	27-01-2023	STAGE 03	JTO	RM
S2-P07	17-10-2022	STAGE 03	JTO	RM
S2-P06	05-08-2022	STAGE 03	JTO	RM
S2-P05	19-07-2022	STAGE 03	JTO	RM
S2-P04	16-06-2022	STAGE 03	JTO	RM
S2-P03	10-05-2022	STAGE 03	JTO	RM
S2-P02	25-01-2022	STAGE 02	JTO	RM

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Tempest 5.3, 12 Tithebarn Street, Liverpool, L2 2DT
T: 0151 363 1230

Client: Bury Council

Project: Radcliffe Civic Hub

Drg Title: Landscape General Arrangement

Created on	Created by	Approved by
04-01-2022	JTO	RM

Scale	Size	Workstage
1:200	A1	Construction

Drg No.	Suitability	Revision
RADHUB-PIE-00-00-DR-L-0001	S3	C01

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FOR ASSOCIATED SCHEDULES REFER TO AJP DRAWING No. RADHUB-AJP-V4-00-DR-S-0140

REV	DATE	DESCRIPTION	BY	APP
C05	18.03.2024	S08, S11, S26, S40, S61 & S83 Cut-off level corrected	CW	PT
C04	18.03.2024	S76 Cut-off level corrected	CW	PT
C03	29.02.2024	Pile references added	CW	PT
C02	20.02.2024	Pile Loads amended	CW	PT
C01	06.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P05	19.01.2024	Piling Issue	CW	PT
P04	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P03	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P02	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P01	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

PROJECT: RADCLIFFE CIVIC HUB

TITLE: PILE LAYOUT

STATUS	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPATIAL	FORM	DISC	DRAWING No.	REV.
S3	221-145	RADHUB-AJP-	V4	00	DR-	S	0100		C05

SCALE @ A0	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:100	F.Coupland	C.Webber	P.Tam	P.Tam	September 2022

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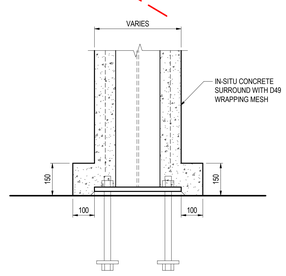
Foundation Schedule			
Foundation Reference	Type	No. Off Piles	Count
PC1	1875Lx750Wx1000D	2	9
PC1.1	1975Lx750Wx1000D	2	1
PC1.2	2100Lx750Wx1000D	2	1
PC2	1875Lx1080Wx1000D	2	1
PC3	1875Lx750Wx1000D	2	2
PC4	2100Lx750Wx1000D	2	30
PC5	1875Lx1875Wx1000D	4	2
PC6	2100Lx2100Wx1000D	3	14
PC7	2100Lx2100Wx1000D	4	1
PC8	450	4	1
PC9	450	4	1

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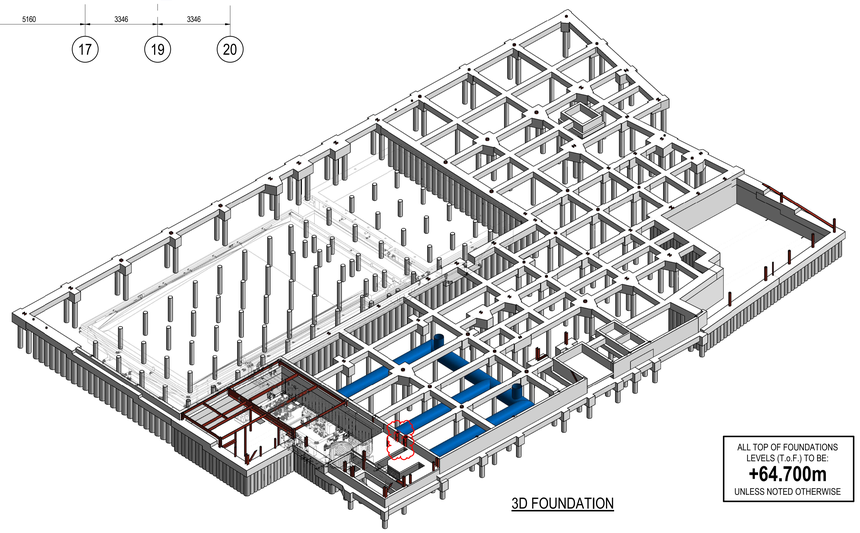
FOUNDATION LEGEND

- DENOTES EXTENT 600x600dp R.C. GROUND BEAM
- DENOTES EXTENT 750x600dp R.C. GROUND BEAM
- DENOTES EXTENT 1000x600dp R.C. GROUND BEAM
- DENOTES EXTENT 950x600dp R.C. GROUND BEAM
- DENOTES EXTENT OF 900x750dp R.C. CAPPING BEAM
- DENOTES EXTENT OF 950x750dp R.C. CAPPING BEAM
- DENOTES EXTENT OF 1000x750dp R.C. CAPPING BEAM
- DENOTES EXTENT 1150x750dp R.C. CAPPING BEAM



TYPICAL STEEL COLUMN ENCASEMENT DETAIL

1 : 10



3D FOUNDATION

ALL TOP OF FOUNDATIONS LEVELS (T.o.F.) TO BE:
+64.700m
UNLESS NOTED OTHERWISE

REV	DATE	DESCRIPTION	BY	APP
C05	23.05.2024	Groundbeams Amended for column baseplates clashes	CW	PT
C04	29.04.2024	Additional Sections added, 300mm RC Wall Added, Dimensions to Step in Capping Beam Amended	CW	PT
C03	18.03.2024	Capping beam soffit step amended	CW	PT
C02	07.03.2024	Ground beam added, mesh noted	CW	PT
C01	06.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P09	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P08	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P07	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P06	03.11.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P05	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P04	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT
P03	24.06.2022	STAGE 3 WORK IN PROGRESS FOR DESIGN CO-ORDINATION	CW	PT
P02	25.01.2022	UPDATED RIBA STAGE 2 SCHEME	CW	PT
P01	07.12.2021	RIBA STAGE 2 (CONCEPT DESIGN)	CW	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

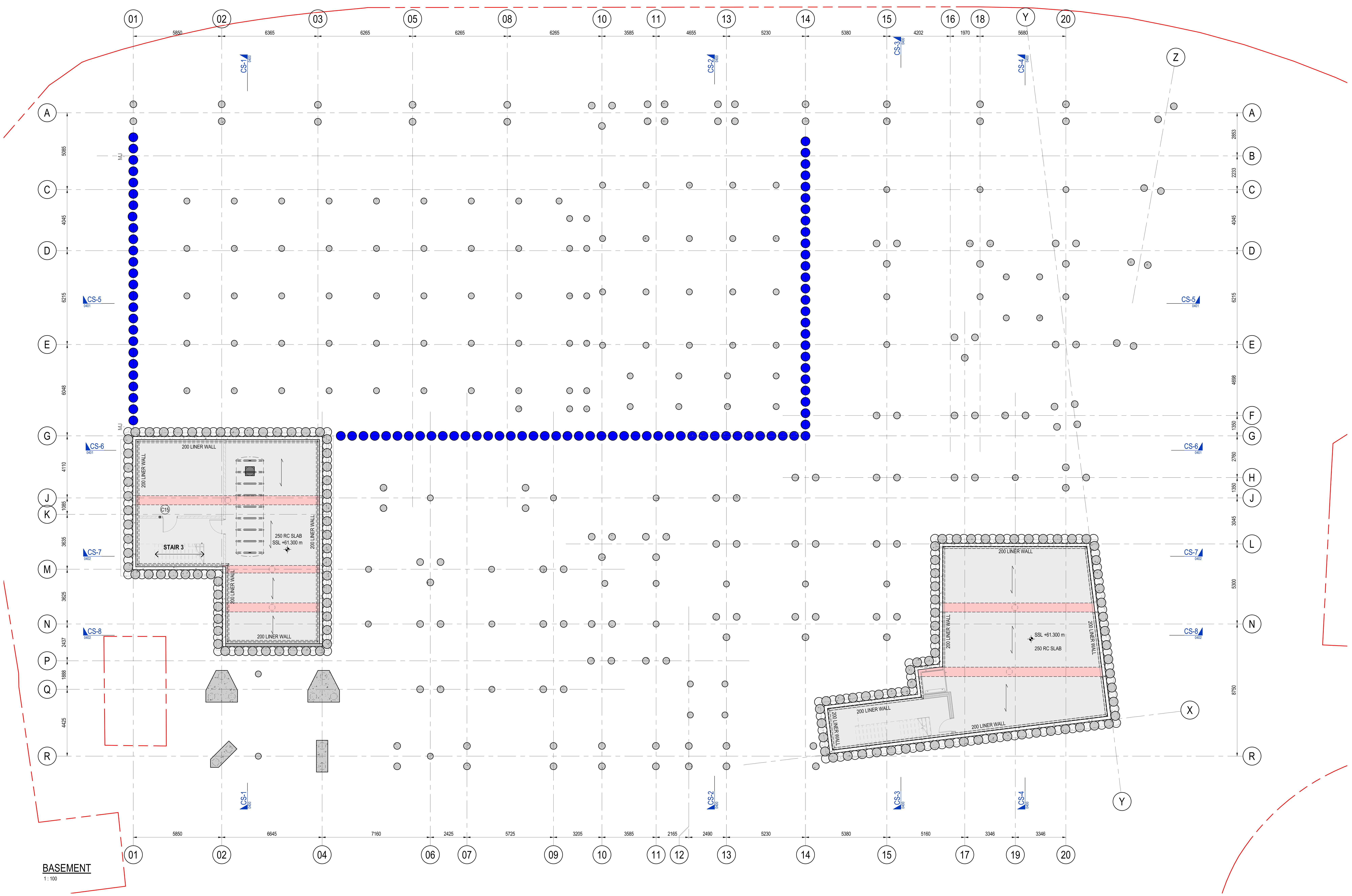
PROJECT: RADCLIFFE CIVIC HUB

TITLE: FOUNDATIONS GENERAL ARRANGEMENT

STATUS:	PROJECT No.	PROJECT	ORGIN.	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV.
S3	221-145	RADHUB-AJP- V4 - 00 - DR -	S -	0101					C05

SCALE @ A0	DESIGNED	DRAWN	CHECKED	APPROVED	DATE
1:100	F.Coupland	C.Webber	P.Tam	P.Tam	December 2021

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BASEMENT
1 : 100

LEGEND

- DENOTES EXTENT 600x600dp R.C. GROUND BEAM
- DENOTES 250dp SUSPENDED RC SLAB
- DENOTES CONTIGUOUS PILED WALL
- DENOTES SPAN OF R.C. SLAB

SUBSTRUCTURE NOTE:
ARCHITECT TO REVIEW LAYOUT AND LEVELS TO BASEMENT AND GROUND SLAB.

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ALL TOP OF FOUNDATIONS LEVELS (T.o.F.) TO BE:
+61.300m
UNLESS NOTED OTHERWISE

REV	DATE	DESCRIPTION	BY	APP
C01	06.02.2023	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P07	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P06	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P05	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P04	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT
P03	24.06.2022	STAGE 3 WORK IN PROGRESS FOR DESIGN CO-ORDINATION	CW	PT
P02	25.01.2022	UPDATED RIBA STAGE 2 SCHEME	CW	PT
P01	07.12.2021	RIBA STAGE 2 (CONCEPT DESIGN)	CW	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

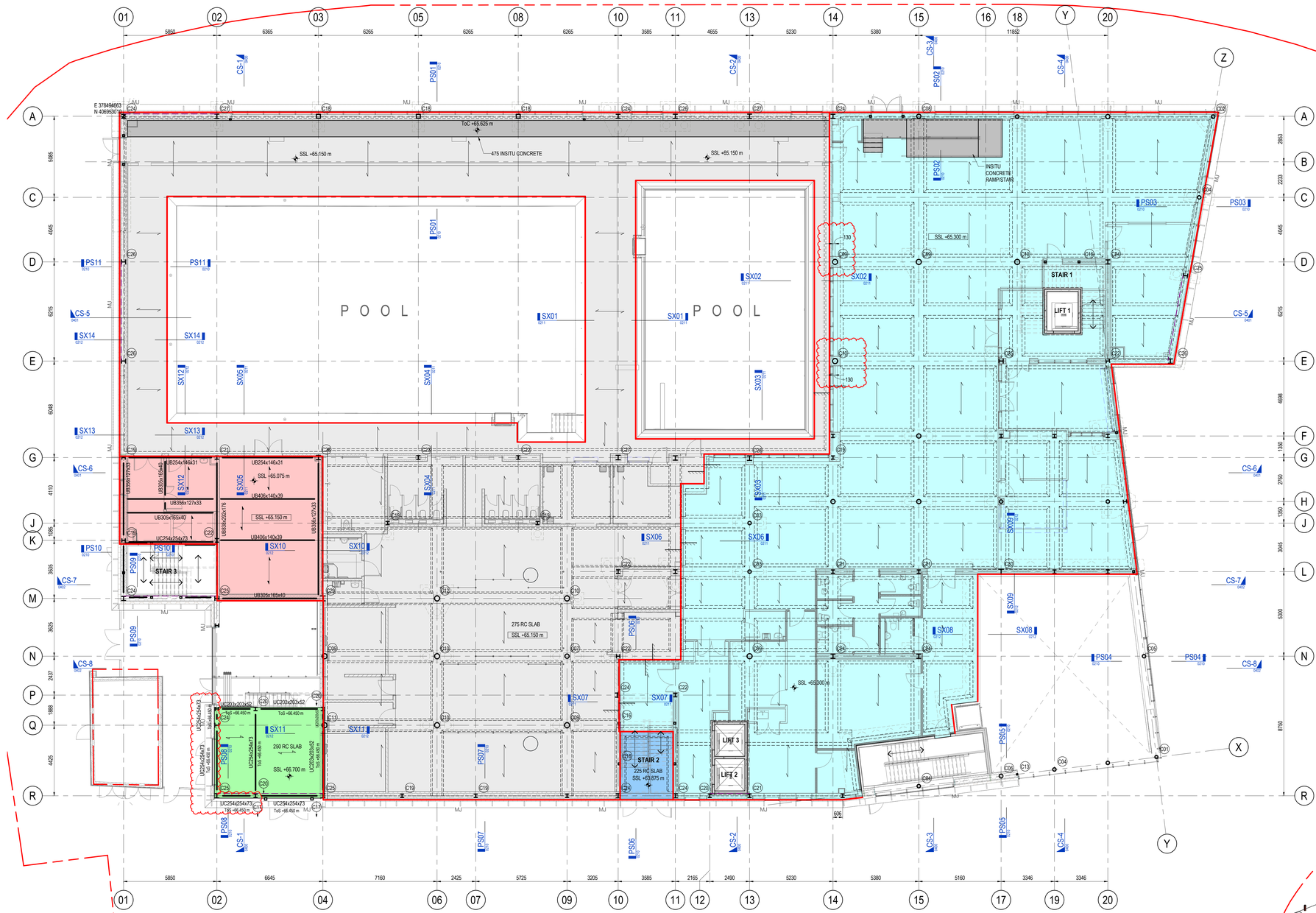
PROJECT: RADCLIFFE CIVIC HUB

TITLE: BASEMENT PLAN

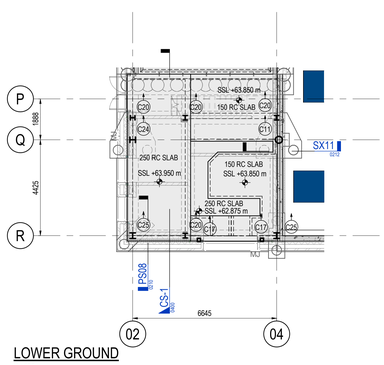
STATUS:	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV:
S3	221-145	RADHUB	AJP	V4	00	DR	S	0102	C01

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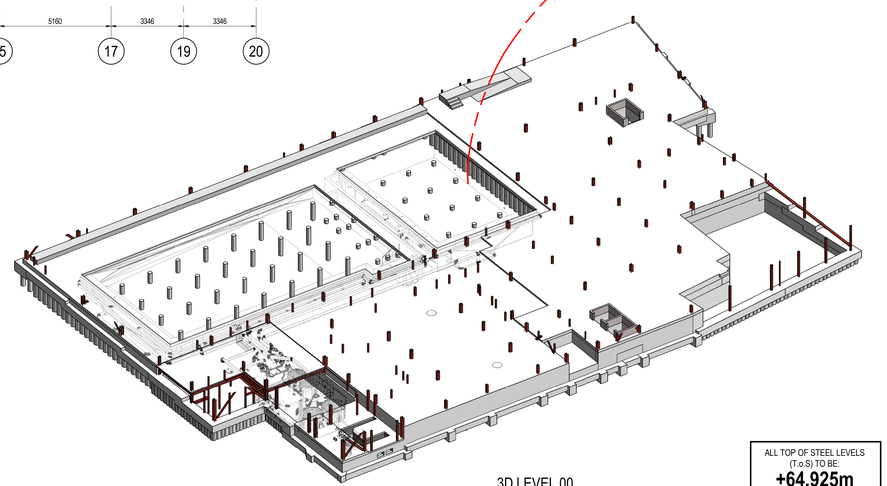
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LEVEL 00
1 : 100



LOWER GROUND
1 : 100



3D LEVEL 00

LEGEND

- DENOTES 275dp SUSPENDED RC SLAB (SSL +65.150m)
- DENOTES 275dp SUSPENDED RC SLAB (SSL +65.300m)
- DENOTES 250dp SUSPENDED RC SLAB (SSL +66.700m)
- DENOTES 225dp SUSPENDED RC SLAB (SSL +63.875m)
- DENOTES 150dp KINGSPAN MULTIDECK 60-V2 1.1 WITH A193 MESH (SSL +65.150m)
- DENOTES SLAB EDGE
- DENOTES SPAN OF 275mm RC SLAB
- DENOTES SPAN OF 250mm RC SLAB
- DENOTES SPAN OF 150mm METAL DECK MD 60-V2 1.2mm GAUGE
- DENOTES VERTICAL BRACING FOUNDS - LEVEL 01 20x200 MS PLATE ABOVE LEVEL 01 10x150MS PLATE

VERTICAL BRACING PLACED CENTRAL WITHIN SFS 300mm ZONE U.N.O.

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Column Schedule

Column Ref	Type
C01	CHS193.7x5
C02	CHS219.1x6.3
C03	CHS219.1x8
C04	CHS219.1x10
C05	CHS219.1x12.5
C06	CHS244.5x16
C07	CHS273x6.3
C08	CHS273x12.5
C09	CHS323.9x6.3
C10	CHS323.9x8
C11	CHS323.9x10
C12	CHS323.9x12.5
C13	SHS80x80x6.3
C14	SHS100x100x5
C15	SHS100x100x10
C16	SHS120x120x10
C17	SHS150x150x10
C18	SHS250x250x8
C19	UC203x203x46
C20	UC203x203x52
C21	UC203x203x60
C22	UC203x203x71
C23	UC203x203x86
C24	UC254x254x73
C25	UC254x254x89
C26	UC254x254x107
C27	UC254x254x132
C28	UC254x254x167
C29	UC305x305x97
C30	UC305x305x118
C31	UC152x152x30

REV	DATE	DESCRIPTION	BY	APP
C03	30.04.2024	Framing Members adjusted	CW	PT
C02	07.03.2024	Ground beam added, mesh noted	CW	PT
C01	06.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P08	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P07	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P06	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P05	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT
P04	24.06.2022	STAGE 3 WORK IN PROGRESS FOR DESIGN CO-ORDINATION	CW	PT
P03	10.06.2022	FOR INFORMATION & CO-ORDINATION	CW	PT
P02	25.01.2022	UPDATED RIBA STAGE 2 SCHEME	CW	PT
P01	07.12.2021	RIBA STAGE 2 (CONCEPT DESIGN)	CW	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

PROJECT: RADCLIFFE CIVIC HUB

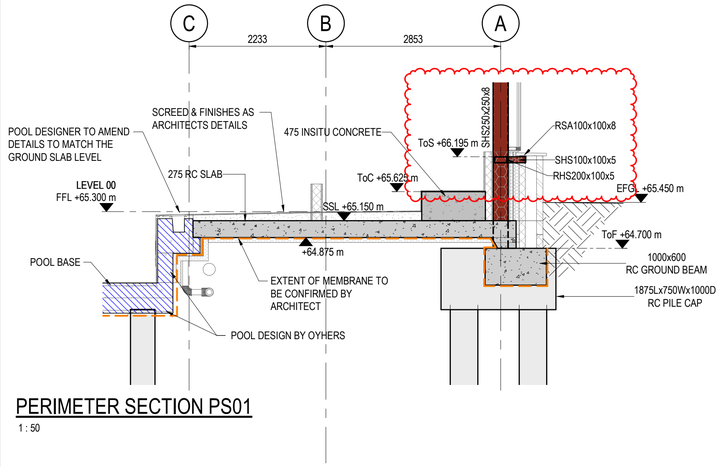
TITLE: GROUND FLOOR GENERAL ARRANGEMENT

STATUS:	PROJECT No:	PROJECT	ORGN	FUNCT	SPACIAL	FORM	DISC	DRAWING No.	REV
S3	221-145	RADHUB-AJP- V4 - 00 - DR - S - 0103							C03

SCALE @ A0	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:100	F.Coupland	C.Webber	P.Tam	P.Tam	December 2021

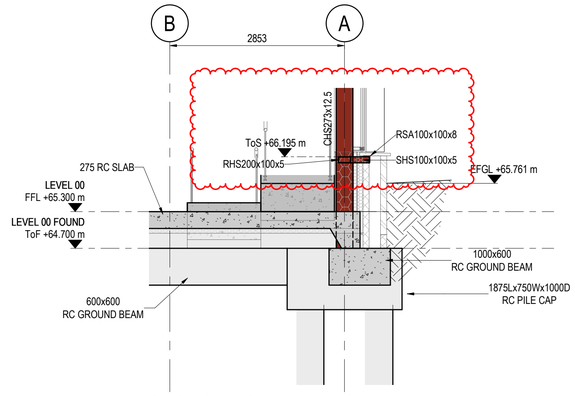
ALL TOP OF STEEL LEVELS (T.o.S) TO BE:
+64.925m
UNLESS NOTED OTHERWISE

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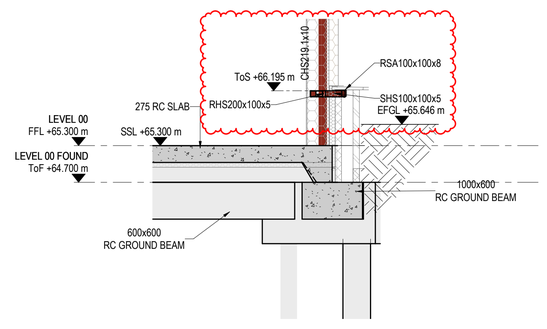
PERIMETER SECTION PS01

1 : 50



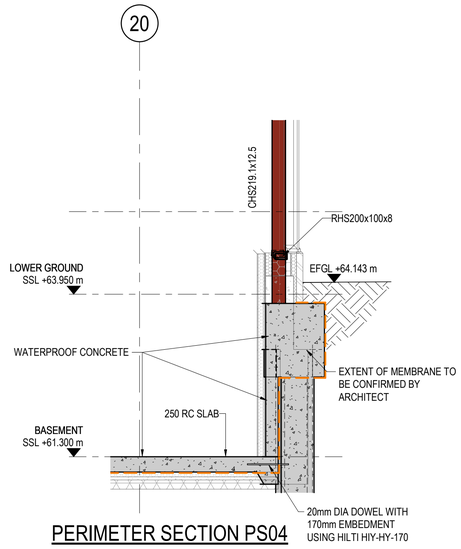
PERIMETER SECTION PS02

1 : 50



PERIMETER SECTION PS03

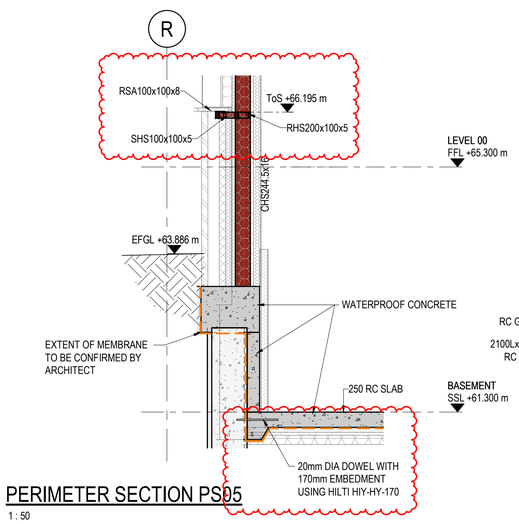
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PERIMETER SECTION PS04

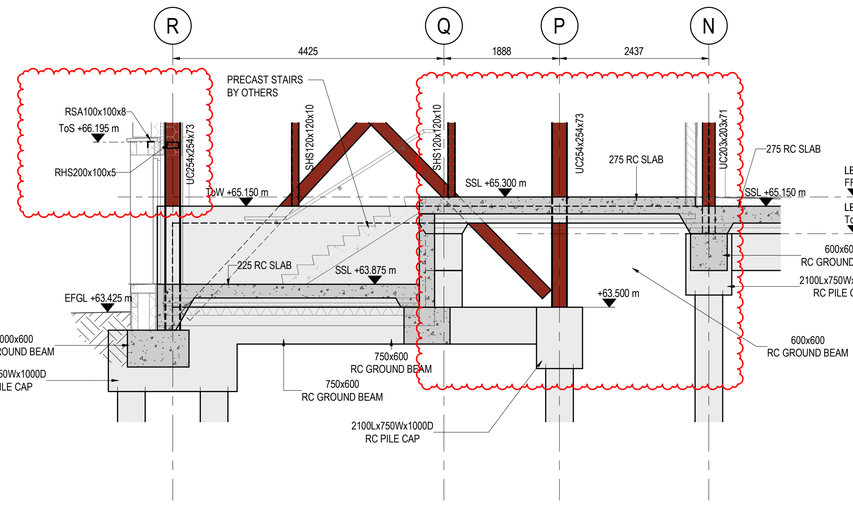
1 : 50

TEMPORARY SUPPORT MAY BE REQUIRED TO CONSTRUCT THE POOL STRUCTURE AS DESIGNED BY THE POOL DESIGNER. THIS WILL BE DESIGNED BY THE CONTRACTOR. AJP MAY ASSIST WITH THE ASSESSMENT OF LOADING, BUT THE RESPONSIBILITY FOR TEMPORARY WORK DESIGN REMAINS WITH THE CONTRACTOR.



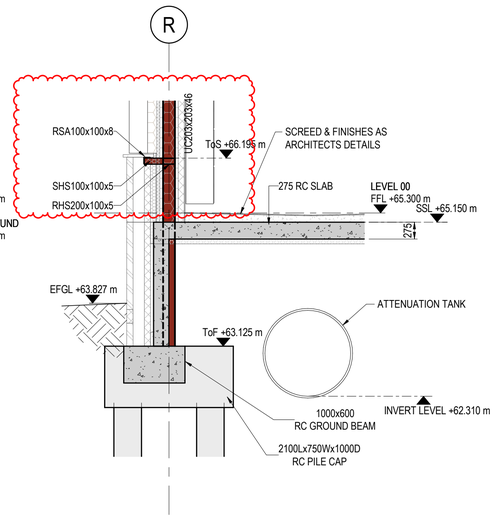
PERIMETER SECTION PS05

1 : 50



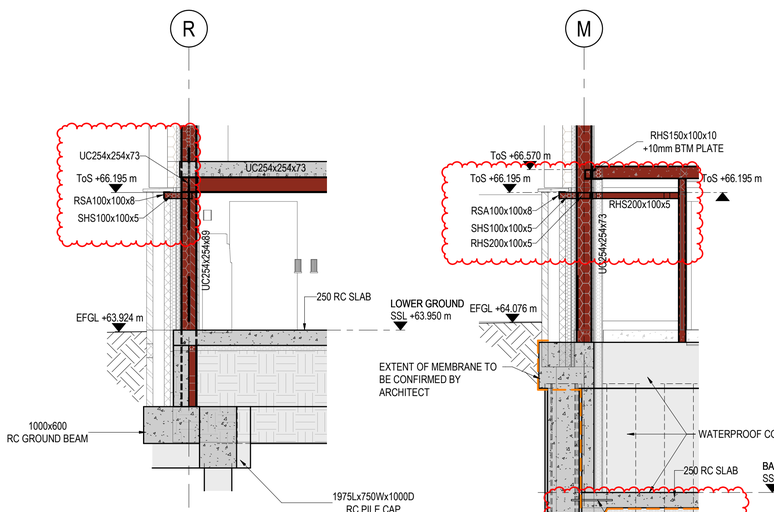
PERIMETER SECTION PS06

1 : 50



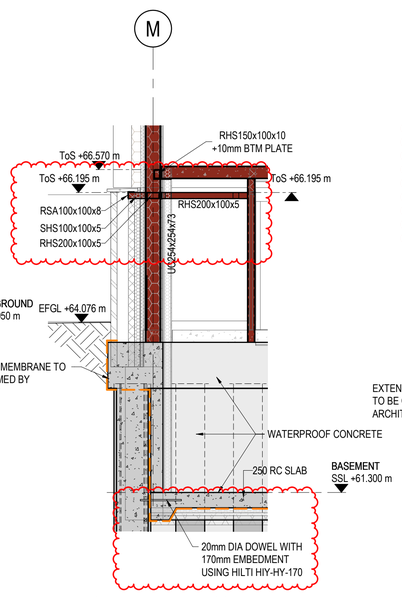
PERIMETER SECTION PS07

1 : 50



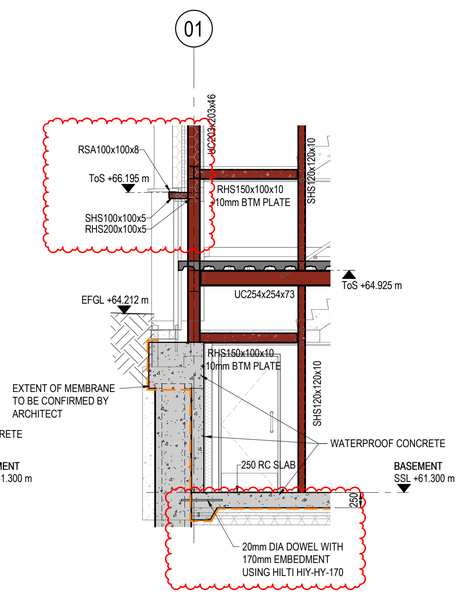
PERIMETER SECTION PS08

1 : 50



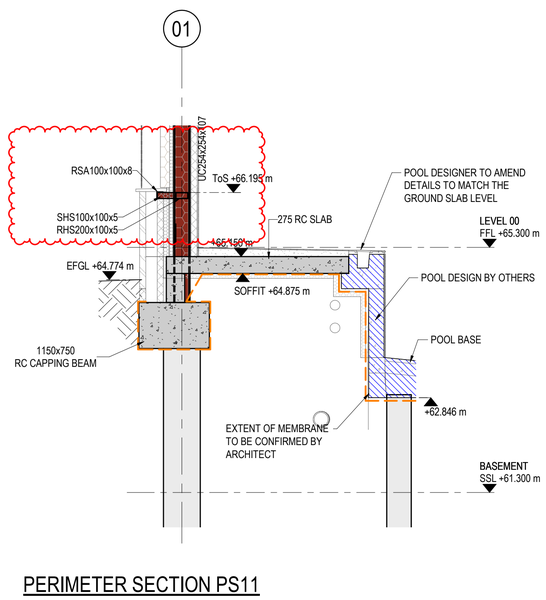
PERIMETER SECTION PS09

1 : 50



PERIMETER SECTION PS10

1 : 50



PERIMETER SECTION PS11

1 : 50

REV	DATE	DESCRIPTION	BY	APP
C02	30.04.2024	Masonry Support Updated, Basement Slab to Secant Pile Dowelled	CW	PT
C01	06.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P05	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P04	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P03	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P02	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT
P01	24.06.2022	STAGE 3 WORK IN PROGRESS FOR DESIGN CO-ORDINATION	CW	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

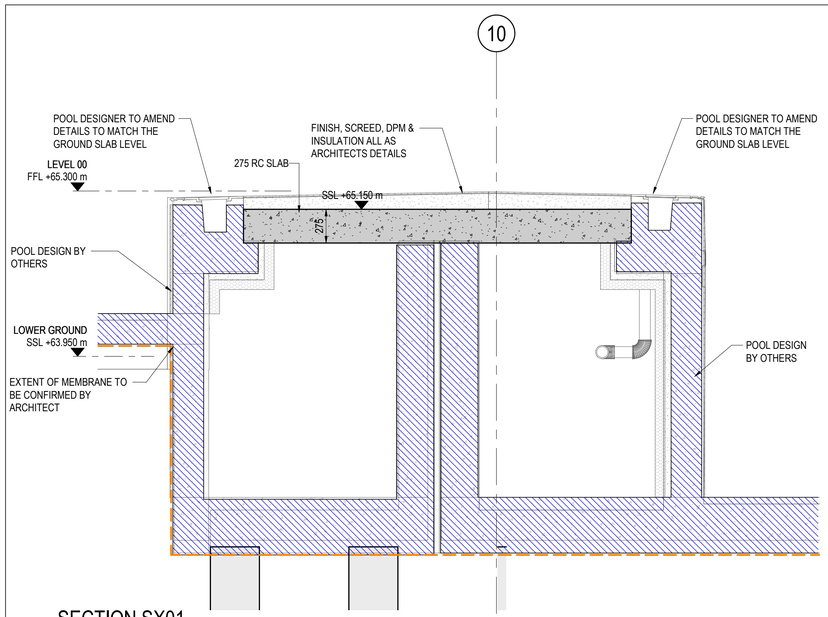
PROJECT: RADCLIFFE CIVIC HUB

TITLE: PERIMETER GROUND SECTIONS

STATUS:	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV:
S3	221-145	RADHUB-AJP- V4 - 00 - DR -	S	-				0210	C02

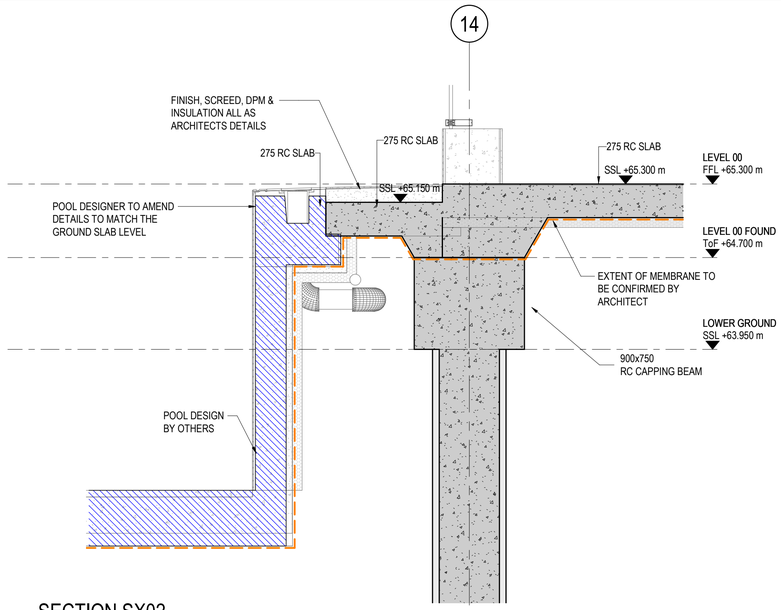
SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:50	F.Coupland	C.Webber	P.Tam	P.Tam	June 2022

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est. 1978
0151 227 1462 info@ajpltd.co.uk 1 Dale Street, Liverpool, L2 2ET



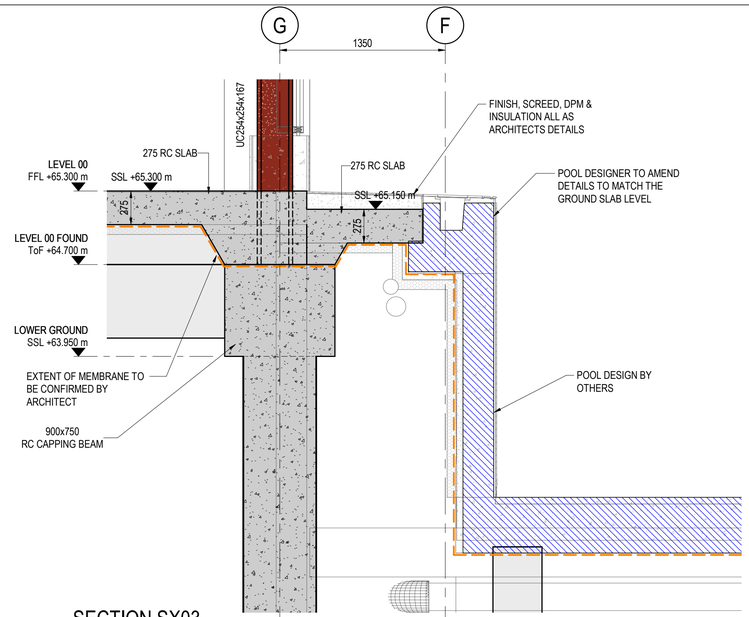
SECTION SX01

1 : 25



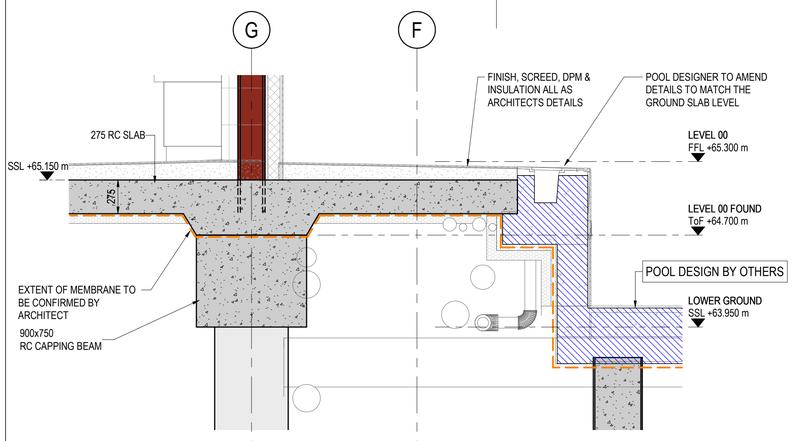
SECTION SX02

1 : 25



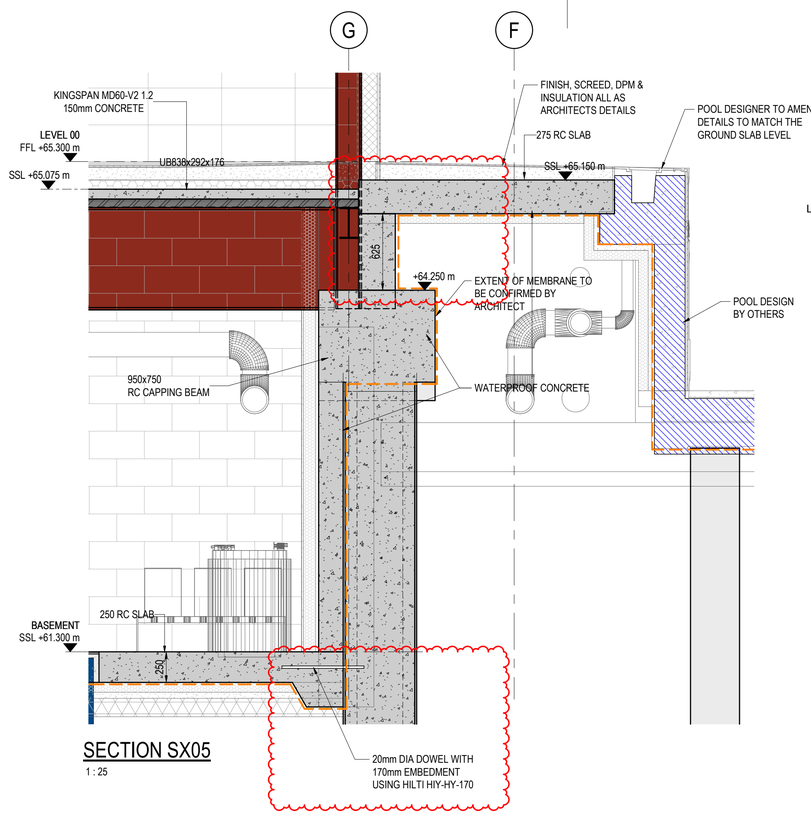
SECTION SX03

1 : 25



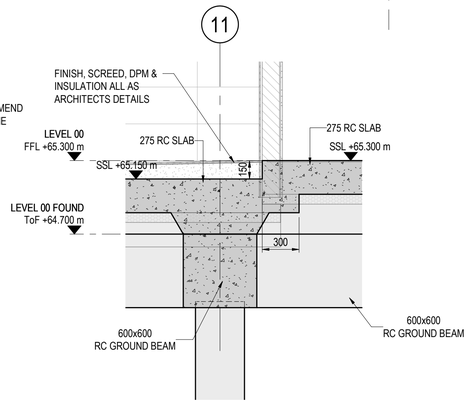
SECTION SX04

1 : 25



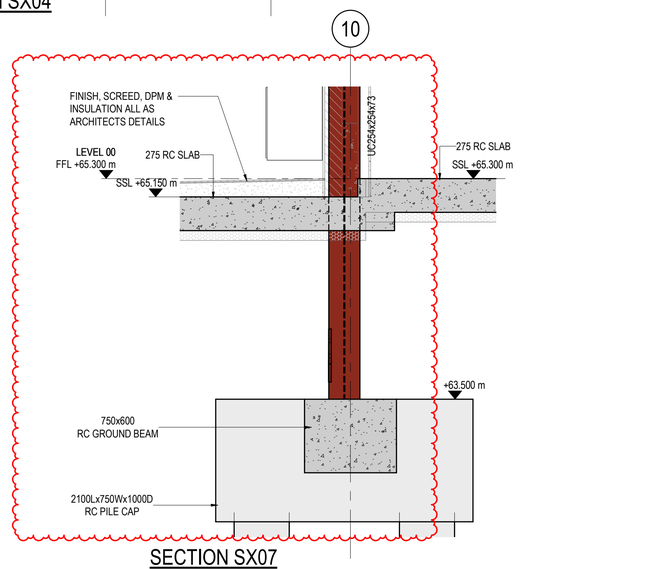
SECTION SX05

1 : 25



SECTION SX06

1 : 25



SECTION SX07

1 : 25

TEMPORARY SUPPORT MAY BE REQUIRED TO CONSTRUCT THE POOL STRUCTURE AS DESIGNED BY THE POOL DESIGNER. THIS WILL BE DESIGNED BY THE CONTRACTOR. AJP MAY ASSIST WITH THE ASSESSMENT OF LOADING, BUT THE RESPONSIBILITY FOR TEMPORARY WORK DESIGN REMAINS WITH THE CONTRACTOR.

REV	DATE	DESCRIPTION	BY	APP
C02	29.04.2024	Additional Sections added, 300mm RC Wall Added	CW	PT
C01	06.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P03	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P02	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P01	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

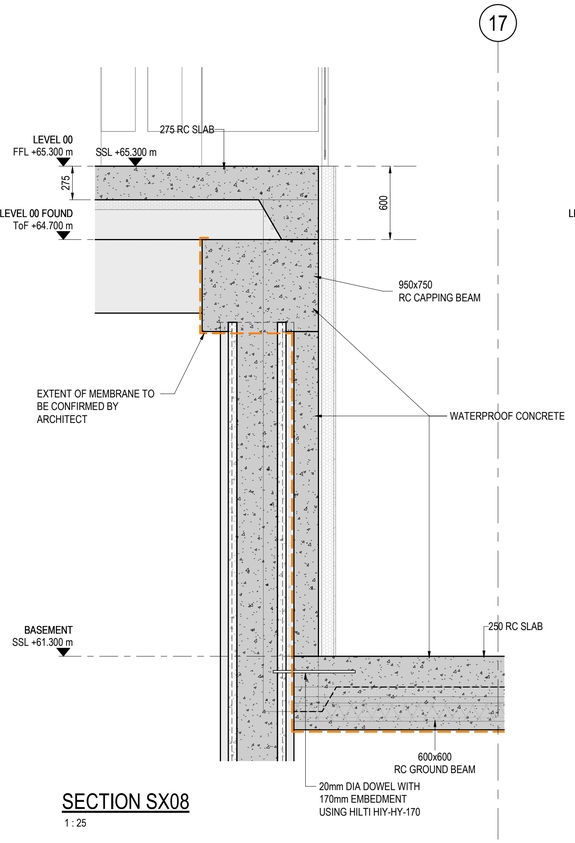
PROJECT: RADCLIFFE CIVIC HUB

TITLE: GROUND FLOOR DETAILS

STATUS:	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV:
S3	221-145	RADHUB-AJP- V4 - 00 - DR -						**S - 0211**	**C02**

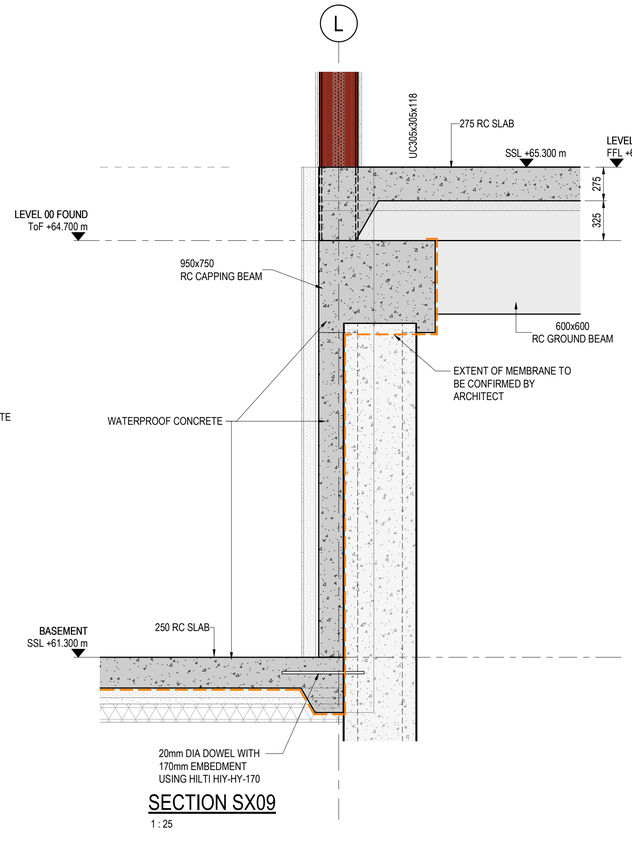
SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:20	F.Coupland	C.Webber	P.Tam	P.Tam	October 2022

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0151 227 1462 info@ajpltd.co.uk 91 Dale Street, Liverpool, L2 2ET



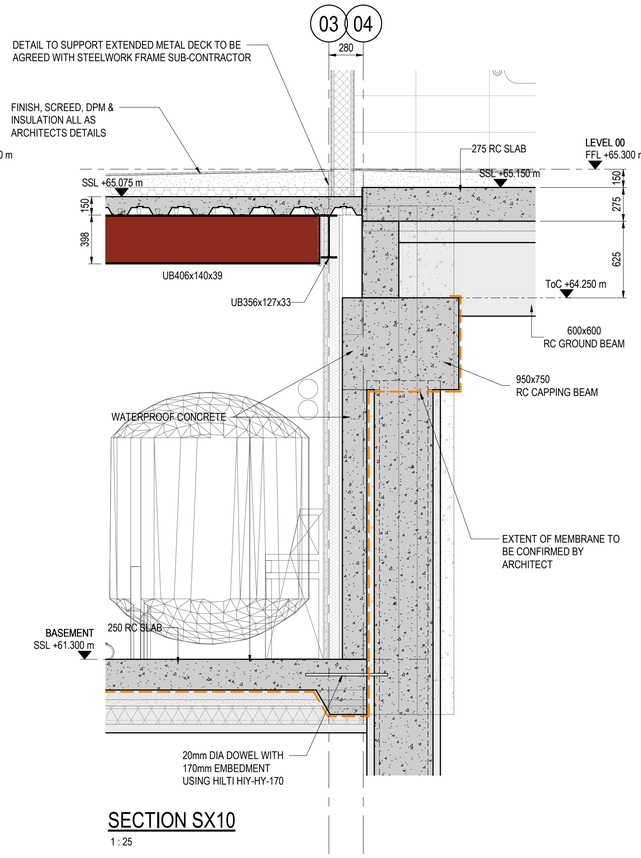
SECTION SX08

1 : 25



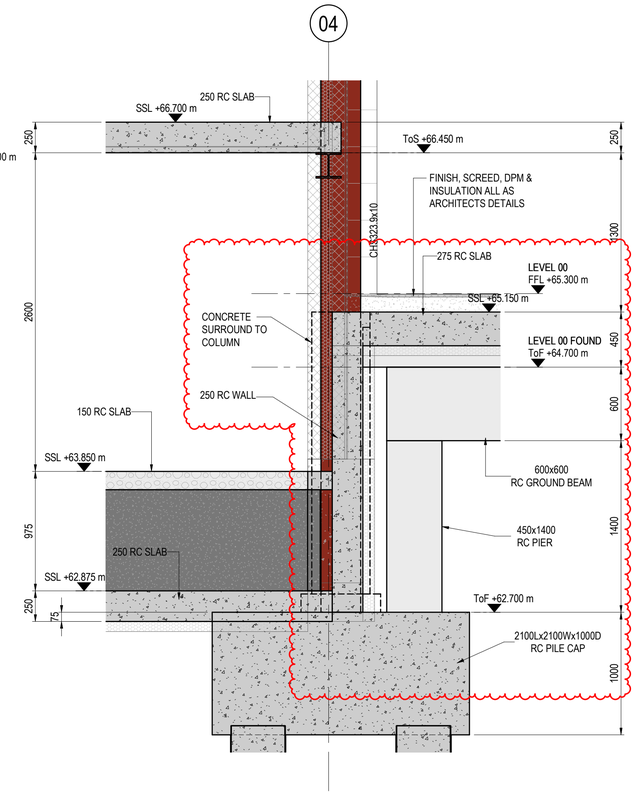
SECTION SX09

1 : 25



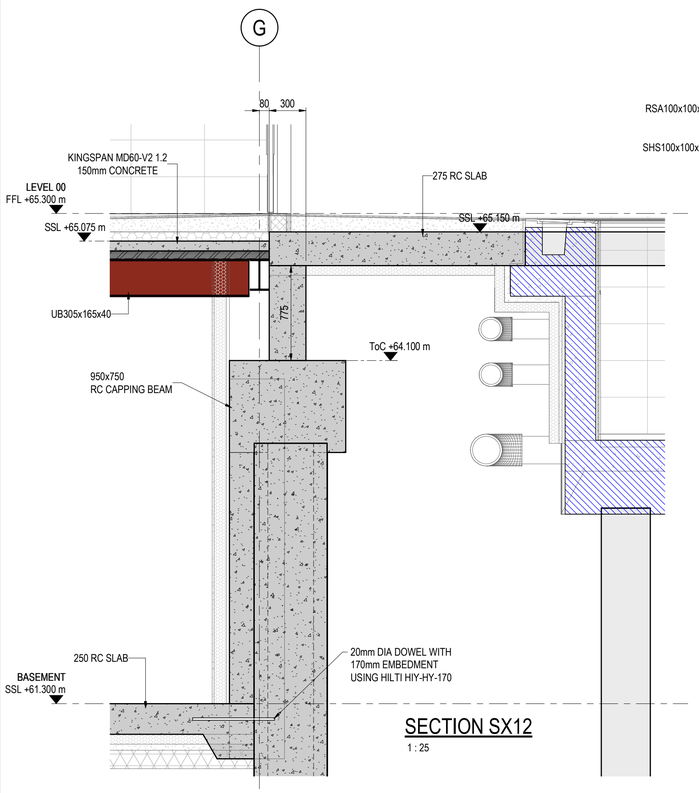
SECTION SX10

1 : 25



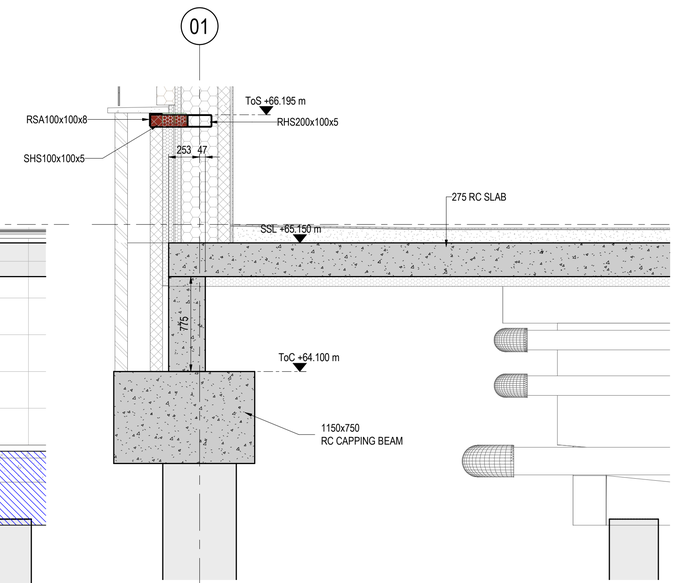
SECTION SX11

1 : 25



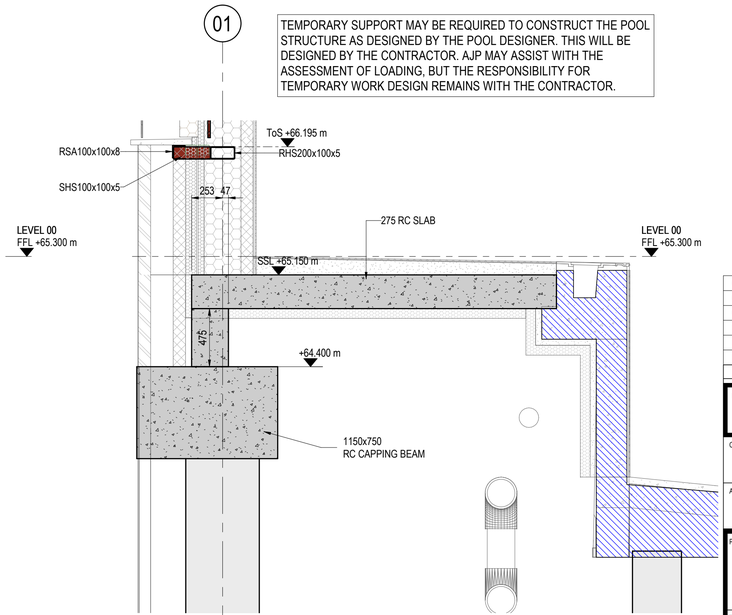
SECTION SX12

1 : 25



SECTION S13

1 : 25



SECTION SX14

1 : 25

REV	DATE	DESCRIPTION	BY	APP
C03	23.05.2024	Groundbeams Amended for column baseplates clashes	CW	PT
C02	29.04.2024	Additional Sections added, 300mm RC Wall Added	CW	PT
C01	06.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P03	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P02	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P01	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

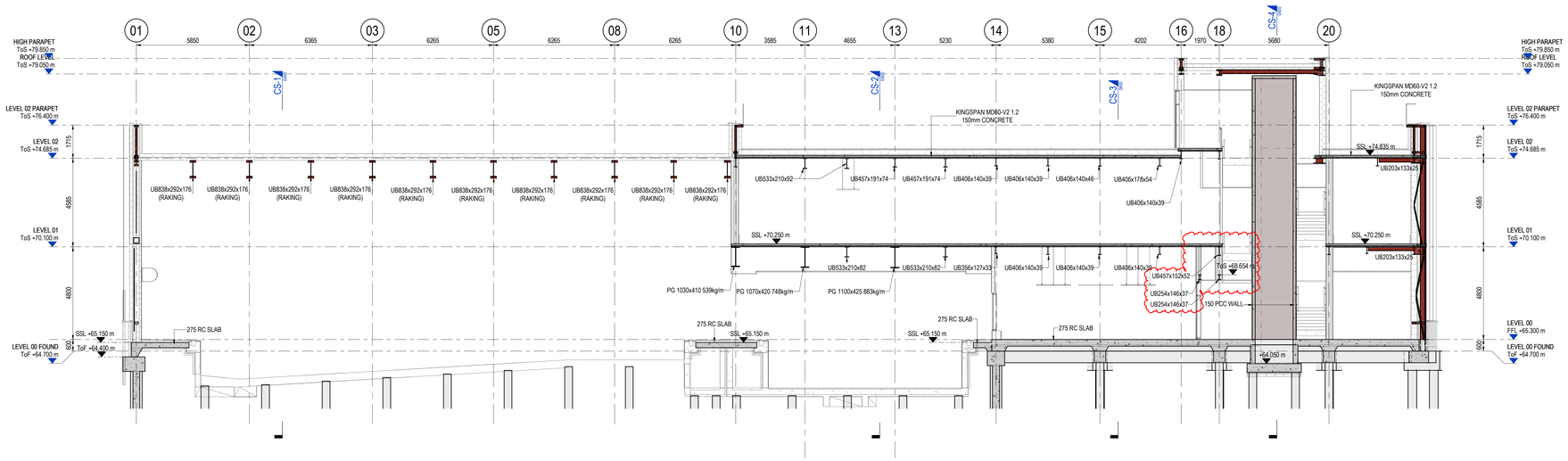
PROJECT: RADCLIFFE CIVIC HUB

TITLE: GROUND FLOOR DETAILS

STATUS:	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV:
S3	221-145	RADHUB-AJP- V4 - 00 - DR - S - 0212							C03

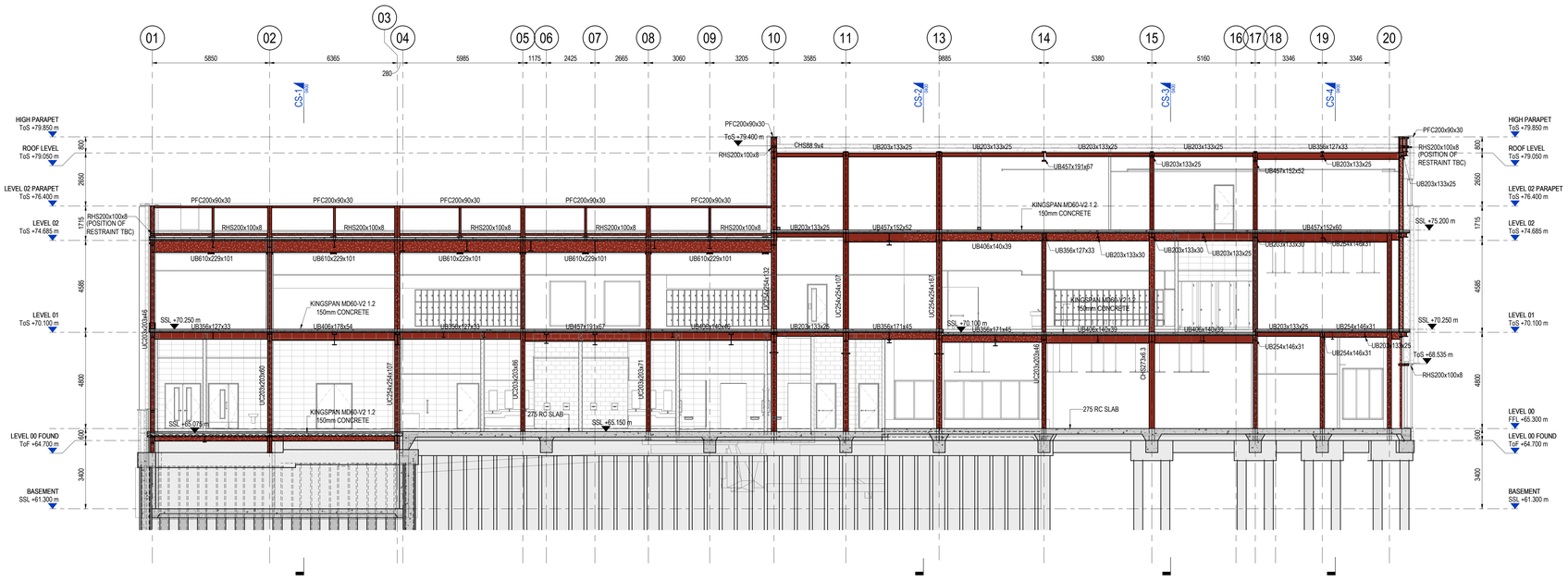
SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:20	F.Coupland	C.Webber	P.Tam	P.Tam	October 2022

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CROSS-SECTION 5 - 5

1 : 100



CROSS-SECTION 6 - 6

1 : 100

Column Schedule	
Column Ref	Type
C01	CHS193.7x5
C02	CHS219.1x6.3
C03	CHS219.1x8
C04	CHS219.1x10
C05	CHS219.1x12.5
C06	CHS244.5x16
C07	CHS273x6.3
C08	CHS273x12.5
C09	CHS323.9x6.3
C10	CHS323.9x8
C11	CHS323.9x10
C12	CHS323.9x12.5
C13	SHS80x80x6.3
C14	SHS100x100x5
C15	SHS120x120x10
C16	SHS150x150x10
C17	SHS250x250x8
C18	UC203x203x46
C19	UC203x203x52
C20	UC203x203x60
C21	UC203x203x71
C22	UC203x203x86
C23	UC254x254x73
C24	UC254x254x89
C25	UC254x254x107
C26	UC254x254x132
C27	UC254x254x167
C28	UC305x305x97
C29	UC305x305x118
C30	UC152x152x30

GENERAL NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS, ARCHITECTS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
2. ALL RELEVANT DIMENSIONS TO BE OBTAINED/CHECKED AGAINST ARCHITECTS DRAWINGS AND BY SITE MEASUREMENT PRIOR TO THE COMMENCEMENT OF WORKS OR ORDERING OF MATERIALS. DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS TO BE NOTIFIED TO THE ENGINEER.
3. DO NOT SCALE FROM THIS DRAWING.
4. ALL STRUCTURAL WORKS TO BE CARRIED OUT STRICTLY IN ACCORDANCE WITH THE DETAILS GIVEN BY THE ALAN JOHNSTON PARTNERSHIP LLP. THE ENGINEER IS TO BE ADVISED OF ANY SIGNIFICANT VARIATION PRIOR TO IT'S IMPLEMENTATION.
5. SETTING-OUT OF WALLS TO BE IN ACCORDANCE WITH LATEST RELEVANT ARCHITECT'S DRAWING.
6. MATERIALS OR WORKMANSHIP NOT COMPLYING WITH THE ENGINEERS DRAWINGS AND SPECIFICATION SHALL BE DEEMED UNACCEPTABLE AND REMOVED FROM SITE AND REPLACED WITH WORK CORRECTLY MANUFACTURED, DELIVERED AND ERECTED.
7. THE SYMBOLS REPRESENTED ON THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH BS 8541-2.

REV	DATE	DESCRIPTION	BY	APP
C02	27.02.2024	Steelwork Added @ +69.654m	CW	PT
C01	14.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P08	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P07	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P06	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P05	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT
P04	24.06.2022	STAGE 3 WORK IN PROGRESS FOR DESIGN CO-ORDINATION	CW	PT
P03	10.06.2022	FOR INFORMATION & CO-ORDINATION	CW	PT
P02	26.01.2022	UPDATED RIBA STAGE 2 SCHEME	CW	PT
P01	07.12.2021	RIBA STAGE 2 (CONCEPT DESIGN)	CW	PT

DRAWING STATUS: **CONSTRUCTION**

CLIENT: BURY COUNCIL

ARCHITECT: POZZONI

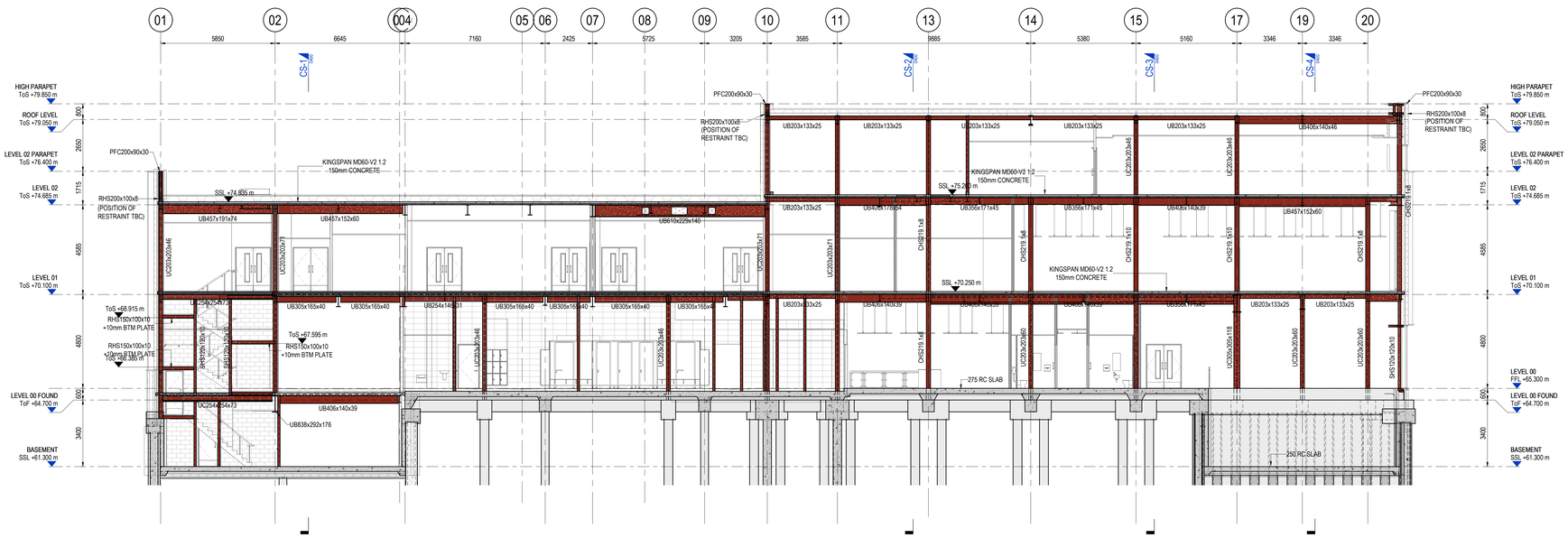
PROJECT: RADCLIFFE CIVIC HUB

TITLE: BUILDING SECTIONS Sheet 2 of 3

STATUS	PROJECT No.	PROJECT	ORGN.	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV.
S3	221-145	RADHUB-AJP- V4 - ZZ - DR -	S	-	0401				C02

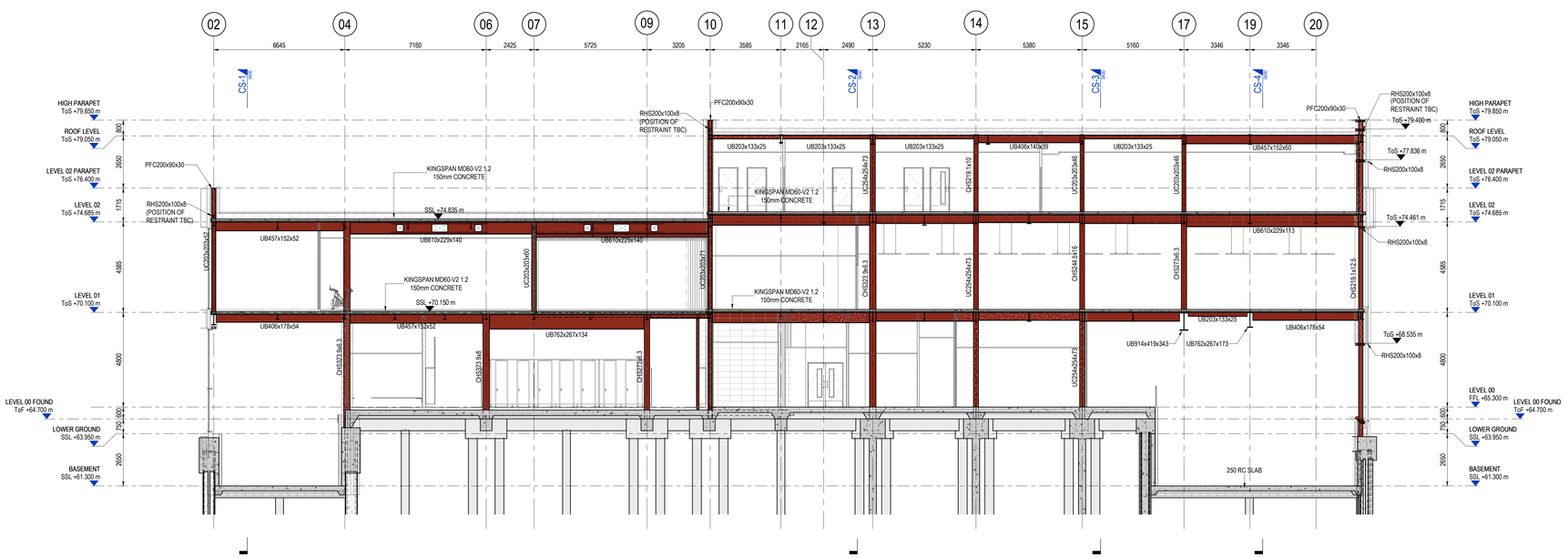
SCALE @ A0	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:100	F.Coupland	C.Webber	P.Tam	P.Tam	December 2021

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CROSS-SECTION 7 - 7

1 : 100



CROSS-SECTION 8 - 8

1 : 100

Column Schedule	
Column Ref	Type
C01	CHS193.7x5
C02	CHS219.1x6.3
C03	CHS219.1x8
C04	CHS219.1x10
C05	CHS219.1x12.5
C06	CHS244.5x16
C07	CHS273x6.3
C08	CHS273x12.5
C09	CHS323.9x6.3
C10	CHS323.9x8
C11	CHS323.9x10
C12	CHS323.9x12.5
C13	SHS80x80x6.3
C14	SHS100x100x5
C15	SHS120x120x10
C16	SHS150x150x10
C17	SHS250x250x8
C18	UC203x203x46
C19	UC203x203x52
C20	UC203x203x60
C21	UC203x203x71
C22	UC203x203x86
C23	UC254x254x73
C24	UC254x254x89
C25	UC254x254x107
C26	UC254x254x132
C27	UC254x254x167
C28	UC305x305x97
C29	UC305x305x118

REV	DATE	DESCRIPTION	BY	APP
C01	14.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P04	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P03	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P02	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P01	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT

DRAWING STATUS:

CONSTRUCTION

CLIENT:

BURY COUNCIL

ARCHITECT:

POZZONI

PROJECT:

RADCLIFFE CIVIC HUB

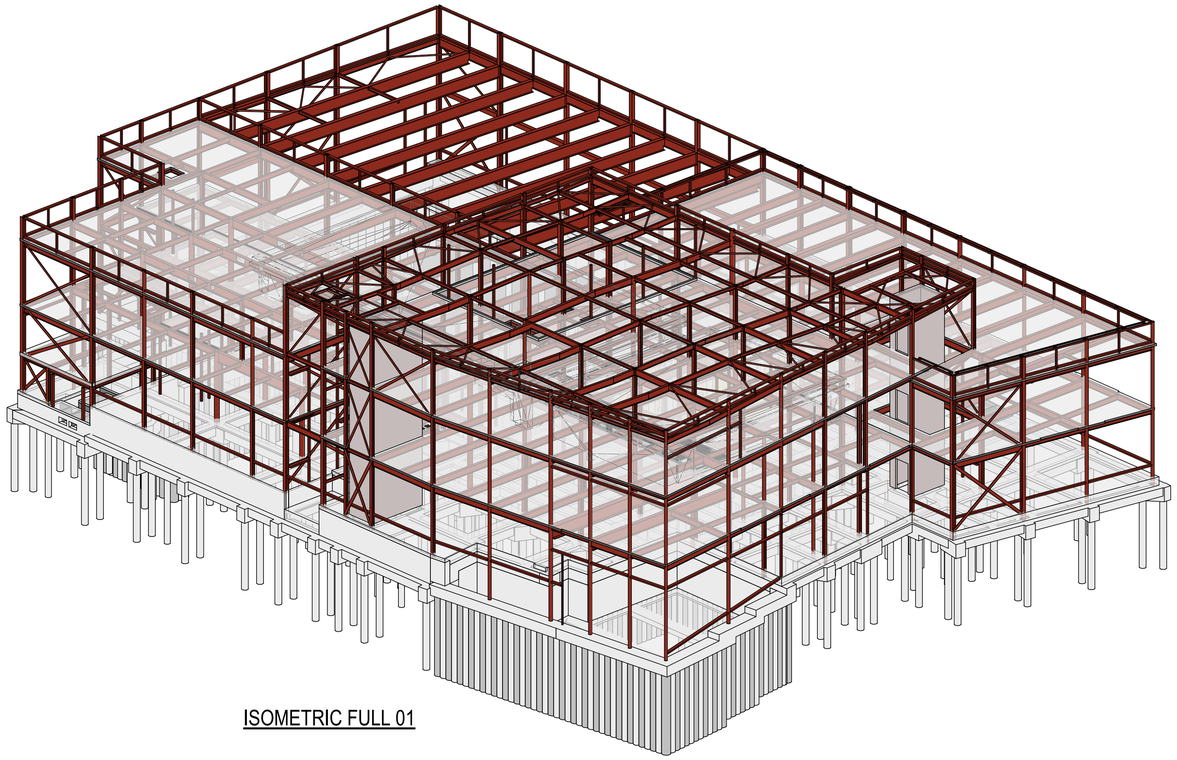
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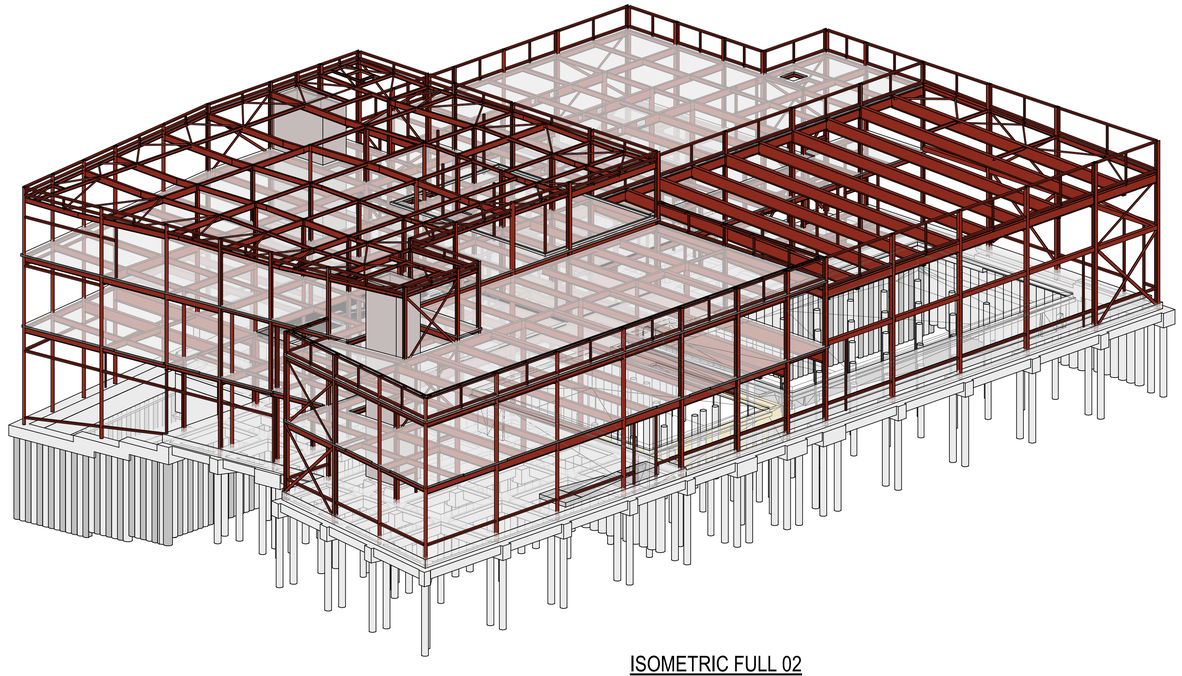
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1:100	F.Coupland	C.Webber	P.Tam	P.Tam	September 2022

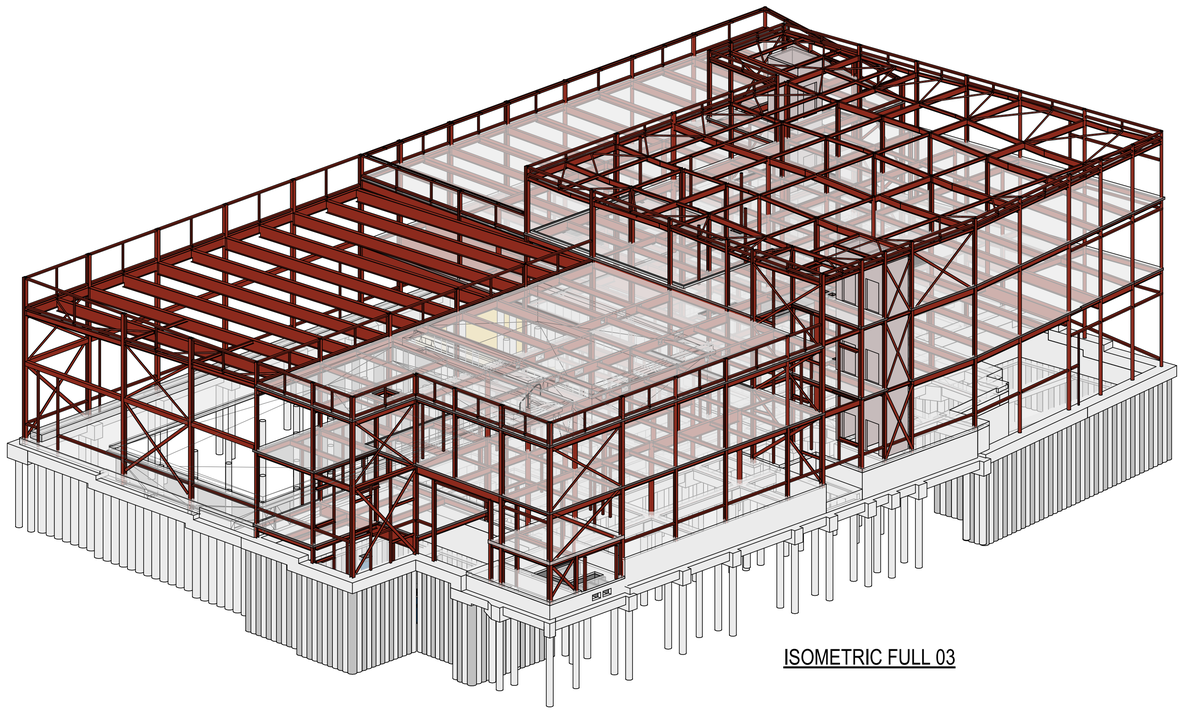
AJP consulting engineers
0151 227 1462 info@ajpltd.co.uk 91 Dale Street, Liverpool, L2 2ET



ISOMETRIC FULL 01



ISOMETRIC FULL 02



ISOMETRIC FULL 03

REV	DATE	DESCRIPTION	BY	APP
C01	14.02.2024	RIBA STAGE 5 (CONSTRUCTION)	CW	PT
P08	18.05.2023	RIBA STAGE 4 (TECHNICAL DESIGN)	CW	PT
P07	27.01.2023	RIBA STAGE 3+ (SPATIAL COORDINATION)	CW	PT
P06	21.10.2022	RIBA STAGE 3 (SPATIAL COORDINATION)	CW	PT
P05	15.09.2022	RIBA STAGE 3+ (DEVELOPED DESIGN)	KB	PT
P04	24.06.2022	STAGE 3 WORK IN PROGRESS FOR DESIGN CO-ORDINATION	CW	PT
P03	10.06.2022	FOR INFORMATION & CO-ORDINATION	CW	PT
P02	25.01.2022	UPDATED RIBA STAGE 2 SCHEME	CW	PT
P01	07.12.2021	RIBA STAGE 2 (CONCEPT DESIGN)	CW	PT

DRAWING STATUS:

CONSTRUCTION

CLIENT:

BURY COUNCIL

ARCHITECT:

POZZONI

PROJECT:

RADCLIFFE CIVIC HUB

TITLE:

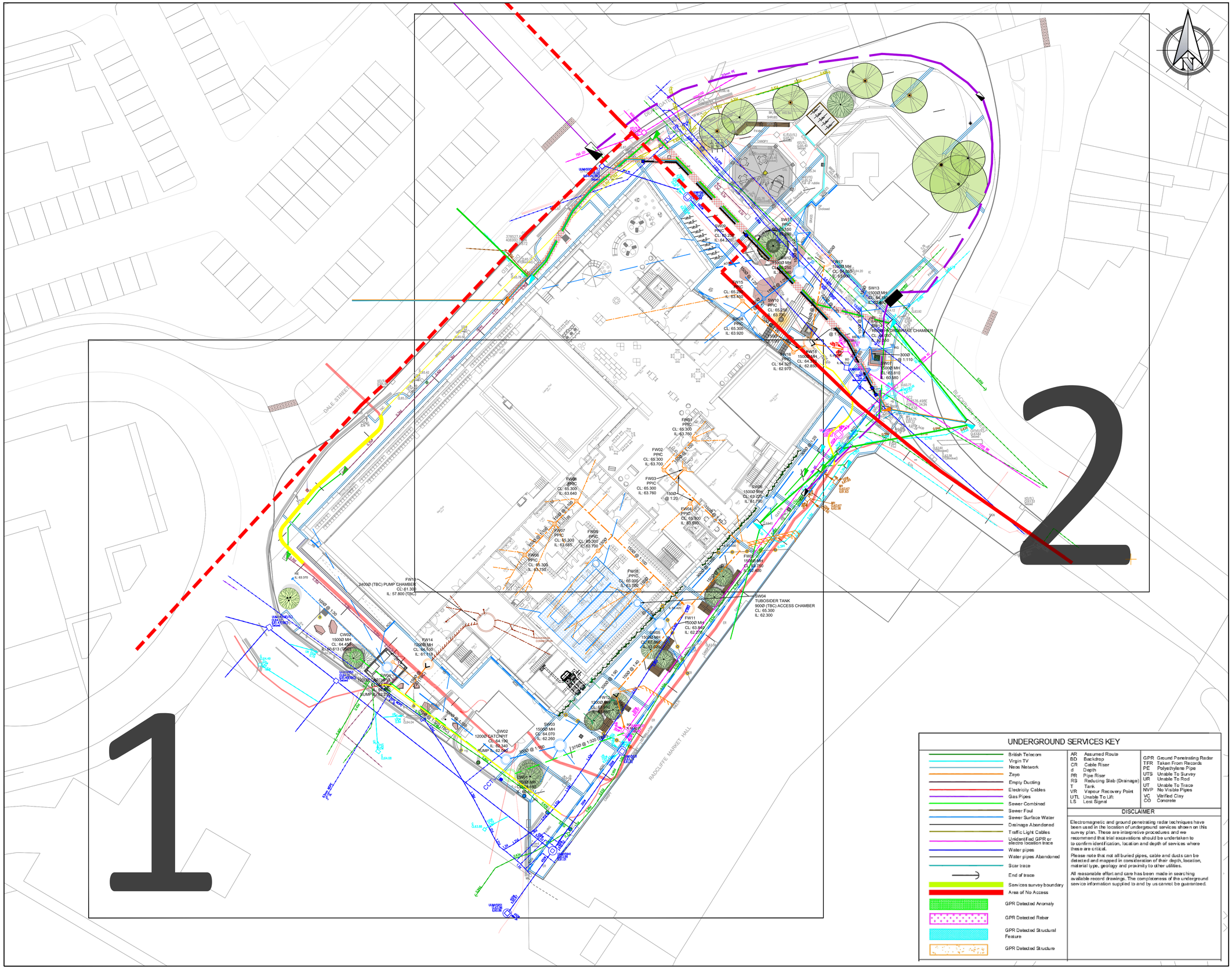
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SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
N.T.S.	F.Coupland	C.Webber	P.Tam	P.Tam	December 2021

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NOTES:
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PRELIMINARY

KEY	
OPENREACH EXISTING	
OPENREACH PROPOSED	
VIRGIN MEDIA EXISTING	
VIRGIN MEDIA PROPOSED	
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ZAYO GROUP PROPOSED	
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VIRGIN MEDIA PROPOSED CHAMBER	
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OPENREACH EXISTING CHAMBER	
OPENREACH PROPOSED CHAMBER	
AMEON UTILITIES MULTI DISCIPLINE TRENCH	
CADENT LP GAS EXISTING	
CADENT DIVERTED LP GAS	
ENWL EXISTING CABLES	
ENWL DIVERTED CABLES	

DRAINAGE LEGEND

- PROPOSED SURFACE WATER MANHOLE
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BD	Backdrop	TFR	Taken From Records
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T	Tank	NVP	No Visible Pipes
VR	Vapour Recovery Point	VC	Vitrified Clay
UTL	Unable To Lift	CO	Concrete
LS	Lost Signal		

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All reasonable effort and care has been made in searching available record drawings. The completeness of the underground service information supplied to and by us cannot be guaranteed.

Client

VINCI CONSTRUCTION UK LIMITED

ameon
Utilities Engineering

Ameon Utilities
Olympic Court, Boardmans Way,
Whitehills Business Park, Blackpool, FY4 5GU
Tel: 01253 760160
E-mail: info@ameon.co.uk

Job Title

RADCLIFFE CIVIC HUB

Drawing Title

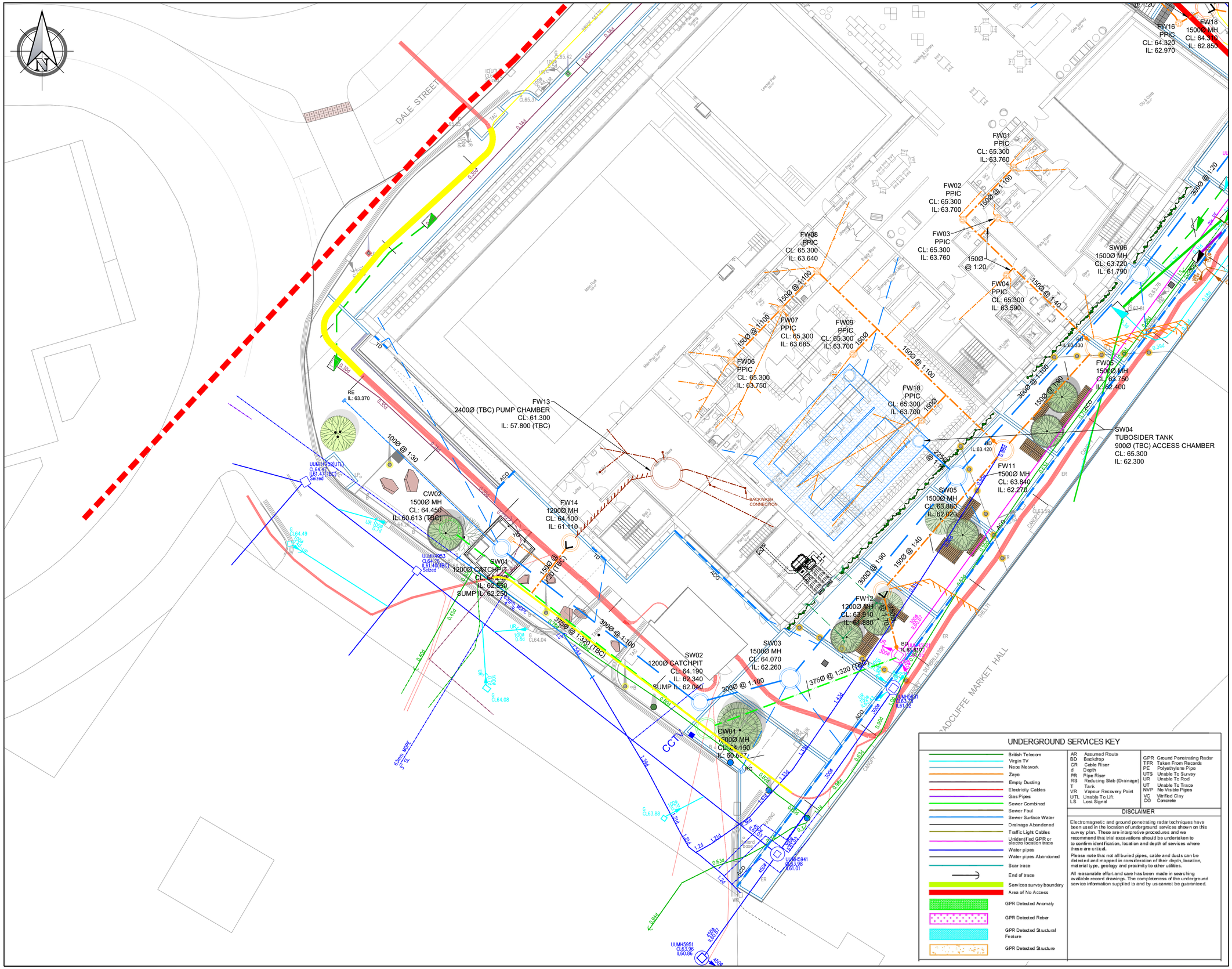
MULTI UTILITY COORDINATION
(AREA OVERVIEW)
(SHEET 1 OF 3)

Scale	Designed by
1:250 @ A1	KB
Date	**Drawn by**
FEBRUARY 2023	KB

4P ref
RADHUB-AUL-ZZ-XX-DR-X-1000

Drawing Number	Revision
AU/1942/MU002	P05

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HV 11kV PROPOSED	
EARTH PROPOSED	
INSULATED EARTH PROPOSED	
SHORT CAP END/EARTH ROD	
BOTTLE END	
DUCTED CABLE	
POINT OF CONNECTION	

DRAINAGE LEGEND

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Job Title

RADCLIFFE CIVIC HUB

Drawing Title

MULTI UTILITY COORDINATION
(AREA 1)
(SHEET 2 OF 3)

Scale	Designed by
1:150 @ A1	KB
Date: FEBRUARY 2023	Drawn by: KB

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RADCLIFFE CIVIC HUB

Drawing Title

MULTI UTILITY COORDINATION
(AREA 2)
(SHEET 3 OF 3)

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Appendix D

Ground Investigation Report

iD GeoEnvironmental Limited

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North East & Yorkshire
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North Yorkshire, DL10 5HG
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GEOENVIRONMENTAL APPRAISAL

of land at

RADCLIFFE HUB, RADCLIFFE

Prepared for

BURY COUNCIL

Report No. 5238-G-R001

Date: August 2022

EXECUTIVE SUMMARY

ID Geoenvironmental Limited (IDG) have been commissioned by Bury Council (The Client) to undertake a Geoenvironmental Appraisal of land at Radcliffe Hub, Radcliffe. A third party, Vinci Construction UK Limited (Vinci), have been appointed by Bury Council as the Design & Build Contractor for the proposed development.

The proposed project comprises the construction of a three-storey leisure and community centre that will include a lower ground floor level (i.e. basement). The centre is to include a swimming pool, climbing wall, fitness suite, library and community rooms. Vinci have indicated the new building will be constructed with piled foundations.

IDG's investigation included a review of an Ove Arup & Partners' desk study report, a coal mining assessment and a ground investigation comprising four window sample boreholes and three rotary boreholes accompanied by chemical and geotechnical testing.

A summary of salient geoenvironmental issues is provided in the following table.

Issue	**Remarks**
Ground Conditions	Made Ground between 0.6m – 1.8m thick is present across the site with several below ground obstructions associated with former buildings encountered during the investigation. Glaciofluvial Sheet Deposits typically comprising low shear strength brown sandy gravelly clay underlain by medium dense grey gravelly sand were encountered directly beneath the Made Ground and were proven to depths ranging between 3.0m to 5.2m bgl. Geotechnical testing indicates that cohesive Glaciofluvial Sheet Deposits at the site should be regarded as being of medium volume change potential. Pennine Middle Coal Measures (PMCM) bedrock comprising grey to dark grey thinly laminated Mudstone with extremely variable rock mass characteristics was encountered at depths ranging from 3.0m bgl to 5.2m bgl and were proven to a maximum depth of 18.0m in BH07. A thin band of coal was encountered in BH06 at a depth of 13.2-13.3m.
Mining	Seven coal seams have been worked beneath the site from a depth of 103-486m with the Coal Authority commenting that there is no risk of probable unrecorded shallow mineworkings beneath the site. The possibility of unrecorded shallow mine workings beneath the site has been discounted.
Hazardous Gas	No significant risk from landfill or mines gas has been identified.
Radon	The site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level) and current Building Control Regulations do not require radon protection measures to be installed in new buildings. However, a radon assessment will be required after construction of the building which is likely to require the monitoring of radon in the building, therefore consideration should be given to the installation of basic radon protection measures during construction of the development to mitigate any potential issue upon completion of the building.
Contamination & Remediation	No significant pollutant linkages have been identified at the site and a Remediation Strategy should not be required by the Local Planning Authority. However, a dye works was present in the south of the site. Whilst no evidence of contamination associated with the dye works was encountered during the investigation, IDG recommend that a watching brief be provided by a Geoenvironmental Consultant during any excavations that occur within the footprint of the dye works during re-development on the site.
Foundations	Vinci have indicated the building will be constructed with piled foundations. Cohesive superficial deposits of medium volume change potential are present at the site and it is recommended that the potential for negative skin friction is considered in the design of the piles. PMCM bedrock lies at depths of between 3.0m and 5.2m bgl beneath the site and has extremely variable rock mass characteristics. The PMCM bedrock was observed to be highly weathered with several thin bands within the strata noted to have weathered to a clay. Average UCS values indicate the PMCM bedrock in close proximity to a geological fault inferred to be present in the east the site should be classed as having very weak intact rock strength, with the bedrock located further away being classed as weak rock. Sub-surface concrete classification of DS-2, AC-2 considered appropriate for the Made Ground, Glaciofluvial Sheet Deposits and PMCM Mudstone. However, should piled foundations need to be extended to depths in excess of 13m in the vicinity of BH06, or evidence of coal seams be encountered during the piling at the development then consideration should be given to increasing the sub-surface concrete classification to DS-5, AC-5m. Calorific value testing of the PMCM strata recorded values above 7.0MJ/kg in several samples which indicate they may present a risk of spontaneous combustion. IDG recommend the piling contractor are provided with a copy of this report in order to determine if any precautionary measures are required to mitigate the risk of spontaneous combustion of the PMCM strata during piling.

This brief summary should not be assumed to represent a complete account of all the potential geo-environmental issues that may exist at the site. As such it is strongly recommended that the report be read in its entirety.

Issue	Remarks
Groundwater	A shallow groundwater body present within the Glaciofluvial Sheet Deposits rests at depths of between 1.33m bgl (BH06) and 4.15m bgl (WS02) and its piezometric surface falls from the north of the site to the southwest of the site. A deeper groundwater body in the PMCM in BH07 is under sub-artesian pressure and resting at a level approximately 1.0m above the top of the PMCM at elevations of between 60.93 – 60.97m AOD. This is approximately 0.3-0.4m below the proposed floor level of the basement at the development (61.3m AOD). IDG recommend the well installed in BH07 be decommissioned (i.e. removed and grouted up) as part of the preparatory works for the site.
Excavations	Excavations in the Granular Glaciofluvial Sheet Deposits are likely to be unstable and running sand should be anticipated. Allowance should be made for difficult digging for any excavations that extend into the PMCM bedrock. Groundwater within the PMCM bedrock at BH07 has been recorded at depths of between 3.16m – 3.20m bgl. Provision for groundwater control should be made for any deep excavations required during development.

The following further works are recommended:

- Decommissioning of BH07 during the preparatory works due to sub-artesian groundwater in the PMCM strata.
- Watching brief to be provided by a Geoenvironmental Consultant during any excavations that occur within the footprint of the former dye works buildings during the preparatory works at the site.

This brief summary should not be assumed to represent a complete account of all the potential geo-environmental issues that may exist at the site. As such it is strongly recommended that the report be read in its entirety.

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APPENDICES

Appendix A - Drawings

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5238-G-D001	Site Location Plan
5238-G-D002	Existing Site Features & Site Photographs
5238-G-D003	Historical Features Plan
5238-G-D004	Exploratory Hole Location Plan
RADHUB-PAL-VV-XX-DR-A-1105 Rev P03	Proposed Site Layout Plan
RADHUB-POZ-V4-B1-DR-A-1201 Rev P07	Lower Ground Floor Plan
RADHUB-POZ-V4-ZZ-DR-A-1400 Rev P04	Proposed Sections – Sheet 1 of 2
RADHUB-POZ-V4-ZZ-DR-A-1401	Proposed Sections – Sheet 2 of 2

Appendix B - Historical OS Plans

Appendix C - Search Responses & Desk Study Data

From	Date	Content
Landmark	22/11/21	Environmental Search Response
Coal Authority	22/11/21	Coal Mining Report
BGS	13/7/22	Radon Report

Appendix D - Exploratory Records

Appendix E - Contamination Analysis & Chemical Test Results

Appendix F - Geotechnical Test Results

Appendix G – Groundwater Monitoring Records

Appendix H - General Notes

01	Environmental Setting
02	Ground Investigation Fieldwork
03	Geotechnical Testing
04	Contamination Laboratory Analysis & Interpretation (including WAC)
05	Hazardous Gas

Revision History

From	Date	Comments
5238-G-R001	August 2022	Original Report

FOREWORD

(Geoenvironmental Appraisal Report)

This report has been prepared for the sole internal use and reliance of the Client named on page 1. This report shall not be relied upon or transferred to any other parties without the express written authorisation of ID Geoenvironmental Limited (IDG); such authorisation not to be unreasonably withheld. If any unauthorised third party comes into possession of this report, they rely on it at their peril and the authors owe them no duty of care and skill.

The report presents observations and factual data obtained during our site investigation, and provides an assessment of geoenvironmental issues with respect to information provided by the Client regarding the proposed development. Further advice should be sought from IDG prior to significant revision of the development proposals.

The report should be read in its entirety, including all associated drawings and appendices. IDG cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

The findings and opinions conveyed in this report (including review of any third party reports) are based on information obtained from a variety of sources as detailed within this report, and which IDG believes are reliable. All reasonable care and skill has been applied in examining the information obtained. Nevertheless, IDG cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

The report represents the findings and opinions of experienced geo-environmental consultants. IDG does not provide legal advice and the advice of lawyers may also be required.

Intrusive investigation can only investigate shallow ground beneath a small proportion of the total site area. It is possible therefore that the intrusive investigation undertaken by IDG, whilst fully appropriate, may not have encountered all significant subsurface conditions. Consequently, no liability can be accepted for conditions not revealed by the exploratory holes. Any opinion expressed as to the possible configuration of strata between or below exploratory holes is for guidance only and no responsibility is accepted as to its accuracy.

It should be borne in mind that the timescale over which the investigation was undertaken may not allow the establishment of equilibrium groundwater levels. Particularly relevant in this context is that groundwater levels are susceptible to seasonal and other variations and may be higher during wetter periods than those encountered during this commission.

Where the report refers to the potential presence of invasive weeds such as Japanese Knotweed, or the presence of asbestos containing materials, it should be noted that the observations are for information only and should be verified by a suitably qualified expert.

This report assumes that ground levels will not change significantly from those existing at present. If this is not to be the case, then some modification may be required.

ID Geoenvironmental Limited cannot be responsible for the consequences of changing practices, revisions to waste management legislation etc that may affect the viability of proposed remediation options.

IDG reserve the right to amend their conclusions and recommendations in the light of further information that may become available.

GEOENVIRONMENTAL APPRAISAL

of land at

RADCLIFFE HUB, RADCLIFFE

1 INTRODUCTION

1.1 The Commission and Brief

1.1.1 ID Geoenvironmental Limited (IDG) have been commissioned by Bury Council (The Client) to undertake a Geoenvironmental Appraisal of land at Radcliffe Hub, Radcliffe, hereafter referred to as 'the site'. A third party, Vinci Construction UK Limited (Vinci) have been appointed by Bury Council as the Design & Build Contractor for the proposed development.

1.1.2 The principal objective of this phase of investigation is to identify salient geoenvironmental issues affecting the site.

1.1.3 Bury Council provided IDG with a copy of a Constraints Desk Study report (Ref. RAD-ARP-RP-CG-0001, Issue 2, dated April 2021) by Ove Arup & Partners Ltd (Arup). The scope of works for IDG's investigation was determined by the findings of the Arup report and comprised:

- Review of Arup's Constraints Desk Study Report
- Mining Risk Assessment
- Update of the preliminary conceptual site model and design of an intrusive investigation.
- An intrusive investigation comprising four window sampling boreholes and three rotary boreholes.
- Installation of monitoring wells and monitoring of groundwater levels over a six-month period.
- Undertaking a quantitative contamination risk assessment using generic assessment criteria.
- Identification of site development constraints and provision of recommendations for site remediation works.

1.2 The Proposed Development

1.2.1 It is understood that consideration is being given to redevelopment of the site with a three-storey leisure and community centre that will include a lower ground floor level (i.e. basement). The centre is to include a swimming pool, climbing wall, fitness suite, library and community rooms.

1.2.2 Drawing No. RADHUB-PAL-VV-XX-DR-A-1105 Rev P03 presented in Appendix A shows the extent of the proposed building with cross sections (Drawing No. RADHUB-POZ-V4-ZZ-DR-A-1400 Rev P04 & RADHUB-POZ-V4-ZZ-DR-A-1401) also presented in Appendix A that show the proposed floor elevations of the building and indicate the floor level of the basement will be at an elevation of 61.3m AOD.

1.2.3 Vinci have indicated that the new leisure and community centre will be constructed with piled foundations.

1.2.4 IDG have classified the proposed development as Geotechnical Category 2.

1.3 Report Format and Limitations

1.3.1 All standard definitions, procedures and guidance are contained within Appendix H, which includes background, generic information on:

- Assessment of the environmental setting of the site
- Ground investigation fieldwork
- Geotechnical Testing
- Contamination Testing
- Hazardous Gas

1.3.2 General notes and limitations relevant to all IDG investigations are described in the Foreword and should be read in conjunction with this report. The text of the report draws specific attention to any modification to these procedures and to any other special techniques employed.

2 SITE DESCRIPTION

2.1 General

2.1.1 The site location is shown on Drawing No. 5238-G-D001 presented in Appendix A. Site details are summarised in the following table.

Summary of Site Location Details

Location	Radcliffe town centre
NGR	378540, 406950
Approximate Area	0.73Ha

2.2 Site Features

2.2.1 An IDG Engineer completed a walkover survey of the site on 23rd November 2021. Existing site features together with a photographic record of the site at the time of the walkover survey are shown on Drawing No. 5238-G-D002 presented in Appendix A.

2.2.2 The site falls gently in elevation from north to south and comprises Radcliffe Market Hall, several commercial units and an open space in the north featuring a bandstand. An electrical transformer and substation is present along the southwest site boundary.

2.2.3 The site is bounded by Dale Street to the northwest, Church Street to the northeast, a car park for a Lidl superstore to the southwest and the River Irwell to the southeast.

2.2.4 IDG did not observe any signs of invasive vegetation such as Japanese Knotweed or Himalayan Balsam during the site walkover. However, it should be noted that IDG are not qualified ecologists and recommend that specialist ecological advice be sought prior to development.

3 PREVIOUS INVESTIGATION FINDINGS

3.1 General

3.1.1 The Client provided IDG with a copy of a Constraints Desk Study report for Radcliffe Town Centre (Report Ref. RAD-ARP-RP-CG-0001 Issue 2, dated April 2021) undertaken by Ove Arup & Partner Limited (Arup).

3.1.2 Arup's Desk Study report investigated two parcels of land located to the north and south of Dale Street referenced as the northern block and the southern block.

3.1.3 Comparison of the extent of the two blocks investigated in Arup's Desk Study indicates the area identified as the Southern Block in Arup's report has the same extent as the site to be investigated by IDG.

3.1.4 Pertinent desk study information relating to the site presented in Arup's report (i.e. the southern block) is presented below.

3.2 Site Features

- The market building and adjacent disused offices occupy the full river side elevation and are 2 to 3-storey brick structures. The basement underlies all sections of these buildings and the southern edge of this forms the river wall.
- The remainder of the site comprises a 3-storey brick clad commercial block with single storey to the rear, an external public realm area with seating. A covered bandstand area is situated in the north of the site.
- An electrical substation was noted on the southwestern corner of the commercial block.

- The River Irwell is situated immediately southeast of the site and flows from the northeast to the southwest.
- Ground level varies between 66.2m AOD in the north to 61.5m AOD in the south, and 64.8m AOD in the west to 64.2m AOD in the east.
- The basement of the market building was briefly accessed during the site visit where a number of structural defects were identified.

3.3 Environmental Setting

- The site is underlain by Glaciofluvial Sheet deposits comprising sand and gravel.
- Given the history of the site, Made Ground is expected across the entire site.
- Bedrock beneath the majority of the site is the Pennine Middle Coal Measures (PMCM) strata comprising mudstone, siltstone and sandstone. There is a NW-SE trending fault in the east of the site, which results in the Nob End Sandstone formation underlying the eastern part of the site.
- The PMCM is classified as a Secondary A Aquifer.
- There are no active licensed groundwater abstractions located within 1km of the site.
- The site is not within a groundwater Source Protection Zone.
- The Environment Agency flood risk mapping indicates the site is not located within an area at risk of river or coastal flooding, except for a small area just north of the market building on the corner of Blackburn Street.
- There are no landfills with an active licence within 500m of the site.
- The Environment Agency records show two historical landfills within 500m of the site:
  - an inert waste landfill located 183m west of the site, operated by Bury Council and licenced between March and May 1991.
  - landfill located 265m north of the site which was first recorded to operate from December 1974. The date the landfill ceased operating and the type of waste accepted are unknown.
- The presence of unrecorded areas of landfilling is unlikely within the site.

3.4 Mining

- There are nine records of ground workings within 500m of the site. The closest of these is Stand Lane Colliery, 139m southeast of the site, which was operational from 1874 to 1926.
- The closest surface mineral working was Scar Top, 227m northeast of the site which quarried sandstone.
- The site is not located within a Development High Risk Area.
- Groundsure Coal Mining report states “The property lies within the potential zone of influence of recorded workings in 7 seams of coal. The most recent underground working in the area was in 1900. These workings lie between 35m and 325m. Any ground movement due to this coal mining activity should have stopped”.
- Further evaluation of the seam depth will be required to mitigate the risk of the presence of shallow worked seams below the site.

3.5 Previous Site Investigations of Adjacent Site (Lidl Superstore)

3.5.1 Two phases of ground investigation were undertaken on land immediately southwest of the site, prior to the development of a new Lidl superstore.

Ian Farmer Associates (2015)

- Two window sample holes were drilled in January 2015 to depths of 1.36m bgl and 4.22m bgl.

LK Consult (2015)

- Additional geo-environmental assessment was undertaken later in 2015, this included:
  - Drilling of 9 window sample boreholes from 0.3 to 5.16m bgl
  - Drilling of 2 cable percussive boreholes from 4.2 to 6.36m bgl
  - Excavation of 5 hand excavated trial holes from 0.7 to 1.0m bgl
  - Standard penetration tests approximately every 1m in natural strata.
  - Installation of monitoring wells in 6 boreholes for gas monitoring and groundwater sampling.
- Ground conditions encountered were generally consistent and comprise Made Ground underlain by natural sand, sand and gravel and clay deposits. PMCM Mudstone bedrock was encountered in 5 locations between 3.5m bgl and 5.7m bgl.
- Made Ground was generally formed of a surface layer of hard surfacing (concrete, tarmac, block paving, and flagstones) over construction sub-base (yellow sand and gravel comprising limestone). This formed a layer up to 0.8m thick overlying slightly silty slightly clayey gravelly sand with frequent to occasional brick, ash, clinker, glass, concrete and coal fragments – areas of high clay content were noted within Made Ground.
- A weak hydrocarbon odour was identified in WS1 between 1.0m and 2.5m bgl and an in-situ measurement of volatile hydrocarbons detected a concentration of 0.9ppm in a soil sample collected from this location.
- Soft clays and loose sand, inferred to represent an alluvial deposit, was encountered beneath Made Ground in certain locations and ranged in thickness between 0.3 and 2m thick.
- A layer of medium to dense sand and gravel, inferred to represent a glaciofluvial sand and gravel deposit was encountered below the alluvial deposit (or Made Ground where alluvium was absent).
- Groundwater levels were recorded between 2.87m to 4.03m bgl.
- One sample of Made Ground identified elevated lead concentrations above generic human health risk assessment criteria for a commercial land use.
- Groundwater sampling did not identify elevated concentrations of contaminants.
- One exceedance of hexavalent chromium was identified in one leachate test.
- Maximum concentrations of 8.4%v/v carbon dioxide and 0.1%v/v methane were recorded and maximum flow was detected as 0.3l/h. LK Consult Ltd recommended installing gas protection in the new building.
- Groundwater was recorded in the Lidl investigation at a similar level to the River Irwell and it is therefore likely that groundwater is in continuity with the River Irwell.

3.6 Arup's Conceptual Site Model

3.6.1 Potential contamination sources identified in Arup's report are summarised below:

- Made Ground at the site may comprise demolition materials from past use of the site and may therefore contain asbestos, heavy metals, PAHs and potentially volatile and semi-volatile hydrocarbons.
- The soils below the electrical substation in the south of the site may have been impacted by leaks of transformer oil (a type of refined mineral oil) and coolant fluids which may contain polychlorinated biphenyls (PCB).
- Dye works may be a source of a range of possible contaminants including metals, inorganics, acids, solvents, pesticides, fungicides. However, given the age of the dye works which once occupied parts of the site the likelihood of many of these contaminants, in particular the volatile hydrocarbons, is considered to be low.
- The ground gas generating potential at the site is expected to be low and the ground gas regime at the site is likely to be very similar to the adjacent Lidl site.

3.7 IDG Comments

3.7.1 After review of Arup's Desk Study report IDG generally consider it to be a thorough and comprehensive assessment of the site's environmental setting and potential contamination sources. However, IDG consider the land use history, whilst acceptable for the site, is lacking detail regarding the surrounding area, as such IDG consider a further assessment of the site and surrounding area's historical land use should be undertaken. In addition, Arup's report does not make any comment regarding the aquifer status of the superficial deposits or the risk of radon gas at the site.

3.7.2 Section 3.5 of the Arup report states the need for further assessment of potential mining risks beneath the site, as such IDG consider a detailed assessment needs to be undertaken as part of IDG's Geoenvironmental Appraisal of the site.

3.7.3 IDG consider Arup's report to generally be acceptable, with further consideration of the following factors to be undertaken by IDG to ensure all elements of a Desk Study have been completed prior to undertaking intrusive investigation:

- Historical land use
- Aquifer status of the superficial deposits
- Radon gas risk
- Mining risk at the site

4 SITE HISTORY

4.1 Historical OS Maps

4.1.1 In order to investigate the development history and previous land uses at the site and immediate surrounding land, site centred extracts from Ordnance Survey (OS) plans dating back to 1848 were examined. These plans are presented in Appendix B.

4.1.2 The following table provides a summary of the salient points relating to the history of the site. Significant former uses/operations are highlighted in bold text for ease of reference.

Summary of Information from Historical Plans

Date(s)	Site	Surrounding Land
1848 (plan presented in Arup report)	Several small buildings present in the south of the site including a **dye works**. Road present in north and east of the site.	Numerous buildings present to north and east of the site. Open land to the southwest of the site. River Irwell forms the south-eastern boundary of the site.
1893	Two streets present on site, Foundry Street & Factory Street Numerous buildings present on site with the largest being a **Market Hall**	Irwell Mill (Cotton) with two small reservoirs located immediately south southwest of the site Irwell Preserve Works located on the opposite bank of the Irwell Cawdaw Works (dying) present 50m south of the site on the opposite bank of the River Irwell. Several streets and numerous small to large buildings present of the northwest and northeast of the site. Chemical works located 230m southeast of the site Iron works located 50m west of the site Seymour Works (Dying) with reservoir located 100m northeast of the site Several cotton mills located within 250m of the site Gas Works located 170m west of the site
1909	Several buildings and Factory Street in east of the site are no longer present, replaced by an open marketplace.	Circular feature, considered to be a gas holder constructed 125m west of the site Seymoor Works (cotton mill) recorded as being disused
1929	Row of buildings constructed in the east of the site	No significant changes in the surrounding area

Date(s)	Site	Surrounding Land
1937	Buildings in south of the site no longer present	Irwell Mill immediately southwest of the site has been demolished and replaced with a cinema. No other significant changes noted.
1956	Majority of buildings are no longer present. Majority of the site is now a **bus station**. Market Hall constructed along the eastern boundary of the site	Buildings immediately west of the site no longer present.
1970	Bus shelter and buildings in north of the site no longer present and replaced by several new buildings. Small rectangular Building in southwest of the site present (this is currently **an electricity substation**)	Many buildings to the north of the site have been demolished and have not been replaced Cinema just beyond the southwest boundary, no longer present and replaced with a bus station Gas works to the west of the site no longer present
1994-1995	No significant changes on site	Numerous roads and buildings to the south and southwest of the site no longer present and replaced with a new highway called Pilkington Way and several car parks

4.1.3 The approximate extents of buildings shown to be present on site on the 1848 and 1893 OS plans are shown on Drawing No. 5238-G-D003 presented in Appendix A.

5 SUPERFICIAL DEPOSITS

5.1 Aquifer Status

5.1.1 Review of the Envirocheck report presented in Appendix C indicates the superficial deposits at the site are classed as a Secondary A Aquifer.

6 RADON GAS

6.1 Radon Report

6.1.1 IDG purchased a site specific radon report for the site from the BGS which is included in Appendix C. Review of the report indicates the site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level) with the report also stating that no radon protective measures are required for new buildings at the site.

6.1.2 However, on consideration of the type of building to be constructed, employers must ensure the health and safety of employees and others who have access to their work environment and BRE document BR211:2015 notes that an assessment of health and safety risks under national regulations should include radon where the workplace is in a radon-affected area, or in any location where there is a basement that is regularly occupied, with both of these scenarios applying to the site. This assessment would likely require the monitoring of radon in the building post construction, therefore consideration should be given to the installation of basic radon protection measures during construction of the development to mitigate any potential radon gas issue upon completion of the building.

7 MINING RISK ASSESSMENT

7.1 Geology

1:50,000 Scale Plan

7.1.1 BGS Sheet 85 depicts the site to be underlain by Glaciofluvial Sheet Deposits with the bedrock beneath the site comprising PMCM strata.

1:10,560 Scale Plan

7.1.2 Sheet SD70NE, a partially completed plan from the BGS, shows a fault crossing in the northeast of

the site, trending northwest-southeast. The downthrow is to the east. The amount of throw is not stated.

7.1.3 The approximate location of the fault is shown on Drawing No. 5238-G-D004 presented in Appendix A.

7.2 Coal Mining Information

Coal Authority Interactive Map

7.2.1 Inspection of available information for the site presented on The Coal Authority's online website identifies the following:

- The site is not located in a development high risk area.
- There are no coal outcrops beneath the site.
- The site is not located in an area of past shallow coal mine workings.
- The site is not in an area where there is probable shallow coal mine workings.

Arup Information

7.2.2 Arup's report identifies the disused Stand Lane Colliery located 140m southeast of the site.

Coal Authority Consultants Report

7.2.3 A Coal Authority Consultants Report for the site purchased by IDG indicates the following:

- Seven coal seams worked beneath the site from 103-468m with the last seam worked in 1900.
- No mine entries onsite or within 100m of the site.
- Probable unrecorded shallow mineworkings beneath the site stated as none.
- No coal outcrops located beneath the site.
- Geological fault indicated to cross the site in a northwest/southeast trend in the north of the site.
- No recorded mine gas within 500m of the site.
- The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31st October 1994.

7.3 BGS Borehole Records

7.3.1 Records have been obtained from the BGS for the exploratory holes shown in the table below.

BGS Borehole Records

BGS BH Ref.	Date	Location	Final Depth (m)	Summary of Strata Encountered
SD70NE75/D	May - 1972	71m N	7.62	0.0 – 2.13m – Made Ground 2.13 – 3.67m – Clayey SAND 3.67 – 7.62m – SHALE & SANDSTONE
SD70NE75/C	May - 1972	75m N	7.62	0.0 – 1.07m – MADE GROUND 1.07 – 3.3m – SAND 3.35 – 7.62m – SANDSTONE
SD70NE30	Unknown	252m E	83.82	0.0 – 1.22m – MADE GROUND 1.22 – 3.96m – SAND & GRAVEL 3.96 – 65.84m – MARL 65.84 – 83.82m – SANDSTONE

7.4 Coal Mining Assessment

7.4.1 The Coal Authority's Consultants report purchased by IDG identifies seven coal seams have been worked beneath the site from a depth of 103-486m. The depths stated in the Coal Authority report are different from those stated in Arup's report which notes seven seams have been worked at a depth of 35-325m beneath the site. The difference in the depth of worked seams is attributed to the geology beneath the 'Northern Block' of Arup's investigation.

7.4.2 The risk of probable unrecorded shallow mineworkings beneath the site is stated in the Coal Authority report to be none. Support for this comment is provided from the geology recorded in BGS boreholes and the investigation undertaken for the adjacent Lidl superstore which recorded granular deposits to depths of between 3.3m-5.7m bgl and a groundwater body at depths of between 2.87m and 4.03m bgl which is considered to demonstrate continuity to the water level in the River Irwell.

7.4.3 Given the Coal Authority's comments, the ground conditions recorded in vicinity of the site and the likelihood of a groundwater body in continuity with the adjacent River Irwell, IDG consider the possibility of unrecorded shallow mine workings beneath the site can be discounted.

8 PRELIMINARY CONCEPTUAL SITE MODEL

General

8.1.1 Based on the data presented in the preceding sections of this report, a Preliminary Conceptual Site Model has been determined as outlined below.

Potential Contamination Sources

8.1.2 Historical maps indicate the site has had several phases of development generally associated with commercial retail use and show a dye works was present in the south of the site in the mid 19th Century. It is therefore considered likely that Made Ground deposits are present across the site which may present a risk of metals, Speciated PAH and asbestos contamination. Localised contamination (metals, inorganics, acids, solvents) associated with the dye works may also be present, however IDG agree with Arup's assessment that given the age of the dye works the likelihood of many of these contaminants being present, in particular the volatile hydrocarbons, is considered to be low.

8.1.3 In addition, an electricity substation constructed in the 1960s is present in the south of the site which represents a potential source of localised PCB contamination.

8.1.4 No significant risk from landfill or mines gas has been identified.

8.1.5 The site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level) and current Building Control Regulations do not require radon protection measures to be installed in new buildings.

8.1.6 However, a radon assessment will be required after construction of the building which is likely to require the monitoring of radon in the building, therefore consideration should be given to the installation of basic radon protection measures during construction of the development to mitigate any potential issue upon completion of the building.

Human Receptors

8.1.7 Following the proposed redevelopment, human receptors will include workers and customers within the new properties, visitors using public open space areas, and workers/residents in neighbouring properties.

8.1.8 In addition, future utility maintenance workers could be affected by contaminants that remain in the ground following site redevelopment.

8.1.9 Transient risks to construction workers from handling contaminated soils are normally addressed by the adoption of appropriate health and safety measures during the construction works, and therefore these receptors are not considered further.

8.1.10 Similarly, risks to workers/residents in neighbouring properties due to airborne dust or vapours during redevelopment works should be addressed by the adoption of suitable measures.

Controlled Water Receptors

8.1.11 The superficial deposits beneath the site are classified as a Secondary A Aquifer. The underlying bedrock is also classified as a Secondary A Aquifer. The site is not located within a Source Protection Zone and there are no surface or groundwater abstractions within 1km of the site.

8.1.12 The nearest surface watercourse is the River Irwell, which flows in a south-westerly direction, immediately beyond the site's south-eastern boundary.

8.1.13 Based on the above, the site's environmental setting has been assessed as moderate sensitivity.

Preliminary Conceptual Site Model

8.1.14 A Preliminary Conceptual Site Model has been prepared after consideration of all the data presented in the preceding sections of this report. Potential pollutant linkages are summarised in the following table.

Summary of Potential Pollutant Linkages

Potential Contamination Source	Receptors	Plausible Pathways	Evidence / Site Features
Metals & PAHs in Made Ground	Human Health (future site users – commercial users)	Ingestion, direct contact, inhalation of dust	Former buildings on site have been demolished
	Shallow groundwater in Superficial Deposits which are in continuity with the River Irwell	Leaching and migration of dissolved heavy metals contamination	
Asbestos in Made Ground	Human Health (future site users – commercial users)	Inhalation of dust containing asbestos fibres	Former buildings on site have been demolished
Hydrocarbon impacted soils (PCBs, solvents)	Human Health (future site users – commercial users)	Ingestion, direct contact and inhalation of vapours	PCBs from electricity substation on site Dye works on site
	Shallow groundwater in Superficial Deposits which are in continuity with the River Irwell	Migration of free product and leaching and migrations of dissolved phase hydrocarbons	
Hazardous Gas (Radon)	Human Health	Migration of radon through granular strata and ingress into confined spaces leading to adverse health effects	The site is in an intermediate probability radon area, current Building Control Regulations do not require radon protection measures to be installed in new buildings. Consideration should be given to the installation of basic radon protection measures during construction of the development to mitigate any potential issue upon completion of the building

9 GROUND INVESTIGATION DESIGN

9.1 Ground Investigation Design & Strategy

9.1.1 The preliminary conceptual site model was used as a basis for design of an appropriate ground investigation, the scope of which is summarised below.

Ground Investigation Strategy

Exploratory Holes	Purpose
Window Sampling Boreholes	To determine the general nature of soils underlying the site, including the: • nature, distribution and thickness of Made Ground • nature, degree and extent of contamination • proportion of undesirable elements e.g. biodegradable matter, foundations etc To install monitoring wells across the site in order to determine groundwater levels and assess flow direction and retrieve representative groundwater samples, to determine water quality.
Rotary Coring Boreholes	To determine the general nature of soils underlying the site, including the: • nature, distribution and thickness of Made Ground • nature, degree and extent of contamination • proportion of undesirable elements e.g. biodegradable matter, foundations etc • recovery of rock cores for geotechnical testing To install monitoring wells across the site in order to determine groundwater levels and assess flow direction and retrieve representative groundwater samples, to determine water quality.

9.1.2 An assessment of potential contaminants associated with the former uses has been undertaken which identified the following potential contaminants within soil and/or groundwater at the site:

- Metals
- PAHs
- Asbestos fibres
- PCBs
- Solvents

10 FIELDWORK

10.1 Exploratory Hole Location Constraints

10.1.1 The investigable area of the site was severely limited due to the site's setting, i.e. town centre with trading businesses and numerous buried services present. Therefore, window sampling and rotary drilling were the only practical methods of investigation.

10.1.2 It should be noted that the methods of intrusive investigation adopted allow only a limited inspection of the ground (especially soils with a significant proportion of coarse material). Furthermore, assessment of the strength of cohesive soils can be limited due to disturbance caused by drilling.

10.2 Scope of Works

10.2.1 Fieldwork was supervised by IDG during three visits (January, May and July 2022) and comprised the exploratory holes listed in the following table.

Scope of Ground Investigation Works

Technique	Exploratory holes	Final depth(s)	Remarks
Window Sampling boreholes	WS01 – WS04	3.6 – 6.7m	SPTs typically at 1m centres. Monitoring wells installed
Rotary Probeholes	BH05 – BH07	13.5 – 18.0m	SPTs typically at 1m centres. Monitoring wells installed

10.2.2 Notes describing ground investigation techniques, in-situ testing and sampling are included in Appendix H.

10.2.3 Exploratory hole locations are shown on Drawing No. 5238-G-D004 presented in Appendix A.

11 GROUND CONDITIONS

11.1 Exploratory Hole Records

11.1.1 A complete record of strata encountered beneath the proposed development site is given on the exploratory hole logs in Appendix D.

11.1.2 The exploratory hole logs include:

- Details of the samples taken
- Descriptions of the strata
- Details of groundwater conditions encountered
- Results of in-situ testing
- Details of monitoring wells installed

11.1.3 Ground conditions encountered are described below.

11.2 Ground Conditions

11.2.1 The ground conditions encountered across the site typically comprised hardstanding underlain by Made Ground proven to depths of 0.6 – 1.8m.

11.2.2 Several below ground obstructions were encountered at shallow depth during the investigation as summarised in the following table.

Below Ground Obstructions Summary

Hole ID	Depth of Obstruction	Type of Obstruction
WS01	0.50m	Sandstone slab
WS01A	0.95m	Concrete
WS03	0.85	Ceramic drain
WS04	0.1 – 0.2m	Concrete slab

Superficial Deposits

11.2.3 Glaciofluvial Sheet Deposits were encountered beneath the Made Ground at WS01B, WS02, WS03A, WS04, BH05, BH06 & BH07 and typically comprised brown sandy gravelly clay underlain by grey gravelly sand.

11.2.4 A summary of the depth that the Glaciofluvial Sheet Deposits were encountered is presented in the following table.

Superficial Deposits Summary

Hole ID	Top of Glaciofluvial Sheet (m bgl)	Base of Glaciofluvial Sheet (m bgl)	Thickness (m)	Top of Glaciofluvial Sheet (m AOD)	Base of Glaciofluvial Sheet (m AOD)
WS01B	0.9	4.2	3.2	63.07	59.77
WS02	1.5	5.2	3.7	62.95	59.25
WS03A	1.4	4.9	3.4	62.96	59.46
WS04	1.6	3.5	1.9	62.03	60.13
BH05	0.6	3.0	2.4	63.50	61.10
BH06	0.6	3.2	2.6	65.02	62.42
BH07	1.8	4.3	2.5	62.33	59.83

11.2.5 Review of the table indicates Superficial Deposits range in thickness from 1.9m proven in WS04 to 3.7m proven in WS02. The table also indicates the base of the Superficial Deposits reduces in elevation from the north (BH06 – 62.42m AOD) towards the southwest (WS02 – 59.25m AOD).

Bedrock

11.2.6 PMCM bedrock comprising grey to dark grey thinly laminated Mudstone was encountered in several boreholes at depths ranging from 3.0m bgl in BH05 to 5.2m bgl in WS02 and proven to a maximum depth of 18.0m (BH07).

11.2.7 A thin band of coal was encountered in BH06 at a depth of 13.2-13.3m.

11.2.8 The Mudstone recovered from BH05-BH06 was observed to be highly weathered with several thin bands within the strata noted to have weathered to a clay. Core recovery in BH07 was noticeably improved in comparison to BH05 and BH06 with the Mudstone showing less evidence of weathering and fewer drilling induced fractures and natural fractures.

11.2.9 A summary of the rock core logging information is presented below.

Core Logging Summary

Hole ID	Range of TCR (%)	Range of SCR (%)	Range of RQD (%)	RQD Rock Description	Fracture Index (If)
BH05	42 – 100	7 – 90	0 – 54	Very poor to fair	2.9 – 10.0
BH06	30 – 83	18 – 68	0 – 46	Very poor to poor	Not Possible
BH07*	40 – 100	26 – 90	23 – 58	Very poor to fair	2.0 – 4.7

*Core recovery from 4.5m to 6.0m omitted from summary table due to zero recovery as a result of inclusion of cobbles from overlying superficial deposits destroying the core.

11.2.10 Review of the table indicates the description of the RQDs calculated for the boreholes range from very poor to fair and can typically be described as poor.

11.3 Visual & Olfactory Evidence of Hydrocarbon Contamination

11.3.1 No evidence of hydrocarbon contamination was noted in any of the exploratory holes.

11.4 Groundwater

11.4.1 Two groundwater bodies were encountered during the investigation, one within the Glaciofluvial Sheet Deposits and the second within the PMCM strata. Further details are provided below.

Glaciofluvial Sheet Deposits

11.4.2 Groundwater monitoring wells with response zones within the Glaciofluvial Sheet Deposits were installed in six boreholes during the investigation. Details of the well installations together with the recorded standing water level based on monitoring results to date are presented in Appendix G and summarised in the following table.

Glaciofluvial Sheet Deposits - Groundwater Levels

Hole ID	Groundwater Body	Installation Response Zone Depth (m bgl)	Recorded Standing Water Levels (m bgl)	Recorded Standing Water Levels (m AOD)
WS01B	Glaciofluvial Sheet deposits	2.0 – 4.0	3.74 – 3.83	60.14 – 60.23
WS02	Glaciofluvial Sheet deposits	1.6 – 4.6	4.06 – 4.15	60.30 – 60.39
WS03A	Glaciofluvial Sheet deposits	2.0 – 5.0	2.09– 3.87	60.49 – 62.27
WS04	Glaciofluvial Sheet deposits	1.0 – 3.0	Dry	-
BH05	Glaciofluvial Sheet deposits	2.0 – 3.0	2.36 – 2.94	61.16 – 61.73
BH06	Glaciofluvial Sheet deposits	2.0 – 3.0	1.33 – 2.52	63.10 – 64.29

11.4.3 Review of the table indicates shallow groundwater body present within the Glaciofluvial Sheet Deposits rests at depths of between 1.33m bgl (BH06) and 4.15m bgl (WS02) across the site.

11.4.4 Conversion of the standing water level to ordnance datum indicates the piezometric surface of the shallow groundwater body present within the Glaciofluvial Sheet Deposits falls from the north of the site (BH06) to the southwest of the site (WS02).

Pennine Middle Coal Measures

11.4.5 A groundwater monitoring well with a response zone within the PMCM strata was installed in BH07. Details of the well installation together with the recorded standing water level based on monitoring results to date are presented in Appendix G and summarised in the following table.

Pennine Middle Coal Measures - Groundwater Levels

Hole ID	Groundwater Body	Installation Response Zone Depth (m bgl)	Recorded Standing Water Levels (m bgl)	Recorded Standing Water Levels (m AOD)
BH07	PMCM	7.6 – 17.1	3.16 – 3.20	60.93 – 60.97

11.4.6 Review of the table indicates the groundwater present within the PMCM strata at BH07 rests at depths of between 3.16m – 3.20m bgl.

11.4.7 The groundwater level in BH07 is approximately 1.0m higher than the top of the PMCM strata and indicates the groundwater within the PMCM strata is under sub-artesian pressure.

11.5 Groundwater Sampling

Groundwater Sampling within Glaciofluvial Sheet Deposits

11.5.1 An IDG engineer visited the site on 5th July 2022 to carry out development of all of the wells installed into the Glaciofluvial Sheet Deposits in accordance with current best practice.

11.5.2 Monitoring wells installed in WS01B, WS02, BH05 and BH06 had standing water levels within 0.2m - 0.4m of the bottom of the well and as a result, less than 2-3 litres of groundwater was purged from each of the wells before they were dry, with groundwater recovery noted to be slow in all wells. WS03A had in excess of 2m of standing water within the well and was fully developed.

11.5.3 An IDG engineer made a further visit on 9th July 2022 to obtain representative water samples from the wells.

11.5.4 Less than 1-2 litres of groundwater was purged from WS01B, WS02, BH05 and BH06 before the wells were dry and this was accompanied with slow groundwater recovery and therefore no samples were taken from these wells. WS03A was fully purged with good groundwater recovery and sampled.

11.5.5 No free product or visual or olfactory evidence of contamination was identified by the Engineer during purging or sampling of the wells.

11.5.6 The water sample obtained from WS03A was placed in a cool box and despatched to a UKAS accredited chemical testing laboratory.

Groundwater Sampling within PMCM Strata

11.5.7 An IDG engineer visited the site on 12th July 2022 to carry out development of the well installed into the PMCM at BH07 in accordance with current best practice. BH07 had in excess of 13m of standing water within the well and was fully developed.

11.5.8 An IDG engineer made a further visit on 14th July 2022 to obtain representative water samples from the well. BH07 was fully purged and sampled with good groundwater recovery observed.

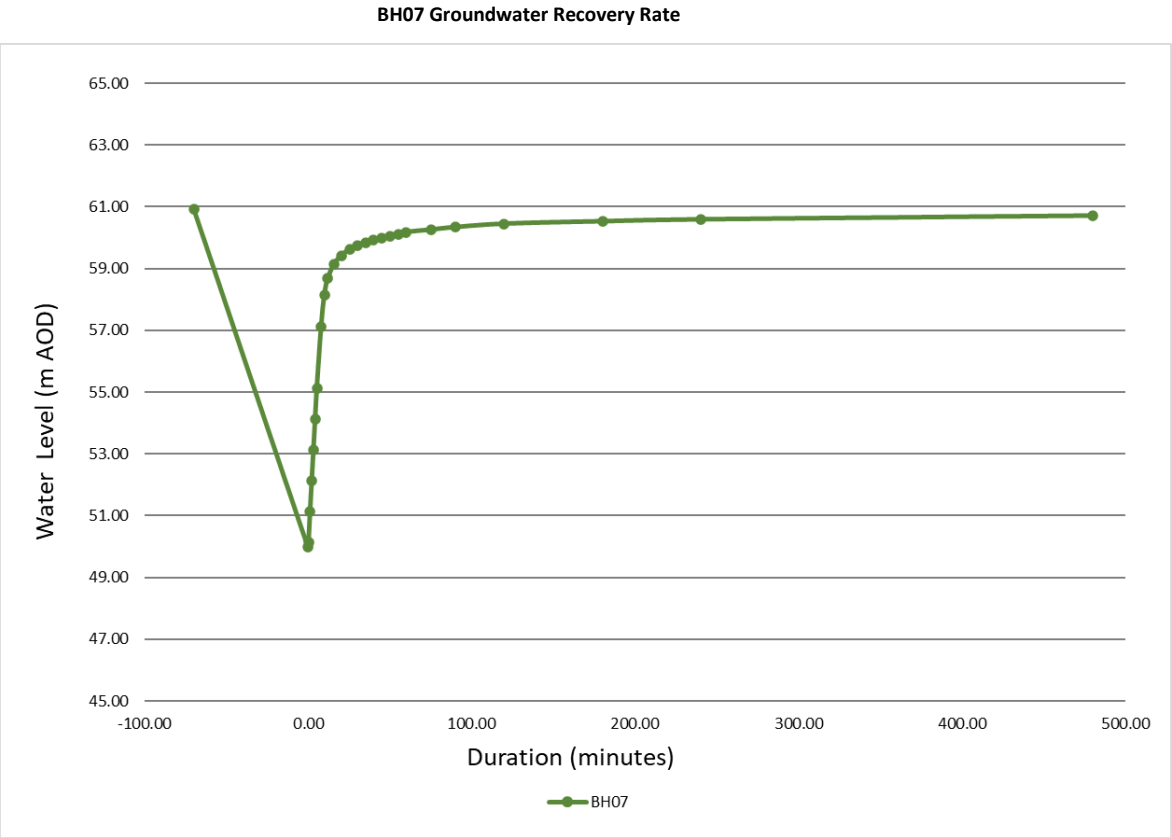
11.5.9 No free product or visual or olfactory evidence of contamination of the groundwater was identified by the Engineer during purging or sampling of the well.

11.5.10 The groundwater sample obtained from BH07 was placed in a cool box and despatched to a UKAS accredited chemical testing laboratory.

11.6 Groundwater Recovery – PMCM Strata

11.6.1 An IDG engineer recorded the rate of recovery of the groundwater level within BH07 after it had been purged on 14th July 2022.

11.6.2 The groundwater recovery observed in BH07 are presented in Appendix G and shown in the figure below.



11.6.3 Review of the figure above indicates the water level in BH07 dropped almost 11 metres during the purging of the borehole with a rapid recovery (8.14m) recorded in the first 10 minutes after pumping ceased and a relatively slow recovery thereafter.

11.6.4 At the end of the test (8 hours) the groundwater level in BH07 was 0.22m lower than its resting level prior to purging.

11.6.5 The rapid groundwater recovery observed in BH07 is considered to be a result of secondary permeability (i.e. infiltration through fissures) in the PMCM strata which is supported by the highly fractured state of the recovered rock cores.

12 HAZARDOUS GAS

12.1.1 A preliminary assessment of the risks associated with hazardous ground gas has been undertaken as described in Section 8.

12.1.2 IDG did not encounter any new evidence of potential hazardous ground gas sources during the intrusive investigation and therefore IDG consider the preliminary assessment presented in Section 8 to be valid and the risk of hazardous ground gases such as carbon dioxide and methane at the site can be discounted.

12.1.3 The site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level) and current Building Control Regulations do not require radon protection measures to be installed in new buildings.

12.1.4 However, a radon assessment will be required after construction of the building which is likely to require the monitoring of radon in the building, therefore consideration should be given to the installation of basic radon protection measures during construction of the development to mitigate any potential issue upon completion of the building.

13 CHEMICAL ANALYSIS

13.1 General

13.1.1 An assessment of potential contaminants associated with the former uses of the site has been undertaken as outlined in Section 9.1.2.

13.2 Testing Scheduled

13.2.1 Based on the above assessment, an IDG Engineer submitted a test schedule (summarised in the following table) to a UKAS accredited laboratory.

Chemical Testing Scheduled

Matrix	Type of Sample	No. of Samples	Determinands
Soil	Made Ground	7	pH and total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc), Speciated PAH & asbestos screen
		1	Speciated TPH
		1	PCBs
	Glaciofluvial Deposits	1	pH and total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc), speciated PAH & Speciated TPH
	PMCM	1	pH and total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc), speciated PAH & Speciated TPH
		8	Calorific Value
Groundwater	Glaciofluvial Deposits	1	pH and total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc) & Speciated PAH
	PMCM	1	pH and total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc)

13.3 Human Health Generic Risk Assessment

13.3.1 The soil contamination test results are shown in Tables 1 to 3 presented in Appendix E, together with the laboratory test results. The results have been classified by comparison with the relevant LQM/CIEH S4UL (2015) UK guidance threshold values for a *commercial end use*. A 1% SOM content has been utilised for screening purposes.

13.3.2 Notes outlining current guidance with respect to the interpretation of analytical data are included in Appendix H.

Inorganic Contamination - Metals

13.3.3 No elevated concentrations of inorganic contaminants were detected in any of the samples tested.

Inorganic Contamination - Asbestos

13.3.4 Asbestos fibres were not identified in any of the samples screened.

*Organic Contamination - S*peciated PAHs

13.3.5 No elevated concentrations of Speciated PAHs were detected in any of the samples tested.

Organic Contamination - Speciated TPH

13.3.6 No elevated concentrations of aromatic or aliphatic TPH bandings or BTEX compounds were detected.

Organic Contamination - PCBs

13.3.7 A sample of Made Ground recovered from WS01B, the exploratory hole location located nearest to a potential source of PCB (substation in the west of the site), was subjected to PCB analysis.

13.3.8 No PCB concentrations above the laboratory's test methods' level of detection were recorded.

13.4 Controlled Waters Generic Risk Assessment

Groundwater Samples

13.4.1 Groundwater analysis test results are summarised in Tables 4 & 5 which are presented in Appendix E together with the laboratory test results. The significance of the results has been assessed by comparison with relevant guidance thresholds as shown in the tables.

Inorganic Contamination

13.4.2 No elevated concentrations of inorganic contaminants were detected in the water samples obtained from the groundwater bodies within the Glaciofluvial Sheet Deposits or the PMCM strata.

Organic Contamination - Speciated PAHs

13.4.3 Concentrations were not detected above the test method's limit of detection for each speciated PAH compound (<0.1ug/l) in a groundwater sample obtained from the Glaciofluvial Sheet Deposits.

13.4.4 It is noted that this value (<0.1ug/l) exceeds the assessment criteria for Fluoranthene (0.075ug/l) and Naphthalene (0.075ug/l). However, the total PAH recorded in the sample is also <0.1ug/l and therefore IDG consider it unlikely that the concentrations of Fluoranthene or Naphthalene are in excess of the assessment criteria and therefore the concentrations of PAH compounds in groundwater within the Glaciofluvial Sheet Deposits are not considered significant.

13.5 Other Testing - Calorific Value

13.5.1 Seven samples of PMCM were subjected to calorific value analysis. The results of the calorific value analysis are presented in the table below.

Calorific Value Testing Summary

Exp Hole	Strata	Depth (m)	Result (MJ/kg)
BH06	Dark Grey Mudstone	8.8	8.6
BH06	Dark Grey Mudstone	11.5	11.0
BH06	Coal	13.3	9.2
BH07	Grey Mudstone	6.5	2.1
BH07	Grey Mudstone	9.5	2.9
BH07	Grey Mudstone	12.5	2.0
BH07	Grey Mudstone	15.5	1.8

13.5.2 The results of the calorific value testing recorded values ranging between 1.8MJ/kg to 11.0MJ/kg.

13.5.3 There is no statutory guidance for the assessment of potential combustibility of in-situ material; however, the second edition of the ICRCL Guidance Note 61/84 (Notes on the Fire Hazards of Contaminated Land) states that materials with calorific values exceeding 10MJ/kg are likely to ignite and suggests there is an unacceptable risk of smouldering for materials with a calorific value exceeding 7MJ/kg. Therefore, for the purpose of this assessment, a calorific value of 7MJ/kg has been adopted as the screening criteria.

13.5.4 Application of this screening criteria indicates the three samples tested from BH06 recorded calorific values above 7MJ/kg. Whilst these materials are at a depth in excess of 8m below ground level they may be disturbed during piling activities for the proposed development. IDG recommend the piling contractor are provided with a copy of this report in order to determine if any mitigation measures are required to reduce the risk of spontaneous combustion of the PMCM strata during piling.

14 CONTAMINATION AND REMEDIATION

14.1 Introduction

14.1.1 The Preliminary Conceptual Site Model was presented in Section 8 of this report. In order to produce a Revised Conceptual Site Model, consideration has been given to the following:

- the nature and distribution of Made Ground
- the nature and distribution of contamination sources
- sources of hazardous gas

14.1.2 The above issues have been discussed in preceding sections of this report and are summarised in the sections below.

14.2 Contaminant Sources

14.2.1 The results of the chemical testing have been presented in the preceding section of this report; an assessment of the significance of the results is summarised below.

Soil Contamination

14.2.2 No evidence of organic or inorganic contamination has been identified in the Made Ground or natural soils tested during the investigation.

Groundwater

14.2.3 Samples of the groundwater bodies present within the Glaciofluvial Sheet Deposits and the PMCM strata were tested and no evidence of contamination was identified.

Hazardous Gas

14.2.4 No hazardous ground gas sources have been identified. The risk of hazardous ground gases such as caron dioxide and methane at the site has therefore been discounted.

14.2.5 The site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level) and current Building Control Regulations do not require radon protection measures to be installed in new buildings.

14.2.6 However, a radon assessment will be required after construction of the building which is likely to require the monitoring of radon in the building, therefore consideration should be given to the installation of basic radon protection measures during construction of the development to mitigate any potential issue upon completion of the building.

14.3 Pollutant Linkages

14.3.1 As outlined above, no contamination sources have been identified in the soils or groundwater beneath this site. No sources of hazardous ground gases such as carbon dioxide and methane have been identified although the site is located in an intermediate probability radon area.

14.3.2 Potential receptors identified in connection with the development were outlined in Section 8 and are shown in the following table together with the contamination sources and plausible pathways.

Revised Conceptual Site Model and Potential Remediation Options

Sources	Receptors	Plausible Pathways	Potential Remediation Options
Hazardous Gas (radon)	Human Health	Migration of Radon gas through granular strata and ingress into confined spaces leading to adverse health effects	The site is in an intermediate probability radon area, current Building Control Regulations do not require radon protection measures to be installed. Consideration should be given to the installation of basic radon protection measures during construction of the development to mitigate any potential issue upon completion of the building

14.3.3 Based on the Revised Conceptual Model presented above, the only potential pollutant linkage identified at the site relates to radon gas, however, current building control regulations do not require radon protection measures to be installed in new buildings to mitigate the risk. As such, no specific remediation works are considered necessary for radon gas at the site.

14.4 Remediation Strategy

14.4.1 Based on the Revised Conceptual Site Model, no significant pollutant linkages have been identified at the site and a Remediation Strategy should not be required by the Local Planning Authority.

14.5 Considerations for Development

Land Contamination

14.5.1 Whilst no contamination has been identified by the investigation, the following comments are provided for consideration by Vinci during the construction of the proposed development.

Made Ground

14.5.2 Where Made Ground is to remain beneath soft landscaped areas, it is recommended that a 300mm thick surface cover of uncontaminated soil should be placed as a growing medium over the Made Ground.

14.5.3 The growing medium may be formed entirely of topsoil, or alternatively may comprise subsoil overlain by topsoil; in this case the topsoil thickness should be a minimum of 150mm.

Petroleum Hydrocarbon Contamination

14.5.4 No areas of significant hydrocarbon contamination were encountered during the site works.

14.5.5 However, a dye works was present in the south of the site. Whilst no evidence of hydrocarbon contamination was encountered during the investigation, IDG consider this still represents a low risk of hydrocarbon contamination. It is therefore recommended that a watching brief be provided by a Geoenvironmental Consultant during any excavations that occur within the footprint of the dye works during re-development on the site.

14.5.6 In addition, if odorous or discoloured soils or liquids are encountered during development work, these may represent localised areas of hydrocarbon contamination and further advice should be sought from IDG.

Radon Gas

14.5.7 The site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level) and current Building Control Regulations do not require radon protection measures to be installed.

14.5.8 However, a radon assessment will be required after construction of the building which is likely to require the monitoring of radon in the building, therefore consideration should be given to the installation of basic radon protection measures during construction to mitigate any potential issue upon completion of the building.

Groundwater

14.5.9 No evidence of contamination has been recorded in either the groundwater body present within the Glaciofluvial Sheet Deposits or the groundwater body present within the PMCM strata.

14.6 Other Development Issues

14.6.1 Historical OS plans indicate several generations of buildings have been present on site, it should be assumed that foundations and other buried infrastructure associated with these buildings remain and will need to be removed to facilitate development of the site.

14.6.2 Groundwater levels recorded in the PMCM in BH07 indicate it is under sub-artesian pressure and resting at a level approximately 1.0m above the top of the PMCM strata with groundwater monitoring recording the water level at depths ranging between 3.16 – 3.20m bgl. Furthermore, conversion of the water levels to ordnance datum indicates the water level in BH07 rests at elevations of between 60.93 – 60.97m AOD. This is a level approximately 0.3-0.4m below the proposed floor level of the basement of the development.

14.6.3 IDG therefore recommend the well installed in BH07 be decommissioned (i.e. removed and grouted up) as part of the preparatory works for the site to remove a pathway for groundwater within the PMCM to enter any deep excavations made during redevelopment of the site (i.e. excavation for the construction of the basement areas) and also to mitigate any long term groundwater issues to the proposed development from the borehole.

14.6.4 Calorific value testing of the PMCM strata recorded values above 7.0MJ/kg in several samples of PMCM strata which indicate they may present a risk of spontaneous combustion. Whilst the affected samples were taken from depths in excess of 8m below ground level they may be disturbed during piling activities for the proposed development. IDG recommend the piling contractor are provided with a copy of this report in order to determine if any precautionary measures are required to mitigate the risk of spontaneous combustion of the PMCM strata during piling.

15 RE-USE, DISPOSAL AND IMPORT OF MATERIALS

15.1 Background

15.1.1 Materials are considered to be waste if they are discarded, if there is an intention to discard, or if there is a requirement to discard. Waste can only be disposed of at a site holding an environmental permit.

15.1.2 Soils (Made Ground or natural deposits) are considered to be waste at the point of excavation. If these “waste” soils are placed back into the ground or transferred to other sites, it could be deemed that waste has been disposed of without a permit. The person disposing of the waste and anyone who knowingly facilitates the disposal may be liable for payment of Landfill Tax. All parties involved could also be liable to penalties for non-compliance and face criminal prosecution.

15.2 Re-use of Materials

15.2.1 Given the extent of the proposed new development, it is considered unlikely that a large volume of material generated during construction will be able to be retained on site. It is therefore considered that a U1 Waste Exemption, obtained from the EA, would be appropriate to enable the reuse of a limited amount of Made Ground and natural materials on site (<1000 tonnes).

15.2.2 Should more than 1000 tonnes of Made Ground and natural materials be anticipated to be retained on site during redevelopment it is considered a Materials Management Plan (MMP) should be produced for the site in accordance with the CL:AIRE *Definition of Waste, Construction* Industry *Code of Practice*.

15.3 Waste Classification

15.3.1 Based on the current development proposals it is envisaged that the majority, to all of the of arisings generated from the development will be disposed of off-site.

15.3.2 Therefore, indicative waste classification information is provided in the following table.

Waste Classification Summary

Material Type	Waste Classification	Remarks
Made Ground	Non-Hazardous	
Glaciofluvial Sheet deposits	Inert	
PMCM - Mudstone	Inert	

15.3.3 Waste Acceptance Criteria (WAC) testing was also undertaken on three samples of material to aid its offsite disposal. The results of the WAC testing are presented in Appendix E.

15.4 Import of Materials

15.4.1 Development of the site may require importation of materials such as quarried stone aggregate or crushed brick and concrete (6F5 or similar) to site. Should any of the latter be imported during development of the site these materials are likely to be designated 'waste' upon export from their donor sites and will be subject to waste management legislation. In addition, changes to landfill tax rules in April 2018 could also mean that illegal deposits of 'waste' could attract landfill tax and fines.

15.4.2 To ensure that waste materials are not illegally deposited, any imported waste for use in the proposed development should comply with importation criteria agreed with the EHO of the Local Authority. As a minimum, any 6F5 material derived from crushed brick or concrete must be imported in accordance with one of the following:

- A Waste Exemption as defined by the EA, typically U1 Use of Waste in Construction.
- Waste & Resources Action Programme (Ref: LIT 8709); End of waste criteria for the production of aggregates from inert waste.

16 GEOTECHNICAL TESTING

16.1 In-Situ Testing

16.1.1 Standard Penetration Tests (SPTs) were carried out during the drilling of the window sample and rotary boreholes in accordance with guidance contained in BS EN ISO 22476-3 and ASTM D1586. The results of the in-situ testing are shown on the exploratory hole records presented in Appendix D and are summarised in the following table.

Summary of SPT Results

Strata	No. of Tests	Range of 'N' Values	Average SPT 'N' value	Estimated Strength
Made Ground	2	2-16	9	N/A
Cohesive Glaciofluvial Sheet deposits	4	4-7	5	Low shear strength
Granular Glaciofluvial Sheet deposits	12	4-45	14	Medium Dense
PMCM - Mudstone	8	12-50	46	N/A

16.1.2 The SPT results indicate the Cohesive Glaciofluvial Sheet deposits has low shear strength and the Granular Glaciofluvial Sheet deposits should be considered to be medium dense.

16.2 Laboratory Testing

16.2.1 Samples of natural soil and rock were delivered to a suitably accredited laboratory with a schedule of geotechnical testing drawn up by IDG.

16.2.2 The geotechnical laboratory test results are presented in Appendix G and summarised below.

16.3 Soil Classification Testing

16.3.1 The Atterberg limit test is used to determine arbitrarily defined boundaries between the liquid and plastic states, and between the plastic and brittle states of fine grained soils, expressed as water percentage. Testing for moisture content, liquid limit, plastic limit and plasticity index was carried out in accordance with guidance contained in BS1377-2:1990.

16.3.2 The results are summarised in the following table, together with an assessment of Volume Change Potential (Shrinkability).

Plasticity Index Results

Soil Type	Plasticity Index	Volume Change Potential
Glaciofluvial Sheet deposits	29	Medium

16.3.3 For the purposes of foundation design, it is recommended that all cohesive soils be regarded as being of medium volume change potential.

16.4 Particle Size Distribution (PSDs)

16.4.1 PSDs tests were carried out on samples of the Glaciofluvial Sheet deposits in order to evaluate the range of grain sizes. The results of the PSD tests are summarised in the following table.

Particle Size Distribution Results

	Sample Location	WS02	WS02
	Sample Depth	1.5-2.0m	2.5-3.5m
	Material Type	Glaciofluvial Sheet deposits	Glaciofluvial Sheet deposits
	Material Description	Silty sandy CLAY with rare gravel	Silty SAND with occasional gravel
Soil Fraction	**Particle Size (mm)**		
Cobbles	<200	0%	0%
Gravel	2.0 - 200	1%	16%
Sand	0.063 - 2.0	11%	58%
Silt	0.002 – 0.063	53%	20%
Clay	<0.002	35%	6%

16.4.2 Classification of the materials in accordance with Table 6/2 of the 600 Series Earthworks specification for highway works is provided in the table below.

600 Highways Series Material Classification

Sample Location and Depth	WS02 – 1.5m-2.0m	WS02 – 2.5m-3.5m
Material Description	Glaciofluvial Sheet deposits	Glaciofluvial Sheet deposits
Material Type	Silty sandy CLAY with rare gravel	Silty SAND with occasional gravel
Materials Classification	Class 2A	Class 1B

16.5 Point Load Strength Index Testing

16.5.1 Testing to determine the uniaxial compressive strength (UCS) of the rock cores was not possible on the majority of cores due to the poor recovery. Therefore, point load testing undertaken in accordance ASTM STANDARD D 5731 was performed on several samples with samples tested axially through the vertical axis of the core and a correction factor applied to determine a UCS value. The results are presented in the following table.

Point Load Strength Index Test Results

Borehole Ref.	Depth (m)	Material Description	IS_{50} (Diametral) (MPa)	Calculated UCS Value* (MPa)	Intact Rock Strength Assessment
BH05	4.0	Grey Mudstone	0.23	2.90	Very weak rock
	5.0	Grey Mudstone	0.58	7.31	Weak rock
	7.2	Grey Mudstone	0.59	7.43	Weak rock
	9.8	Grey Mudstone	0.32	4.03	Very weak rock
	10.2	Dark grey Mudstone	0.20	2.52	Very weak rock
	13.2	Dark grey Mudstone	0.17	2.14	Very weak rock
BH06	5.5	Grey & dark grey Mudstone	0.16	2.02	Very weak rock
	7.7	Grey & dark grey Mudstone	0.33	4.16	Very weak rock
	11.0	Dark grey Mudstone	0.11	1.39	Very weak rock
	13.2	Black Coal	0.43	5.42	Weak rock
BH07	7.2	Grey Mudstone	0.32	4.03	Very weak rock
	8.8	Grey Mudstone	1.01	12.73	Moderately weak rock
	9.75	Grey Mudstone	0.36	4.54	Very weak rock
	10.0	Grey Mudstone	1.01	12.73	Moderately weak rock
	11.0	Grey Mudstone	0.72	9.07	Weak rock
	13.0	Grey Mudstone	0.36	4.54	Very weak rock
	15.1	Dark grey Mudstone	0.53	6.68	Weak rock
	16.2	Dark grey Mudstone	0.09	1.13	Very weak rock
	16.6	Dark grey Mudstone	0.40	5.04	Weak rock
	17.0	Dark grey Mudstone	0.54	6.80	Weak rock

*UCS value derived from application of a conversion factor of 12.6 for mudstone strata taken from Rusnak & Mark, 2000.

16.5.2 The results of the point load testing indicate the intact rock strength of the PMCM strata encountered during the investigation ranges from very weak rock (1.12 MPa) to moderately weak rock (12.73MPa).

16.5.3 Consideration of the UCS results in relation to the geological fault that is indicated to cross the site in the east shows that the boreholes located closest to the fault (BH05 and BH06) recorded average UCS values of 4.39MPa (BH05) and 3.24MPa (BH06). In contrast BH07, located a greater distance away from the geological fault recorded an average UCS value of 6.73MPa.

16.5.4 The average UCS values indicate the intact rock in close proximity to the geological fault should be classed as being very weak rock with the bedrock located further away being classed as weak rock with the difference in intact rock strength being attributed to increased weathering due to the disturbance of the bedrock that occurred adjacent to the fault.

16.6 Unconfined Compressive Strength

16.6.1 Unconfined compressive strength (UCS) tests were performed on two samples of rock core obtained from BH07 in accordance with ASTM D7012 – 14 Method C.

UCS Test Results

Hole ID	Depth (m bgl)	Material	Compressive Strength (MPa)	Intact Rock Strength Assessment
BH07	9.75 – 9.90	Mudstone	8.9	Weak Rock
BH07	16.6 – 16.75	Mudstone	5.2	Weak Rock

16.6.2 The results of the UCS tests ranged between 5.2 – 8.9MPa with an average UCS value of 7.05MPa giving an intact rock strength assessment of weak rock. This shows a good correlation with the converted UCS values calculated from the point load testing undertaken on samples obtained from BH07.

16.7 Deformation Modulus

16.7.1 Deformation modulus (E_m) values have been calculated for the PMCM strata based on the average UCS values determined from the point load and UCS testing and are shown in the table below.

Deformation Modulus (E_m) Summary

Hole ID	Material	Mass Factor* (j)	Modulus Ratio* (M_r)	Average UCS (MPa)	Deformation Modulus (MPa)
BH05	Mudstone	0.2	75	4.39	65.9
BH06	Mudstone	0.2	75	3.24	48.6
BH07	Mudstone	0.2	75	6.78	101.0

* Mass factor (j) and modulus ratio (M_r) values have been taken from Hobbs, N.B, 1974.

16.7.2 The above results indicate the deformation modulus values of the PMCM strata based on the averaged UCS values for each borehole range between 48.6 and 101MPa.

16.8 Sub-surface Concrete Classification

16.8.1 An assessment to determine the appropriate specification for buried concrete has been carried out in accordance with guidance contained in BRE Special Digest 1:2005 *Concrete in Aggressive Ground*.

16.8.2 The site has been classified as brownfield that contains pyrite. The groundwater regime has been classified as mobile.

Soil & Rock Samples

16.8.3 Samples of Made Ground, Glaciofluvial Sheet deposits and PMCM were submitted for testing for pH, water-soluble sulphate, acid-soluble sulphate and total sulphur. The results for each material type analysed are shown in the following table together with calculated values for total potential sulphate and oxidisable sulphide.

Summary of Sub-surface Concrete Classification Testing – Soils & Rock

Material Type	pH Values	Soluble Sulphate (mg/l)	Acid Soluble Sulphate (mg/kg)	Total Sulphur (mg/kg)	Total Potential Sulphate (%)	Oxidisable Sulphide (%)
Made Ground	8.1 – 9.8	30 - 40	-	-	-	-
Glaciofluvial Sheet Deposits	7.7 – 8.7	10 - 20	-	-	-	-
PMCM - Mudstone	7.5 – 9.1	10 - 80	<200 - 210	167 - 1150	0.05 – 0.34	0.06 – 0.32
PMCM - Coal	7.6 – 8.1	10 - 170	420	40900	12.27	12.22

16.8.4 Samples of Mudstone and Coal recorded an oxidisable sulphide content greater than 0.3%. It is therefore considered likely that pyrite is present in the PMCM strata at the site.

Groundwater Samples

16.8.5 Groundwater samples from the Glaciofluvial Sheet Deposits and PMCM strata were subjected to pH and sulphate analysis. The results for each groundwater body are shown in the following table.

Summary of Sub-surface Concrete Classification Testing – Groundwater

Groundwater Body	pH	Sulphate (mg/l)
Glaciofluvial Sheet Deposits	6.8	16
PMCM	7.4	67

Sub-Surface Concrete Assessment

16.8.6 Therefore, in accordance with Table C2 of BRE Special Digest 1:2005, sub-surface concrete classification for the various materials present at the site are summarised in the following table.

Summary of Sub-Surface Concrete Classification

Material Type	Design Sulphate Class	ACEC Class
Made Ground	DS-1	AC-1
Glaciofluvial Sheet deposits	DS-1	AC-1
PMCM - Mudstone	DS-2	AC-2
PMCM - Coal	DS-5	AC-5m

16.8.7 Review of the table above indicates a sub-surface concrete classification of DS-2, AC-2 to be appropriate for the Made Ground, Glaciofluvial Sheet Deposits and PMCM Mudstone.

16.8.8 However, should piled foundations need to be extended to depths in excess of 13m in the vicinity of BH06, or evidence of coal seams encountered during the piling at the development then consideration should be given to increasing the sub-surface concrete classification to DS-5, AC-5m.

17 GEOTECHNICAL ASSESSMENT

17.1 Introduction

17.1.1 Geotechnical issues affecting the site are described below.

17.2 Proposed Development

17.2.1 Consideration is being given to redevelopment of the site with a three-storey leisure and community centre that will include a lower ground floor level (i.e. basement). The leisure and community centre is to include a swimming pool, climbing wall, fitness suite, library and community rooms, with the floor level of the basement indicated to be at an elevation of 61.3m AOD.

17.3 Geology

17.3.1 Geological plans indicate the site is underlain by Glaciofluvial Sheet deposits and the bedrock beneath the site to be the PMCM comprising mudstone, siltstone and sandstone. The geological plans also infer a NW-SE trending fault in the east of the site, which results in the Nob End Sandstone formation underlying the eastern part of the site. The downthrow of the fault is to the east, the amount of throw is not stated.

17.4 Coal Mining Risk

17.4.1 Seven coal seams have been worked beneath the site from a depth of 103-486m with the Coal Authority commenting that there is no risk of probable unrecorded shallow mineworkings beneath the site.

17.4.2 The possibility of unrecorded shallow mine workings beneath the site has been discounted.

17.5 Summary of Ground Conditions

17.5.1 Made Ground between 0.6m – 1.8m thick is present across the site with several below ground obstructions associated with former buildings encountered during the investigation.

17.5.2 Glaciofluvial Sheet Deposits were encountered directly beneath the Made Ground and were proven to depths ranging between 3.0m to 5.2m. The Glaciofluvial Sheet Deposits typically comprised low shear strength brown sandy gravelly clay underlain by medium dense grey gravelly sand. Geotechnical testing indicates that cohesive Glaciofluvial Sheet Deposits at the site should be regarded as being of medium volume change potential. Assessment of the elevation of the base of the Glaciofluvial Sheet Deposits to ordnance datum indicates the base of the deposits reduces in elevation from the north (BH06 – 62.4m AOD) towards the southwest (WS02 – 59.3m AOD) of the site.

17.5.3 PMCM bedrock comprising grey to dark grey thinly laminated Mudstone was encountered at depths ranging from 3.0m bgl in BH05 to 5.2m BGL in WS02 and proven to a maximum depth of 18.0m in BH07. A thin band of coal was encountered in BH06 at a depth of 13.2-13.3m.

17.5.4 Review of the borehole logs indicates the PMCM has extremely variable rock mass characteristics. The PMCM mudstone recovered from BH05-BH06 was observed to be highly weathered with several thin bands within the strata noted to have weathered to a clay. In addition, *where possible to calculate,* RQDs range from very poor to fair and can typically be described as poor.

17.5.5 Average UCS values indicate that, where intact, the PMCM bedrock in close proximity to the geological fault inferred to be present in the east the site is of very weak intact rock strength, with the bedrock located further away being classed as weak rock. The difference in intact rock strength is attributed to increased weathering due to the disturbance of the bedrock that occurred adjacent to the fault.

17.5.6 The Nob End Sandstone indicated on geological plans to be present to the east of the inferred geological fault in the east of the site was not encountered during the investigation.

17.6 Groundwater

17.6.1 Two groundwater bodies were encountered during the investigation, a shallow groundwater body within the Glaciofluvial Sheet Deposits and a deeper groundwater body within the PMCM strata.

17.6.2 The shallow groundwater body present within the Glaciofluvial Sheet Deposits rests at depths of between 1.33m bgl (BH06) and 4.15m bgl (WS02) across the site and its piezometric surface falls from the north of the site (BH06) to the southwest of the site (WS02).

17.6.3 Groundwater levels recorded in the PMCM in BH07 indicate it is under sub-artesian pressure and resting at a level approximately 1.0m above the top of the PMCM at elevations of between 60.93 – 60.97m AOD. This is approximately 0.3-0.4m below the proposed floor level of the basement at the development (61.3m AOD).

17.6.4 IDG therefore recommend the well installed in BH07 be decommissioned (i.e. removed and grouted up) as part of the preparatory works for the site to remove a pathway for groundwater within the PMCM to enter any deep excavations made during redevelopment of the site (i.e. excavation for the construction of the basement areas) and also to mitigate any long term groundwater issues to the proposed development from the borehole.

17.7 Foundation Recommendations

17.7.1 Vinci have indicated the leisure and community centre will be constructed piled foundations. The following general comments relating to piling are provided for initial guidance and further advice should be sought from a specialist-piling contractor.

17.7.2 The ground at this site contains significant buried obstructions and it will be necessary for these to be excavated and removed prior to the commencement of piling.

17.7.3 Cohesive superficial deposits are present at the site, and it is recommended that the potential for negative skin friction is considered in the design of the piles.

17.7.4 The PMCM bedrock lies at depths of between 3.0m and 5.2m bgl beneath the site and has extremely variable rock mass characteristics. The PMCM bedrock was observed to be highly weathered with several thin bands within the strata noted to have weathered to a clay. Where intact, the PMCM Mudstone strata is of weak and very weak intact rock strength.

17.7.5 A sub-surface concrete classification of DS-2, AC-2 considered appropriate for the Made Ground, Glaciofluvial Sheet Deposits and PMCM Mudstone. However, should piled foundations need to be extended to depths in excess of 13m in the vicinity of BH06, or evidence of coal seams be encountered during the piling at the development then consideration should be given to increasing the sub-surface concrete classification to DS-5, AC-5m.

17.7.6 The installation of piles will induce some ground vibration and assessment of vibration risk to

adjacent structures and/or existing site features should be undertaken by the pile designer.

17.7.7 Ground conditions at this site will require provision of a piling mat (working platform) and further advice should be sought from the appointed piling contractor regarding the proposed plant loadings and resulting pressures. This information, together with a knowledge of the strength and variability of the near-surface ground conditions is required in order that design of a mat can be undertaken in accordance with guidance provided in BRE document *BR 470: Working platforms for tracked plant* (2004). IDG can provide further advice on this if required.

17.7.8 Pile design should be undertaken in accordance with guidance contained in the Environment Agency's booklet *Piling into Contaminated Sites*.

17.7.9 Calorific value testing of the PMCM strata recorded values above 7.0MJ/kg in several samples which indicate they may present a risk of spontaneous combustion. Whilst the affected samples were taken from depths in excess of 8m below ground level they may be disturbed during piling activities for the proposed development. IDG recommend the piling contractor are provided with a copy of this report in order to determine if any precautionary measures are required to mitigate the risk of spontaneous combustion of the PMCM strata during piling.

17.8 Preparatory Works

17.8.1 Where existing buildings are to be demolished, it is considered that all concrete slabs, foundations and service ducts will require breaking out and removal prior to re-development commencing.

17.9 Excavations

17.9.1 Granular Glaciofluvial Sheet Deposits are present across the entire site with a shallow groundwater body resting within it. Excavations that encounter these granular deposits are likely to be unstable and running sand should be anticipated.

17.9.2 Bedrock was encountered in several exploratory holes across the site at elevations ranging from 62.42m AOD in the north (BH06) to 59.25m AOD in the southwest (WS02). Should the proposed development require excavations to be extended into the bedrock, allowance should be made for difficult digging.

17.9.3 The groundwater body present within the PMCM bedrock at BH07 has been recorded at depths of between 3.16m – 3.20m bgl and is under sub-artesian pressure. IDG consider that provision for groundwater control should be made for any deep excavations required during development.

18 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

18.1 General

18.1.1 Consideration is being given to redevelopment of the site with a three-storey leisure and community centre that will include a lower ground floor level (i.e. basement). The centre is to include a swimming pool, climbing wall, fitness suite, library and community rooms, with the floor level of the basement indicated to be at 61.3m AOD.

18.1.2 The conclusions below are summarised from the preceding sections of this report.

18.2 Ground Conditions

18.2.1 Made Ground between 0.6m – 1.8m thick is present across the site with several below ground obstructions associated with former buildings encountered during the investigation.

18.2.2 Glaciofluvial Sheet Deposits typically comprising low shear strength brown sandy gravelly clay underlain by medium dense grey gravelly sand were encountered directly beneath the Made Ground and were proven to depths ranging between 3.0m to 5.2m bgl.

18.2.3 Geotechnical testing indicates that cohesive Glaciofluvial Sheet Deposits at the site should be regarded as being of medium volume change potential.

18.2.4 PMCM bedrock comprising grey to dark grey thinly laminated Mudstone was encountered at depths ranging from 3.0m bgl to 5.2m bgl and were proven to a maximum depth of 18.0m in BH07. A thin band of coal was encountered in BH06 at a depth of 13.2-13.3m.

18.2.5 Average UCS values indicate the PMCM bedrock in close proximity to a geological fault inferred to be present in the east the site should be classed as having very weak intact rock strength, with the bedrock located further away being classed as weak rock.

18.3 Groundwater

18.3.1 Two groundwater bodies were encountered during the investigation, a shallow groundwater body within the Glaciofluvial Sheet Deposits and a deeper groundwater body within the PMCM strata.

18.3.2 The shallow groundwater body present within the Glaciofluvial Sheet Deposits rests at depths of between 1.33m bgl (BH06) and 4.15m bgl (WS02) across the site and its piezometric surface falls from the north of the site to the southwest of the site.

18.3.3 The deeper groundwater body in the PMCM in BH07 is under sub-artesian pressure and resting at a level approximately 1.0m above the top of the PMCM at elevations of between 60.93 – 60.97m AOD. This is approximately 0.3-0.4m below the proposed floor level of the basement at the development (61.3m AOD).

18.3.4 IDG therefore recommend the well installed in BH07 is decommissioned (i.e. removed and grouted up) as part of the preparatory works for the site.

18.4 Mining

18.4.1 Seven coal seams have been worked beneath the site from a depth of 103-486m with the Coal Authority commenting that there is no risk of probable unrecorded shallow mineworkings beneath the site.

18.4.2 The possibility of unrecorded shallow mine workings beneath the site have been discounted.

18.5 Hazardous Gas

18.5.1 No significant risk from landfill or mines gas has been identified.

18.5.2 The site is in an intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level) and current Building Control Regulations do not require radon protection measures to be installed in new buildings.

18.5.3 However, a radon assessment will be required after construction of the building which is likely to require the monitoring of radon in the building, therefore consideration should be given to the installation of basic radon protection measures during construction to mitigate any potential issue upon completion of the building.

18.6 Contamination and Remediation

18.6.1 No significant pollutant linkages have been identified at the site and a Remediation Strategy should not be required by the Local Planning Authority.

18.6.2 However, a dye works was present in the south of the site. Whilst no evidence of hydrocarbon contamination was encountered during the investigation, IDG consider this still represents a low risk of hydrocarbon contamination. It is therefore recommended that a watching brief be provided by a Geoenvironmental Consultant during any excavations that occur within the footprint of the dye works during re-development on the site.

18.7 Foundations

18.7.1 Vinci have indicated the leisure and community centre will require piled foundations.

18.7.2 The ground at this site contains significant buried obstructions and it will be necessary for these to be excavated and removed prior to the commencement of piling.

18.7.3 Cohesive superficial deposits are present at the site, and it is recommended that the potential for negative skin friction is considered in the design of the piles.

18.7.4 PMCM bedrock lies at depths of between 3.0m and 5.2m bgl beneath the site and has extremely variable rock mass characteristics. The PMCM bedrock was observed to be highly weathered with several thin bands within the strata noted to have weathered to a clay. Where intact, the PMCM mudstone strata is of weak and very weak intact rock strength.

18.7.5 A sub-surface concrete classification of DS-2, AC-2 considered appropriate for the Made Ground, Glaciofluvial Sheet Deposits and PMCM Mudstone. However, should piled foundations need to be extended to depths in excess of 13m in the vicinity of BH06, or evidence of coal seams be encountered during the piling at the development then consideration should be given to increasing the sub-surface concrete classification to DS-5, AC-5m.

18.7.6 The installation of piles will induce some ground vibration and assessment of vibration risk to adjacent structures and/or existing site features should be undertaken by the pile designer.

18.7.7 Calorific value testing of the PMCM strata recorded values above 7.0MJ/kg in several samples which indicate they may present a risk of spontaneous combustion. IDG recommend the piling contractor are provided with a copy of this report in order to determine if any precautionary measures are required to mitigate the risk of spontaneous combustion of the PMCM strata during piling.

18.8 Excavations

18.8.1 Granular Glaciofluvial Sheet Deposits are present across the entire site with a shallow groundwater body resting within it. Excavations that encounter these granular deposits are likely to be unstable and running sand should be anticipated.

18.8.2 Allowance should be made for difficult digging for any excavations that extend into the bedrock.

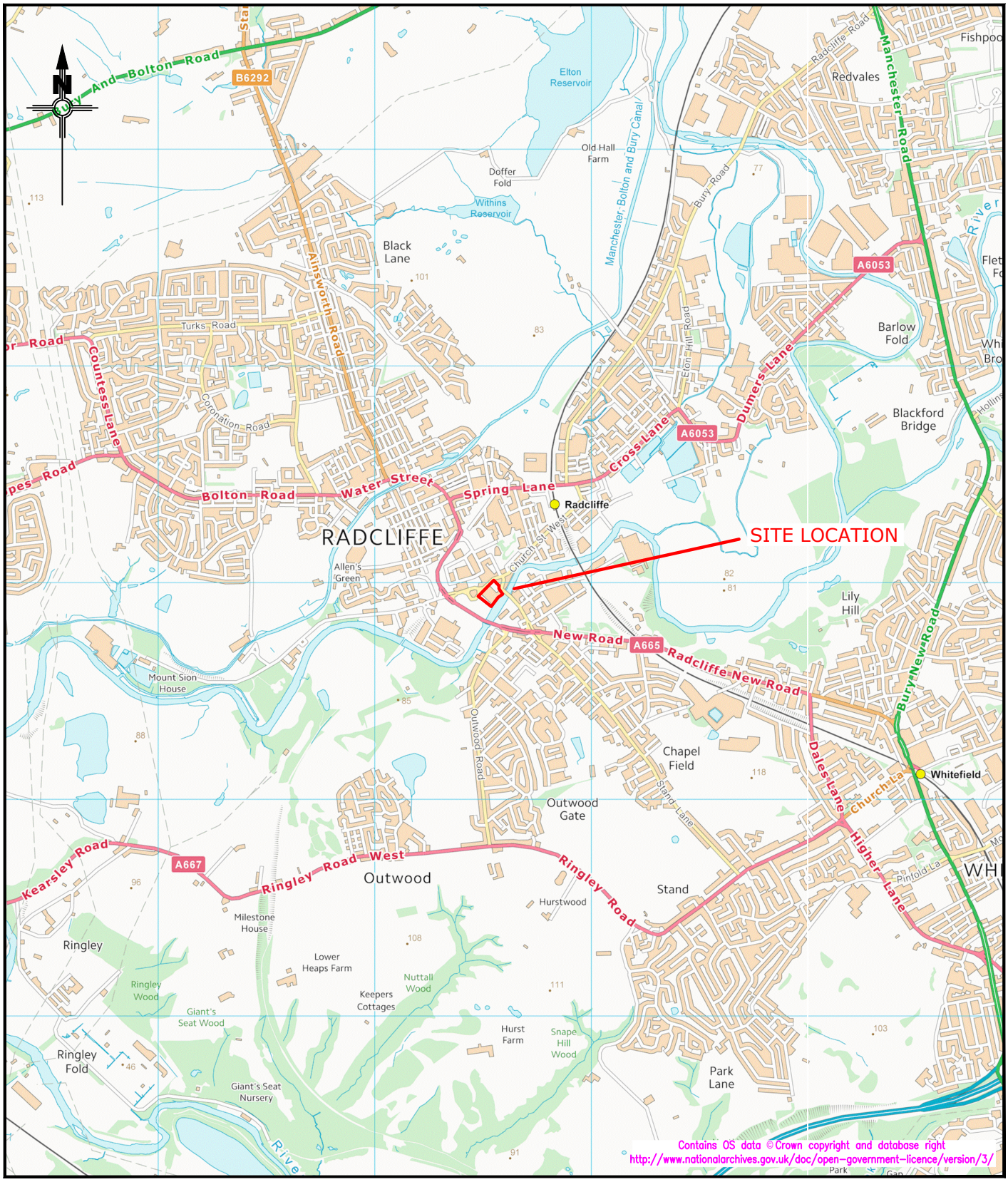
18.8.3 The groundwater body present within the PMCM bedrock at BH07 has been recorded at depths of between 3.16m – 3.20m bgl and is under sub-artesian pressure. Provision for groundwater control should be made for any deep excavations required during development.

18.9 Further Works

18.9.1 Decommissioning of BH07 is recommended during the preparatory works due to sub-artesian groundwater in the PMCM strata.

18.9.2 It is recommended that a watching brief be provided by a Geoenvironmental Consultant during any excavations that occur within the footprint of the former dye works buildings during re-development on the site.

Appendix A



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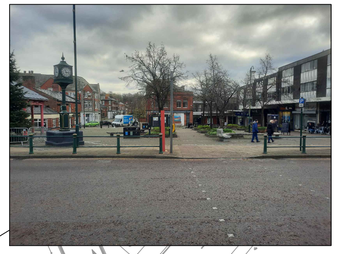
CLIENT	BURY COUNCIL
JOB TITLE	RADCLIFFE HUB
DRAWING TITLE	SITE LOCATION PLAN

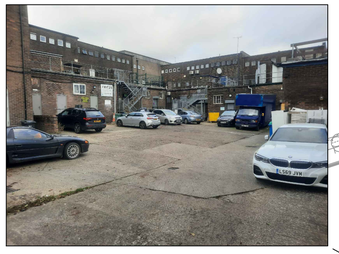
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CLIENT

BURY COUNCIL

JOB TITLE

RADCLIFFE HUB

DRAWING TITLE

SITE FEATURES PLAN

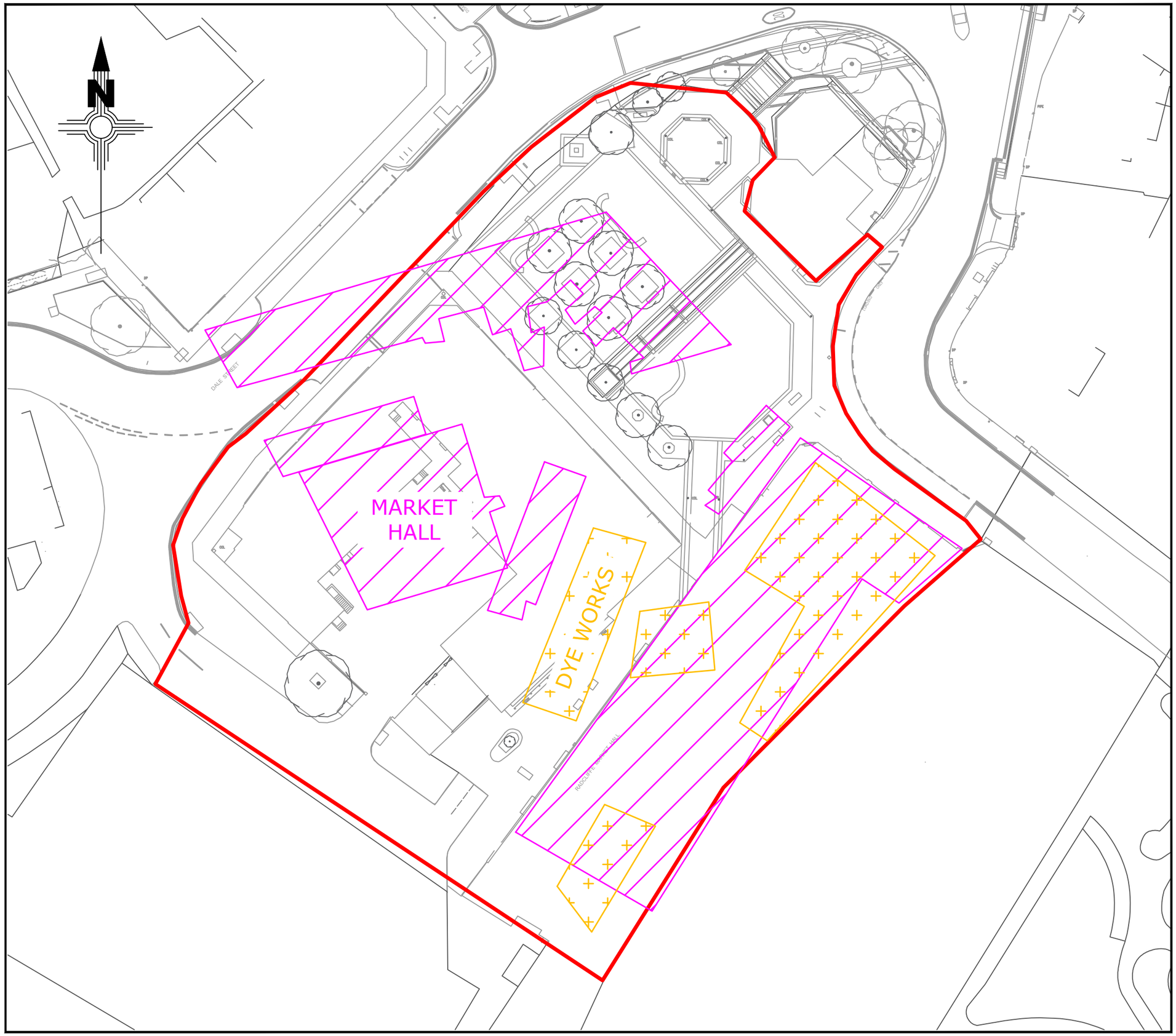
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KEY

- Site Boundary
- Historical Site Feature - 1848 OS Plan
- Historical Site Feature - 1893 OS Plan

Revision	Description	Date

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CLIENT

BURY COUNCIL

JOB TITLE

RADCLIFFE HUB

DRAWING TITLE

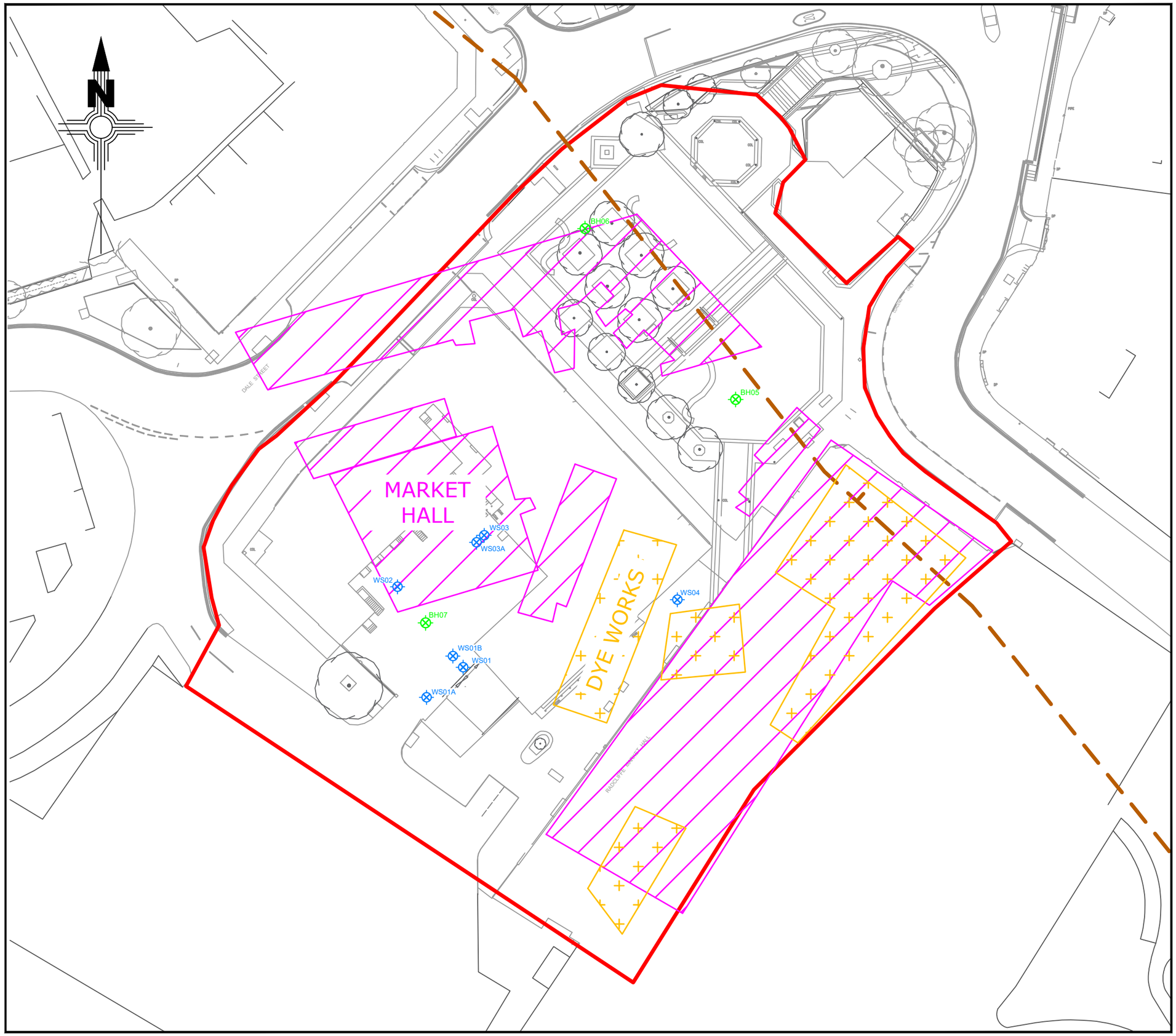
HISTORICAL SITE FEATURES PLAN

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KEY

- Site Boundary
- IDG Window Sample Location
- IDG Rotary Borehole Location
- Approximate Location of Inferred Geological Fault
- Historical Site Feature - 1848 OS Plan
- Historical Site Feature - 1893 OS Plan

Revision	Description	Date

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JOB TITLE

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DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN

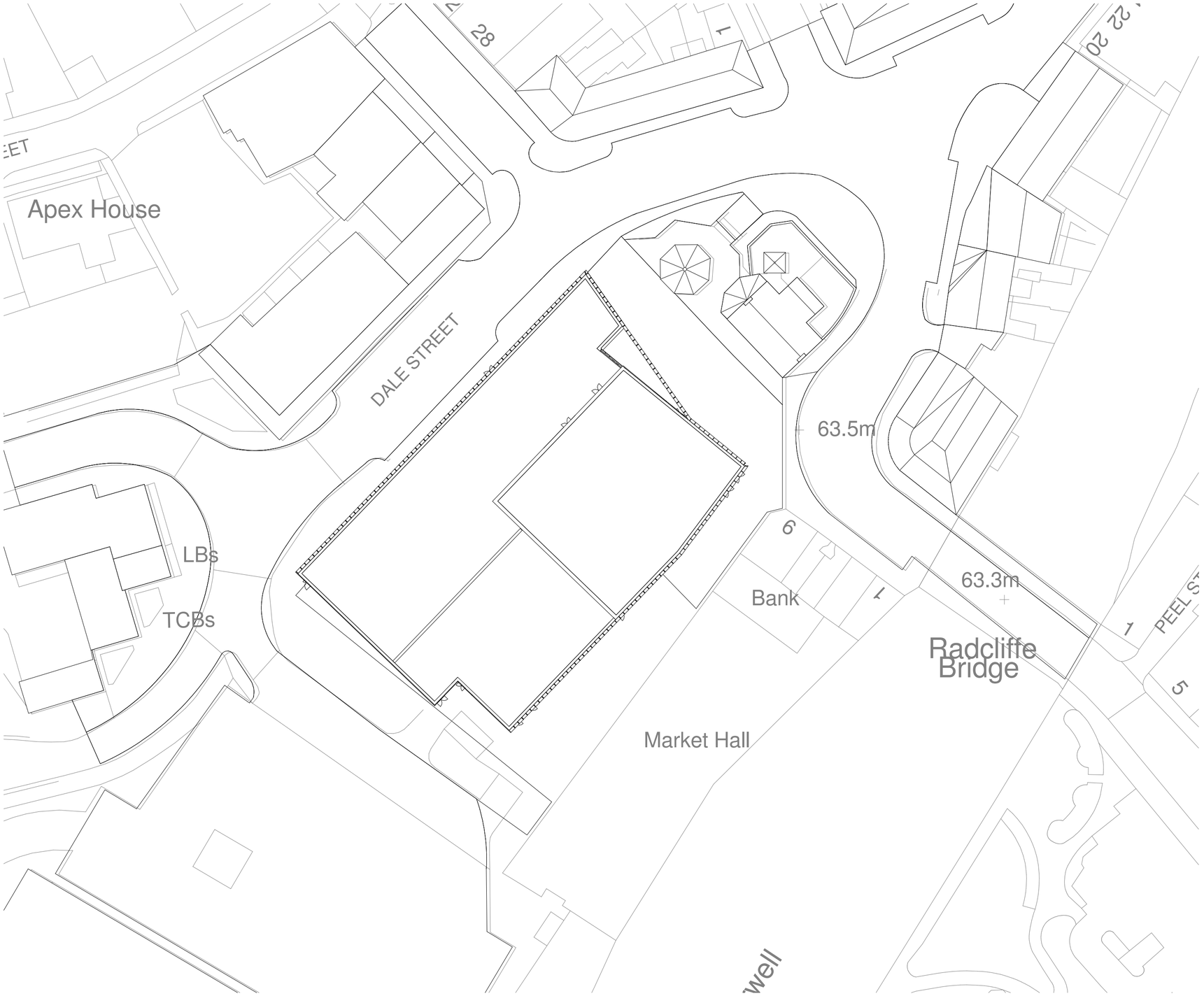
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KEYPLAN

Rev	Description	By	Date
P3	Updated to suit elevation changes.	DAS	21.04.22
P2	Updated following client comment. Building footprint updated + Stair 1 updated.	DAS	07.04.22
P1	Updated to suit client comment. Building repositioned on site.	DAS	19.01.22

Client: VINCI Construction UK Ltd

Job: Radcliffe Hub

Drawing: Proposed Site Layout Plan

POZ Ref: P5860_1105 Rev: P3

BS Ref: RADHUB-PAL-VV-XX-DR-A-1105

Date: 01/19/22 Scale: 1 : 500 @ A2

3D CoOrd: DM 2D CoOrd: DAS Approved: DAS

Project Status: Planning | Tender | Construction; Design | Contract | As Built

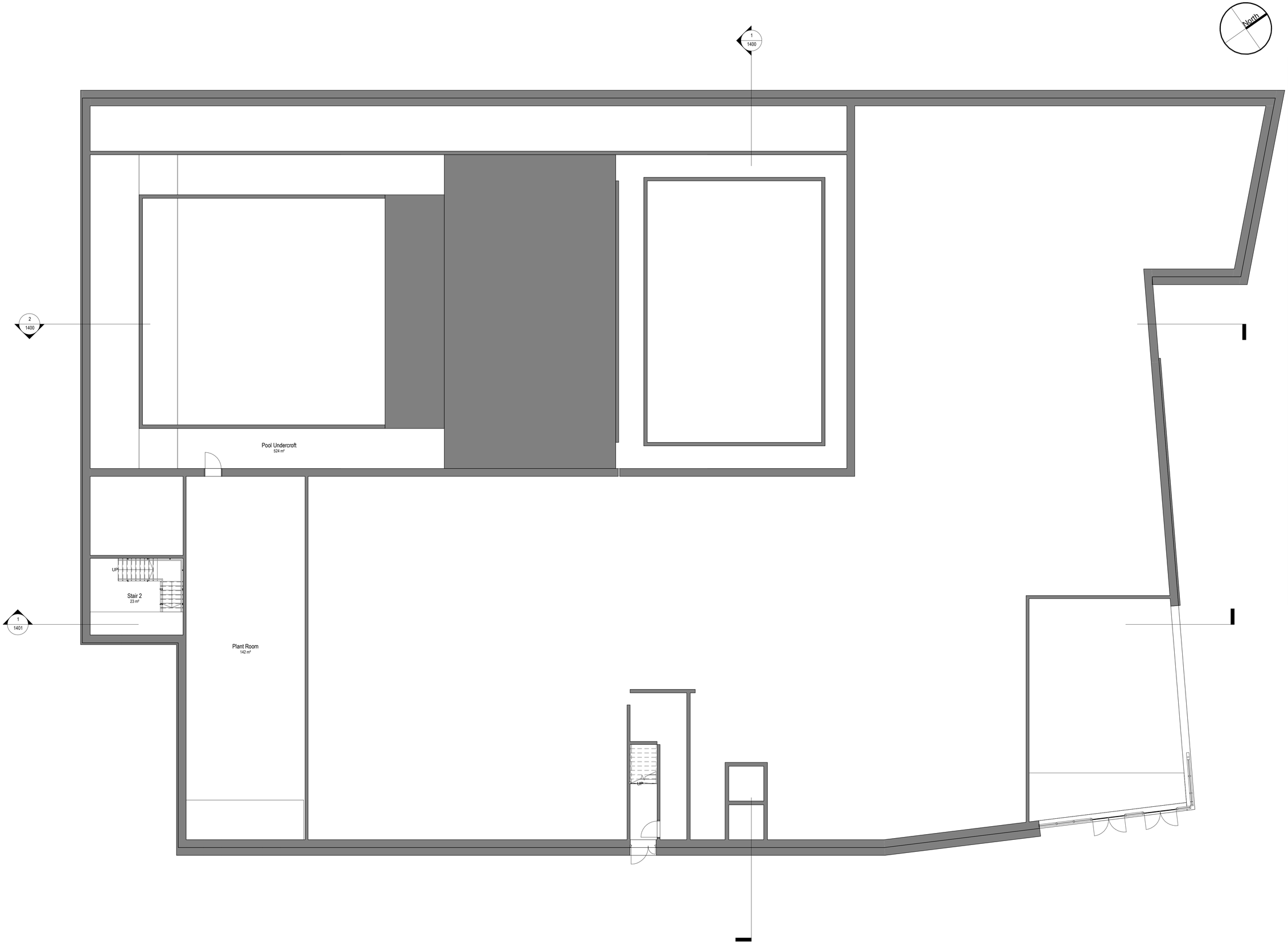
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1:200	mm		5000	6000	
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1:1250	M	10	30	50	70

Rev	Description	By	Date
P7	Updated to suit elevation changes.	DAS	21.04.22
P6	Updated to suit client comment. Clip and Climb adjusted.	DAS	14.04.22
P5	Updated following client comment. Building footprint updated + Stair 1 updated.	DAS	07.04.22
P4	Updated to suit client comment. Drawing reference updated.	DAS	21.01.22
P3	Updated following Design Review. Community room relocated, along with retail and associated accommodation.	DAS	16.12.21
P2	Updated to suit client comments - consultation room and waiting added, store reduced to compensate.	DAS	30.11.21
P1	Further detail added.	DJ	16.11.21

Client: VINCI Construction UK Ltd

Job: Radcliffe Hub

Drawing: Lower Ground Floor Plan

POZ Ref: P5860_1201 Rev: P7

BIM Ref: RADHUB-PAL-V4-B1-DR-A-1201

Date: 11/02/21 Scale: 1 : 100 @ A1

3D CoOrd	2D CoOrd	Approved
DM	DAS	DAS

Project Status		
Planning	Tender	Construction
Design	Contract	As Built

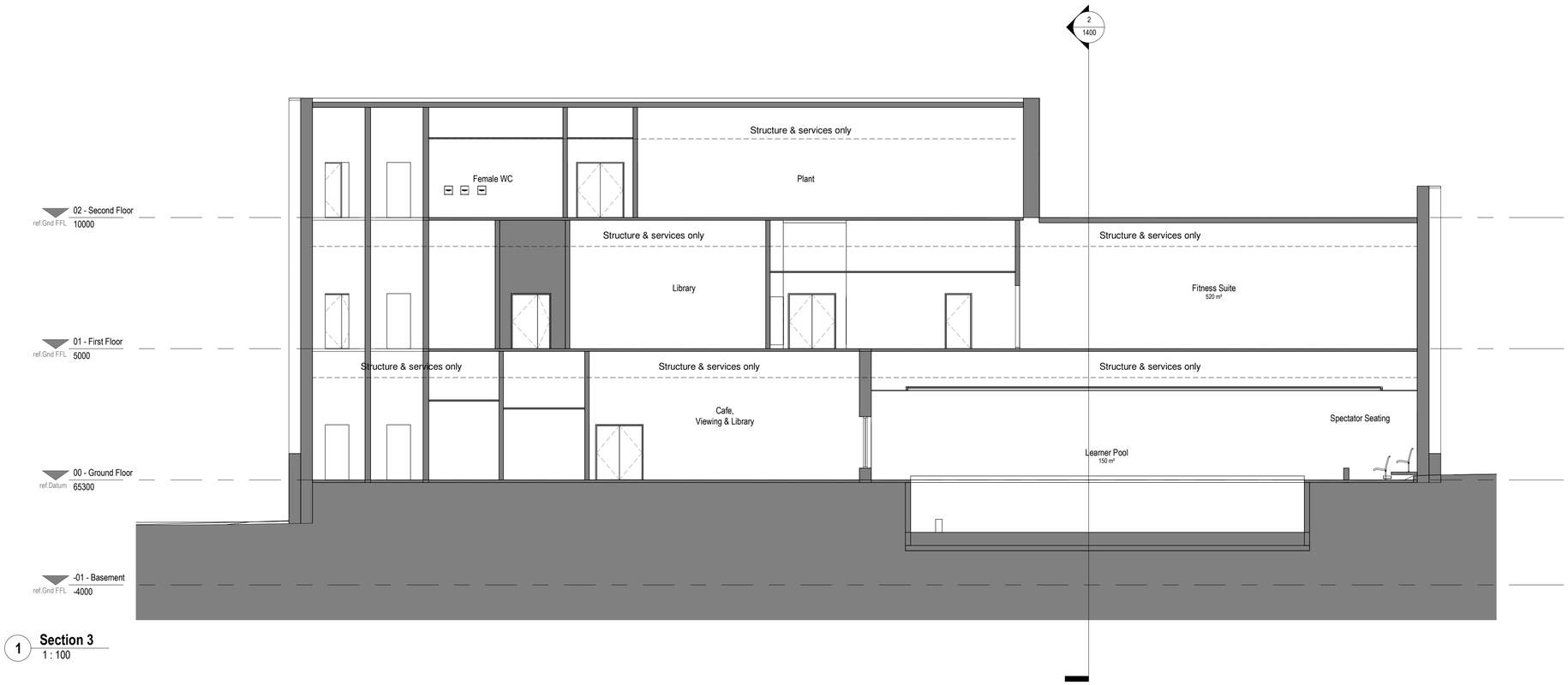
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London
WC1N 3QA

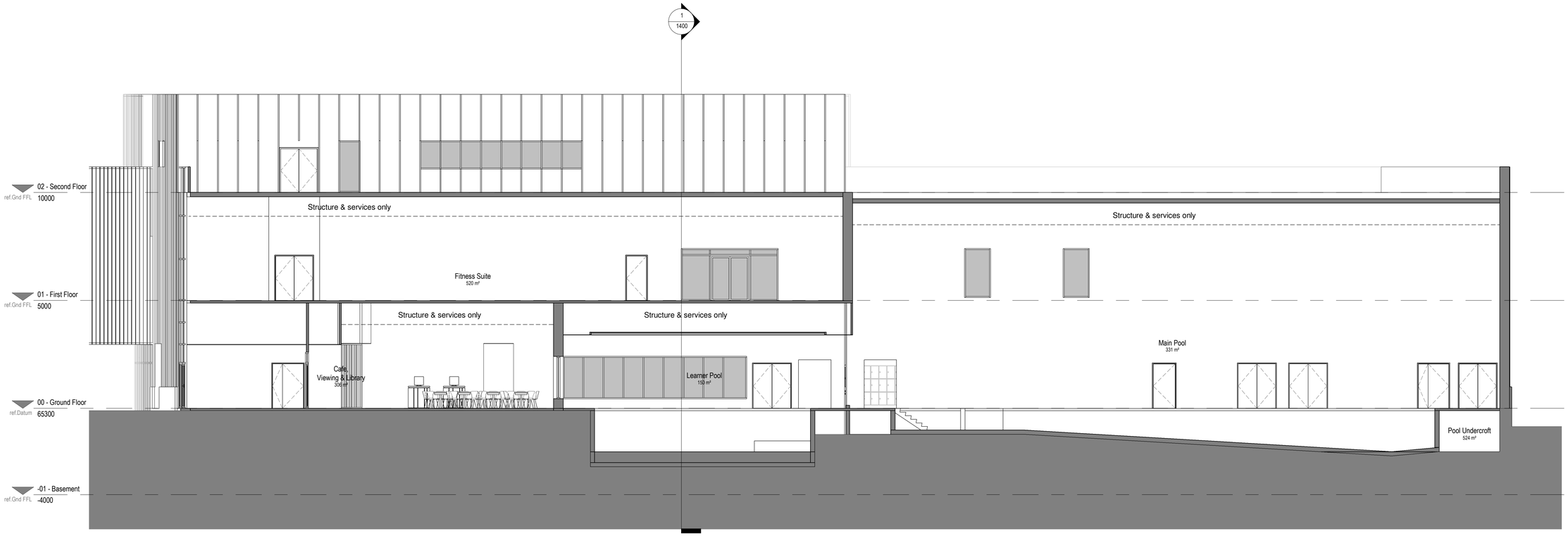
Woodville House
2 Woodville Road
Altrincham
WA14 2FH

+44 20 7078 0079
architects@pozzoni.co.uk

+44 161 928 7848
www.pozzoni.co.uk



1 **Section 3**
1 : 100



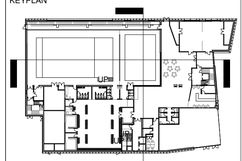
2 **Section 2**
1 : 100

Notes

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Scale Bars		TO BE USED ONLY AS GUIDANCE				
1:100	mm	1000	3000	5000		
1:200	mm	5000	6000			
1:500	M	5	15	25		
1:1250	M	10	30	50	70	

KEYPLAN



Rev	Description	By	Date
P4	Updated to suit current scheme.	DAS	23.05.22
P3	Updated to suit elevation changes.	DAS	21.04.22
P2	Updated to suit client comment. Drawing reference updated.	DAS	21.01.22
P1	Updated to suit current scheme. Layout updated, floor levels updated.	DAS	06.01.22

Client: VINCI Construction UK Ltd

Job: Radcliffe Hub

Drawing: Planning - Propsed Sections - Sheet 1 of 2

PO2 Ref: P5860_1400 Rev: P4

BS Ref: RADHUB-PAL-V0-XX-DR-A-1400

Date: 17.11.21 Scale: As indicated @ A1

3D CoOrd	2D CoOrd	Approved
DM	DJ	DAS

Project Status		
Planning	Tender	Construction
Design	Contract	As Built

pozzoni

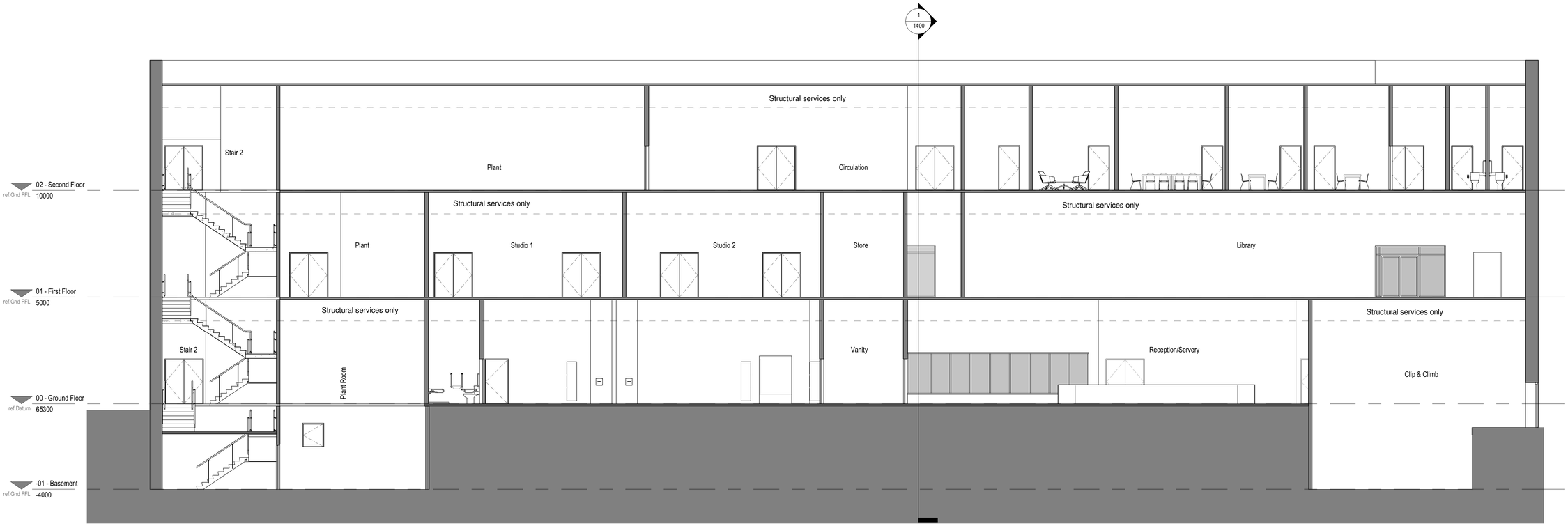
10-12 Emerald Street
London
WC1N 3QA

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2 Woodville Road
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23/05/2022 15:20:24



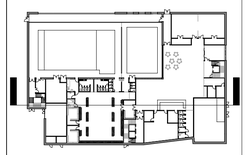
1 Section 1
1 : 100

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1:100	mm	1000		3000		5000
1:200	mm		5000		6000	
1:500	M	5		15		25
1:1250	M	10	30		50	70

KEYPLAN



Rev	Description	By	Date

Client: VINCI Construction UK Ltd

Job: Radcliffe Hub

Drawing: Planning - Proposed Sections 2 of 2

PO2 Ref: P5860_1401 Rev:

BSRef: 1401

Date: 01/25/22 Scale: As indicated @ A1

3D CoOrd: DM 2D CoOrd: DAS Approved: DAS

Project Status: Planning | Tender | Construction | Design | Contract | As Built

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WC1N 3QA

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WA14 2FH

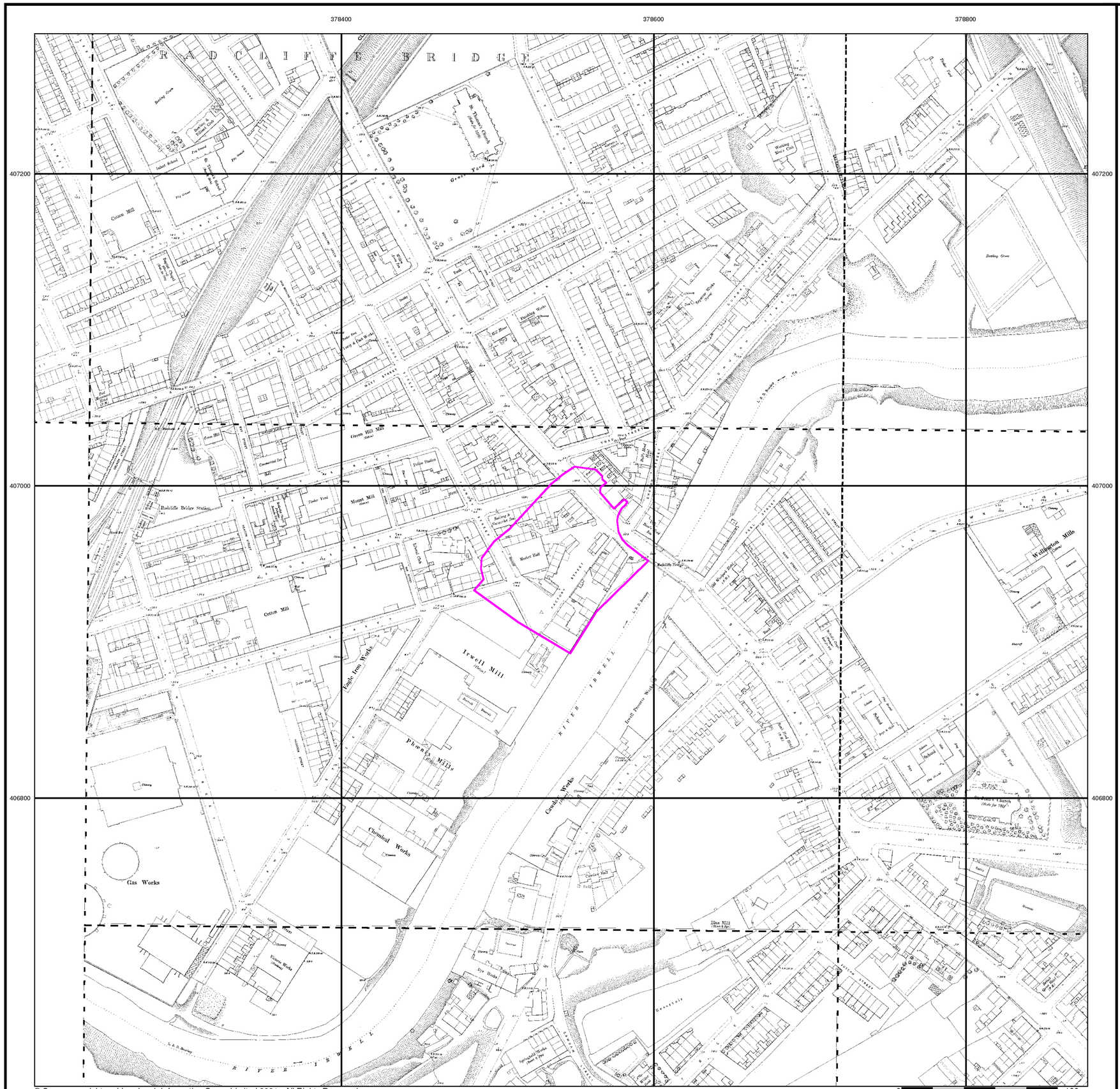
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architects@pozzoni.co.uk

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Viewpoint Status: S4 Viewpoint Status: S4

Appendix B



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iGeo

Lancashire And Furness

Published 1891

Source map scale - 1:500

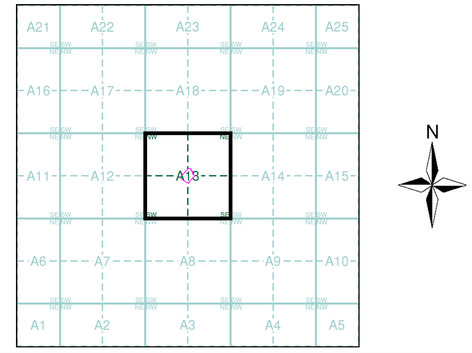
The 1:500 scale Ordnance Survey mapping was introduced in 1855 as a replacement for the 1:528 scale and to compliment the 1:2500 scale that had been implemented in 1853. By 1895, the 1:500 scale covered most towns over a population of about 4000 at the time of survey, although very few towns were mapped more than once at this scale, and none have been since 1910. The 1:500 scale gives particular emphasis to such features as lamp posts, man holes, arched passages and minor building projections. Also often featured are divisions between tenements, interior ground floor layouts of public buildings, and on earlier plans, the functions of the various parts of larger industrial premises are also indicated. Content of the plans does vary however, from one town to the next in terms of, for example, the completeness of railway tracks and the coverage of public buildings.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)

095_04_012 1891 1:500
095_04_013 1891 1:500
095_04_014 1891 1:500
095_04_018 1891 1:500
095_04_019 1891 1:500
095_04_023 1891 1:500
095_04_024 1891 1:500

Historical Town Plan - Segment A13



Order Details

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Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	0

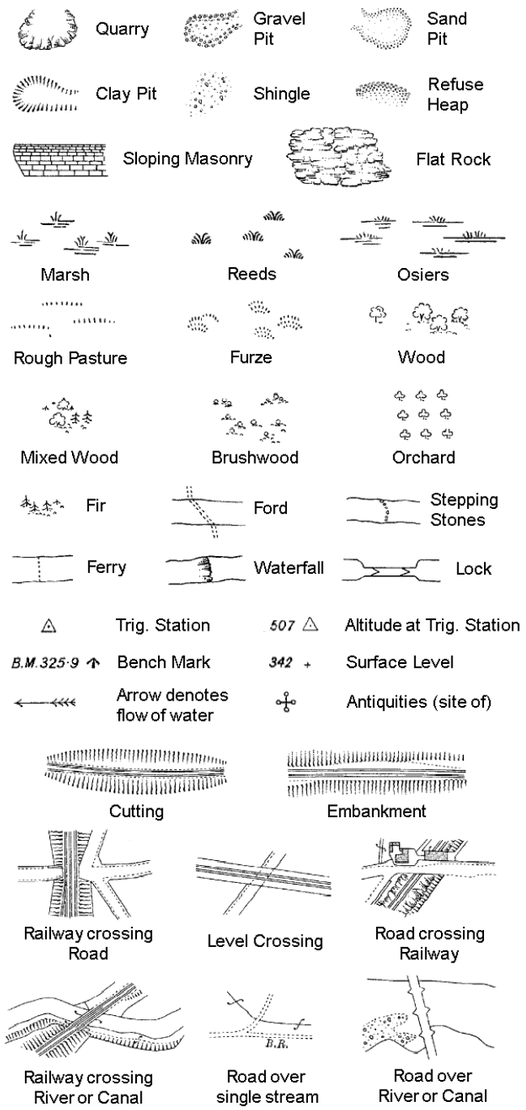
Site Details

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Historical Mapping Legends

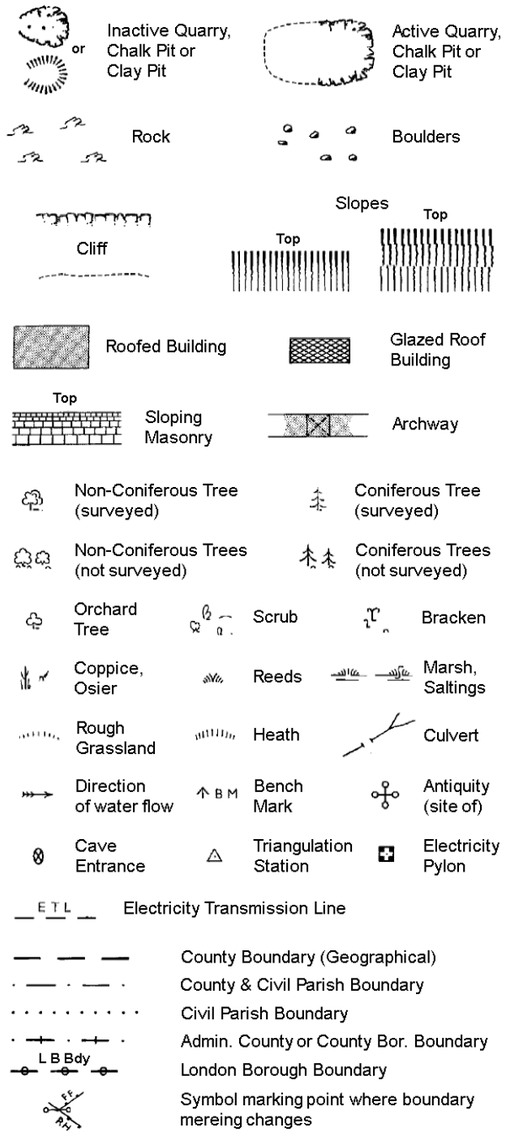
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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

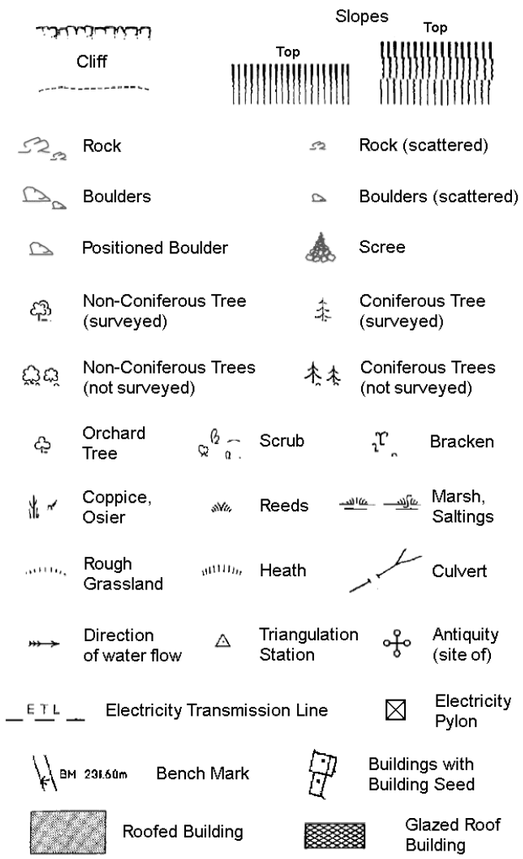
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



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)

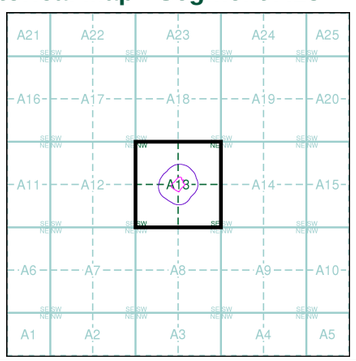
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity 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

iGeo

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1893	2
Lancashire And Furness	1:2,500	1909	3
Lancashire And Furness	1:2,500	1929	4
Lancashire And Furness	1:2,500	1937	5
Ordnance Survey Plan	1:1,250	1956 - 1957	6
Ordnance Survey Plan	1:2,500	1956 - 1957	7
Ordnance Survey Plan	1:1,250	1970 - 1975	8
Additional SIMs	1:1,250	1978 - 1982	9
Additional SIMs	1:1,250	1987 - 1988	10
Ordnance Survey Plan	1:1,250	1989	11
Large-Scale National Grid Data	1:1,250	1992	12
Additional SIMs	1:1,250	1992	13
Large-Scale National Grid Data	1:1,250	1994 - 1995	14
Large-Scale National Grid Data	1:1,250	1995	15
Large-Scale National Grid Data	1:1,250	1996	16

Historical Map - Segment A13



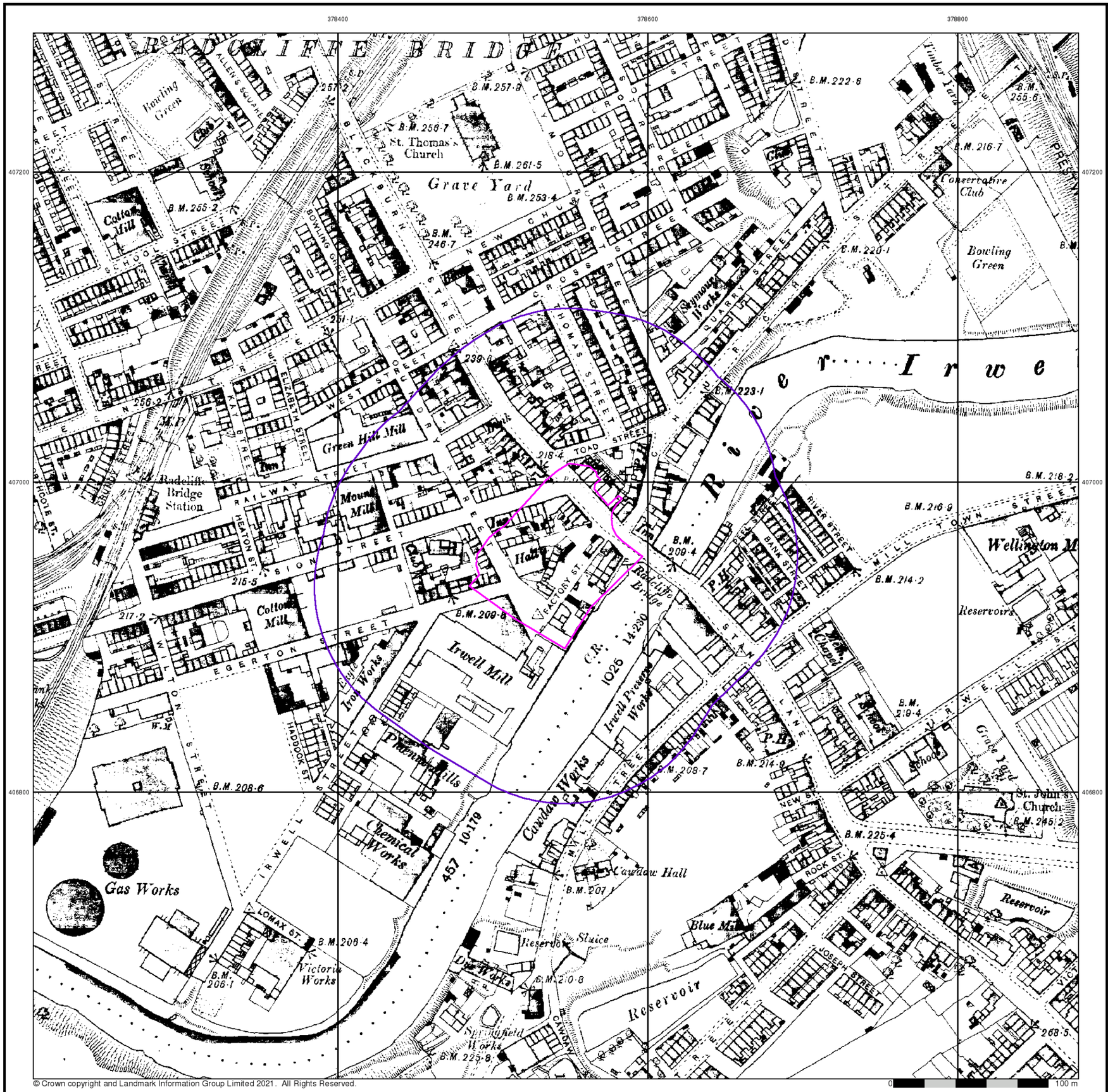
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Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

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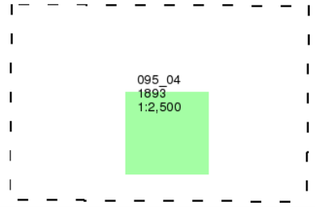
Lancashire And Furness

Published 1893

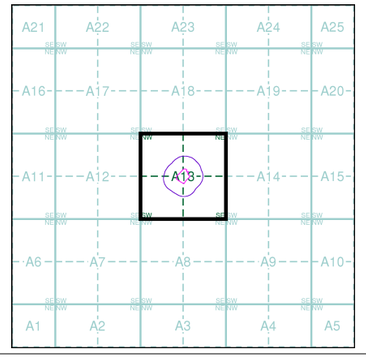
Source map scale - 1:2,500

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



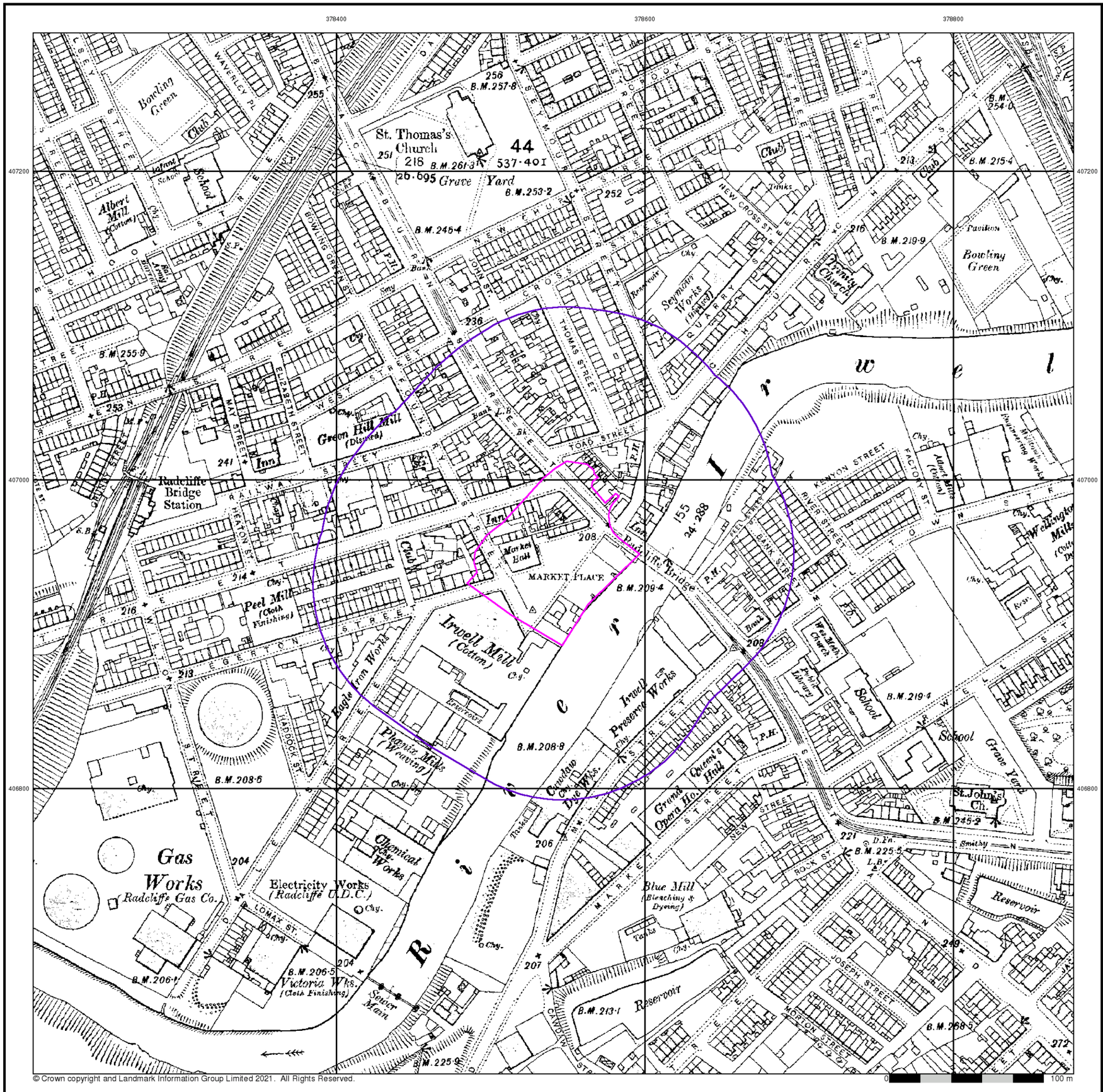
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National Grid Reference:	378540, 406950
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Search Buffer (m):	100

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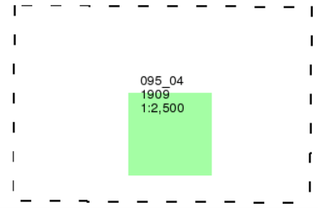
Lancashire And Furness

Published 1909

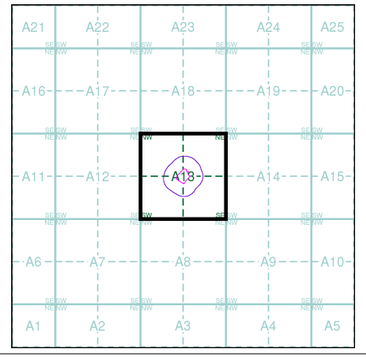
Source map scale - 1:2,500

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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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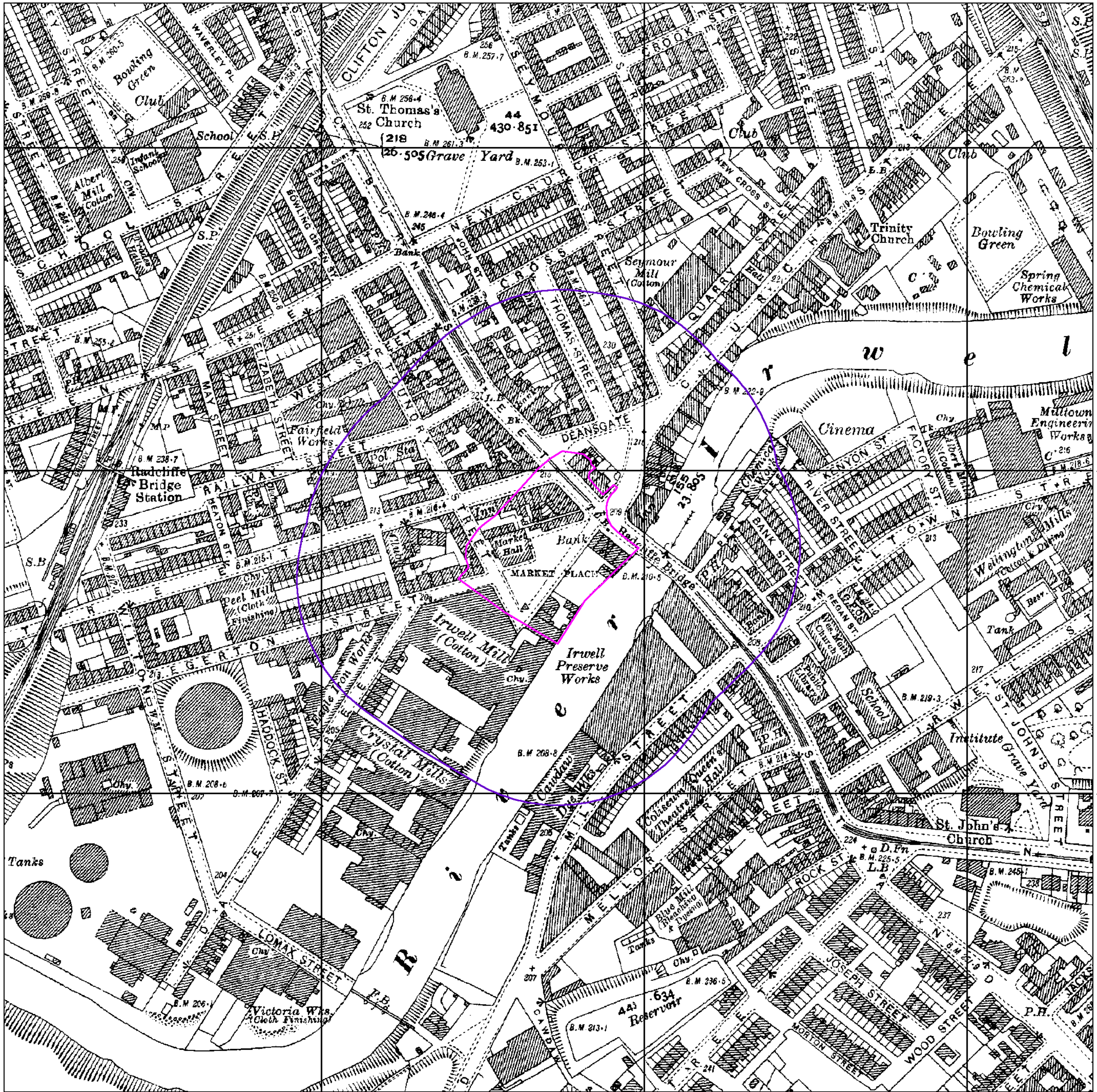
Site Details

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378400 378600 378800

407200



407000

406800

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0 100 m

Lancashire And Furness

Published 1929

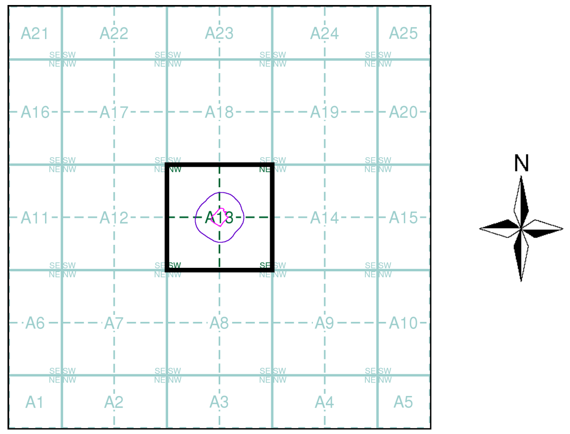
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Map Name(s) and Date(s)

095_04
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1:2,500

Historical Map - Segment A13



Order Details

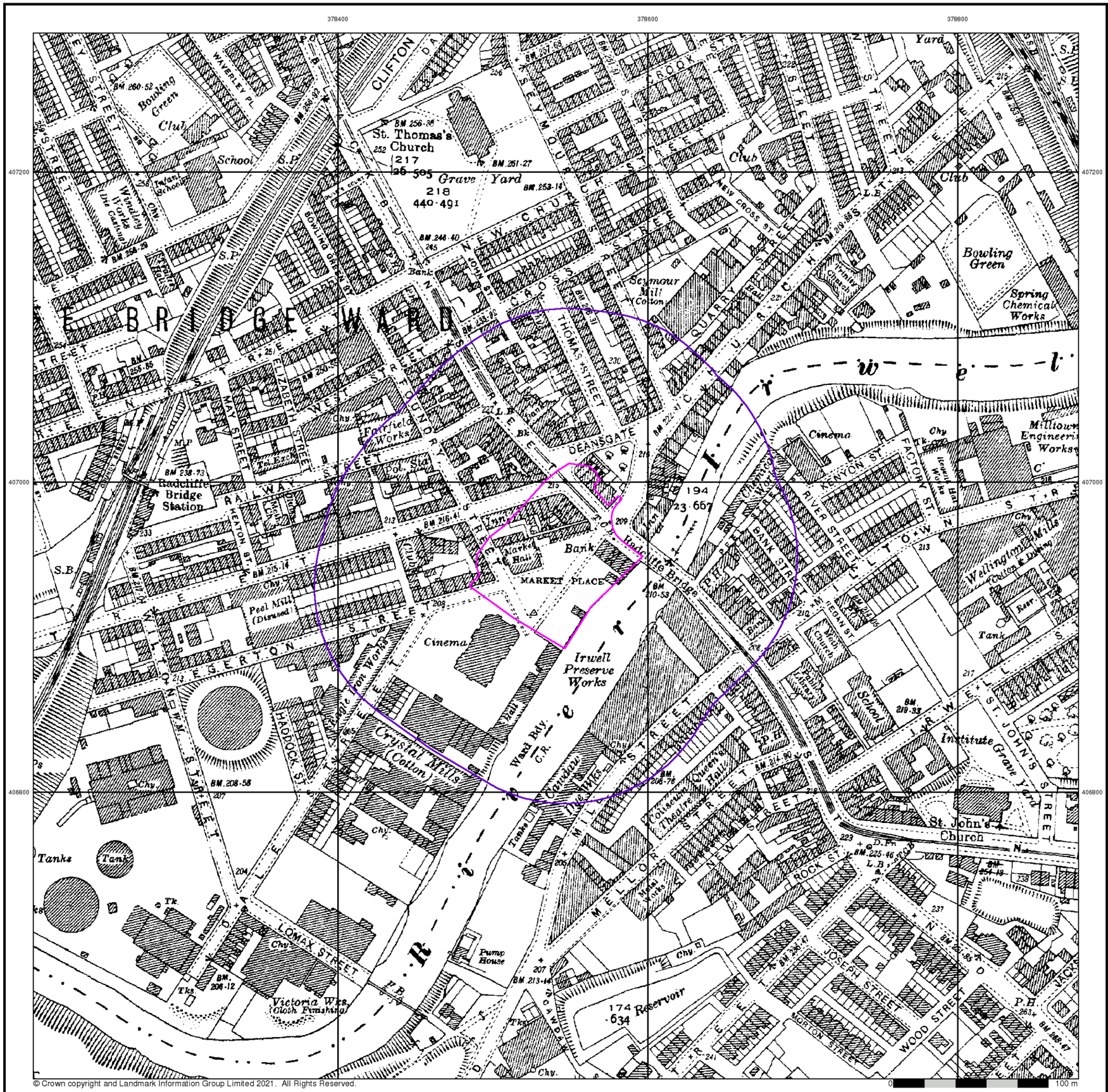
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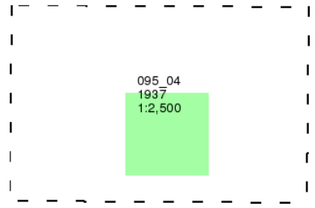
Lancashire And Furness

Published 1937

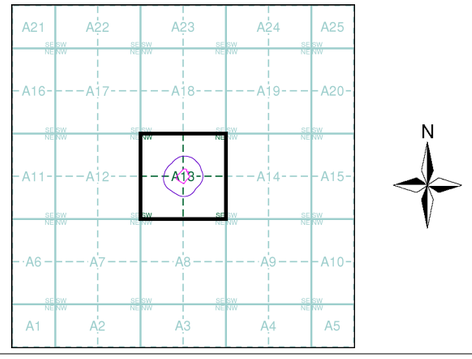
Source map scale - 1:2,500

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



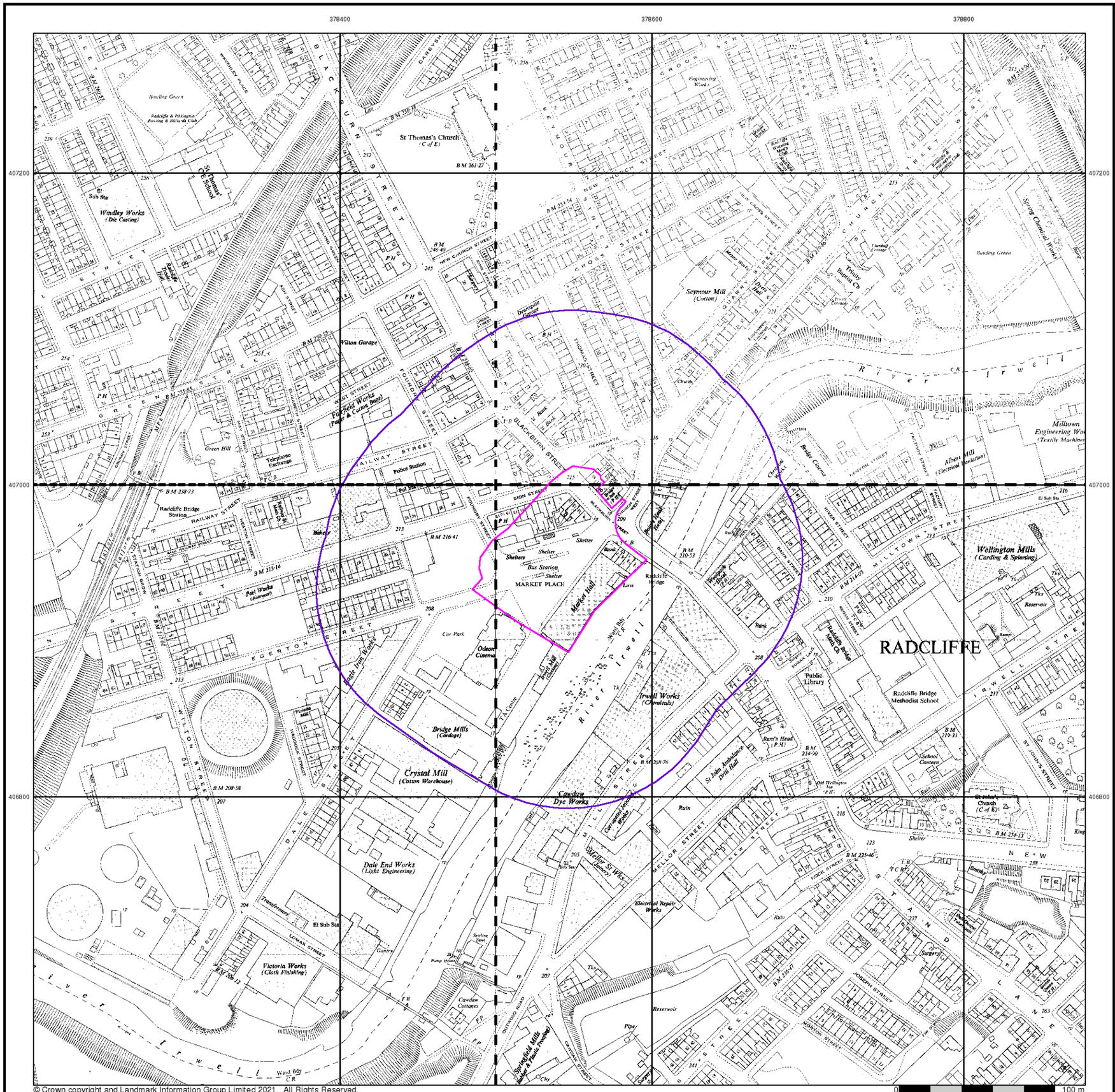
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Search Buffer (m):	100

Site Details

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Ordnance Survey Plan

Published 1956 - 1957

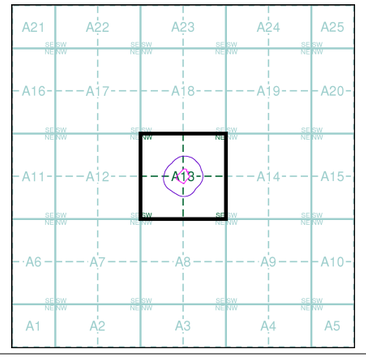
Source map scale - 1:1,250

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Map Name(s) and Date(s)

SD7807SW 1957 1:1,250	SD7807SE 1957 1:1,250
SD7806NW 1956 1:1,250	SD7806NE 1956 1:1,250

Historical Map - Segment A13



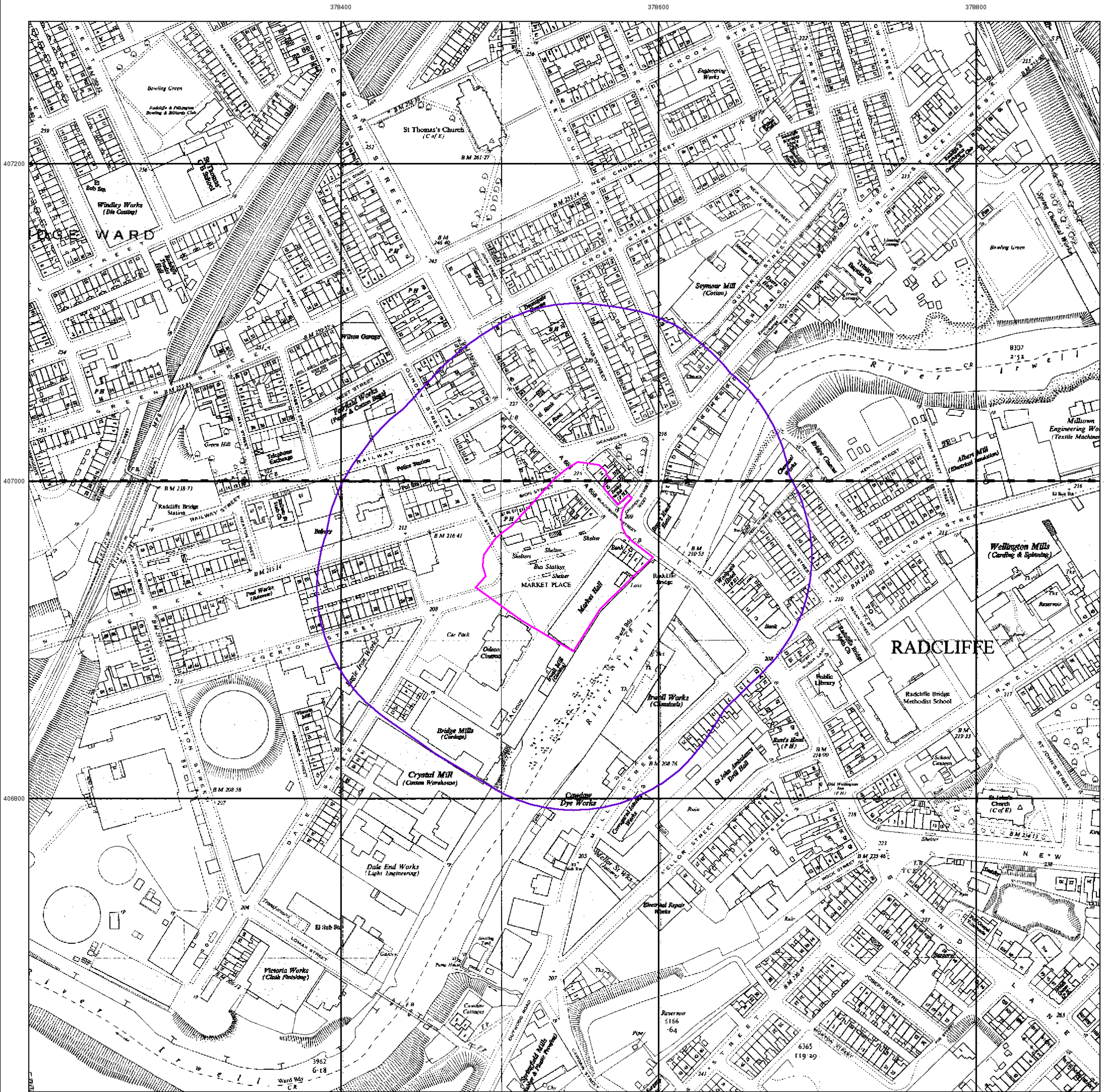
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National Grid Reference:	378540, 406950
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Site Area (Ha):	0.73
Search Buffer (m):	100

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Ordnance Survey Plan

Published 1956 - 1957

Source map scale - 1:2,500

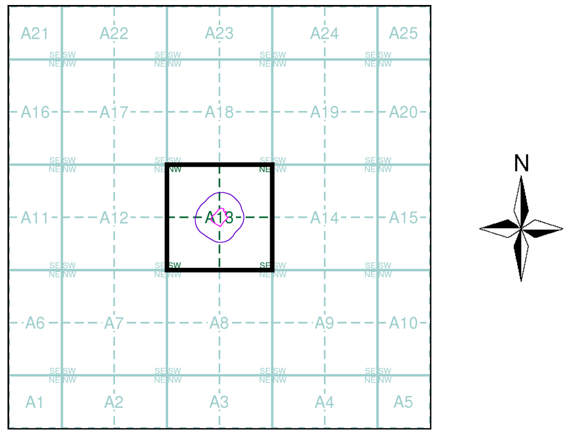
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Map Name(s) and Date(s)

SD7807
1957
1:2,500

SD7806
1956
1:2,500

Historical Map - Segment A13



Order Details

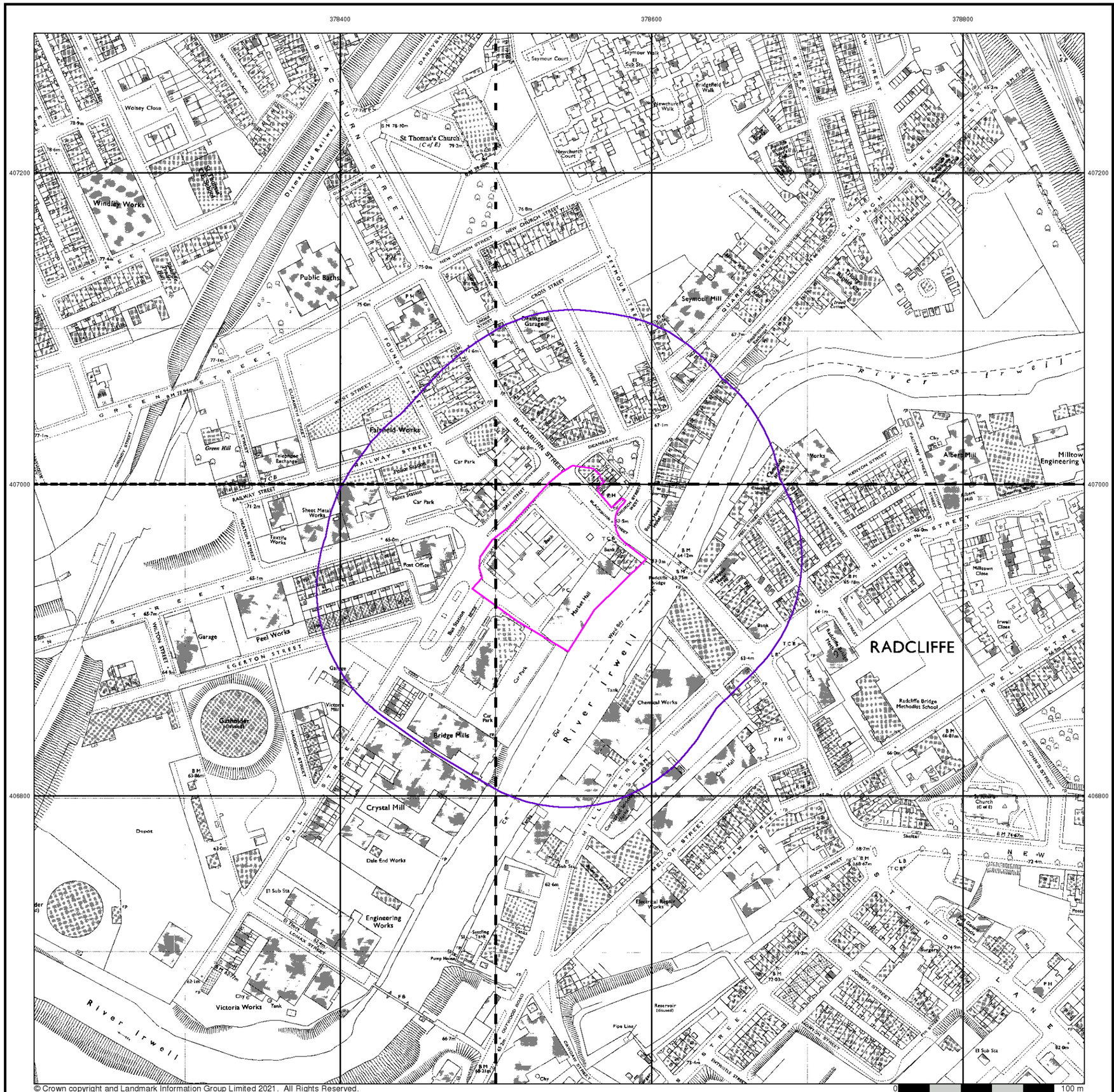
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National Grid Reference: 378540, 406950
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 100

Site Details

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Ordnance Survey Plan

Published 1970 - 1975

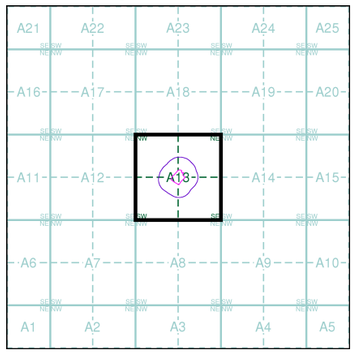
Source map scale - 1:1,250

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)

SD7807SW 1970 1:1,250
SD7807SE 1970 1:1,250
SD7806NW 1975 1:1,250
SD7806NE 1972 1:1,250

Historical Map - Segment A13



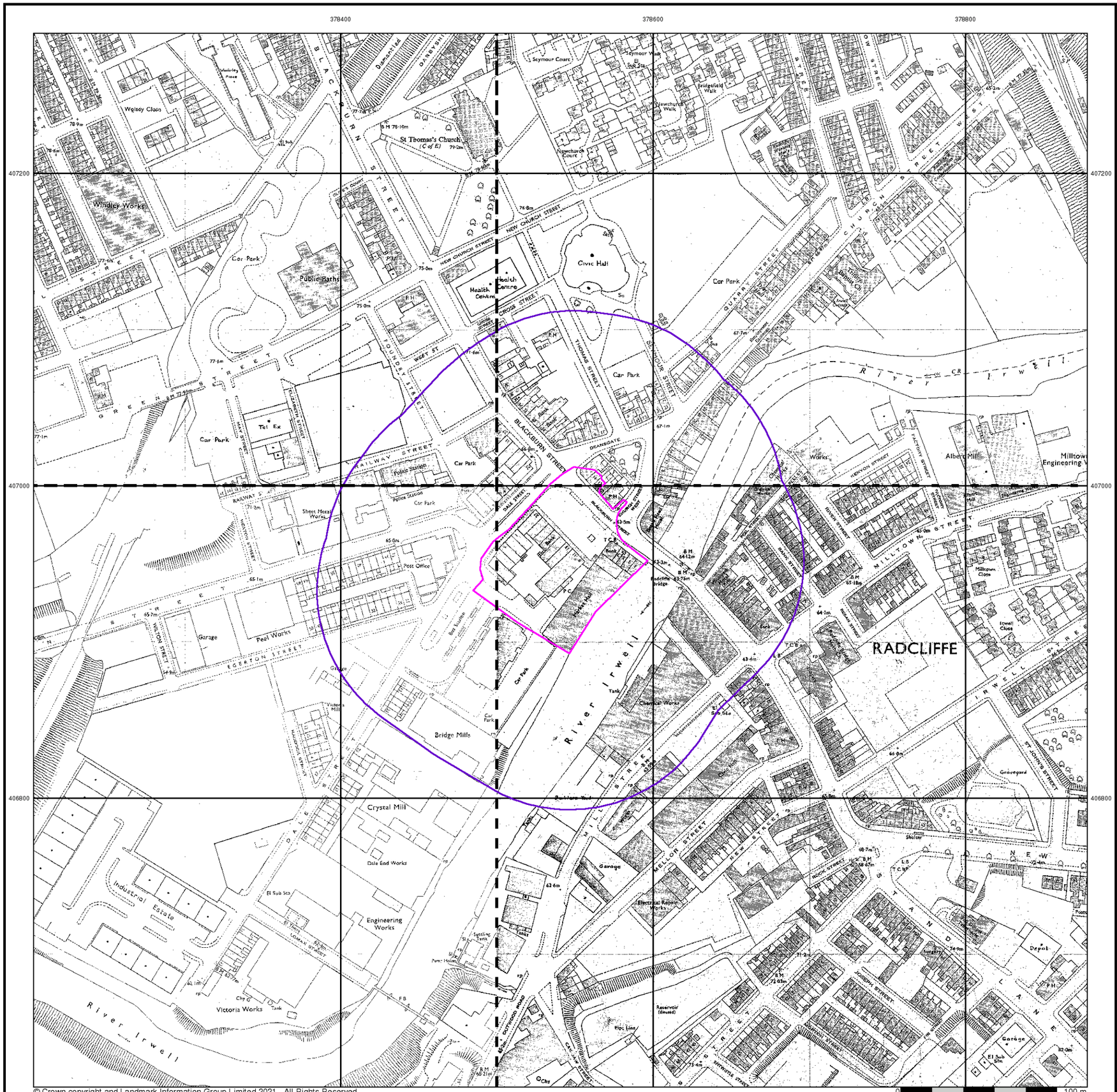
Order Details

Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	100

Site Details

Radcliffe Hub, Radcliffe, MANCHESTER

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



iGeo

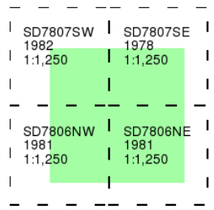
Additional SIMs

Published 1978 - 1982

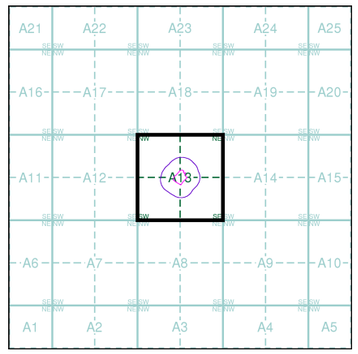
Source map scale - 1:1,250

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



Order Details

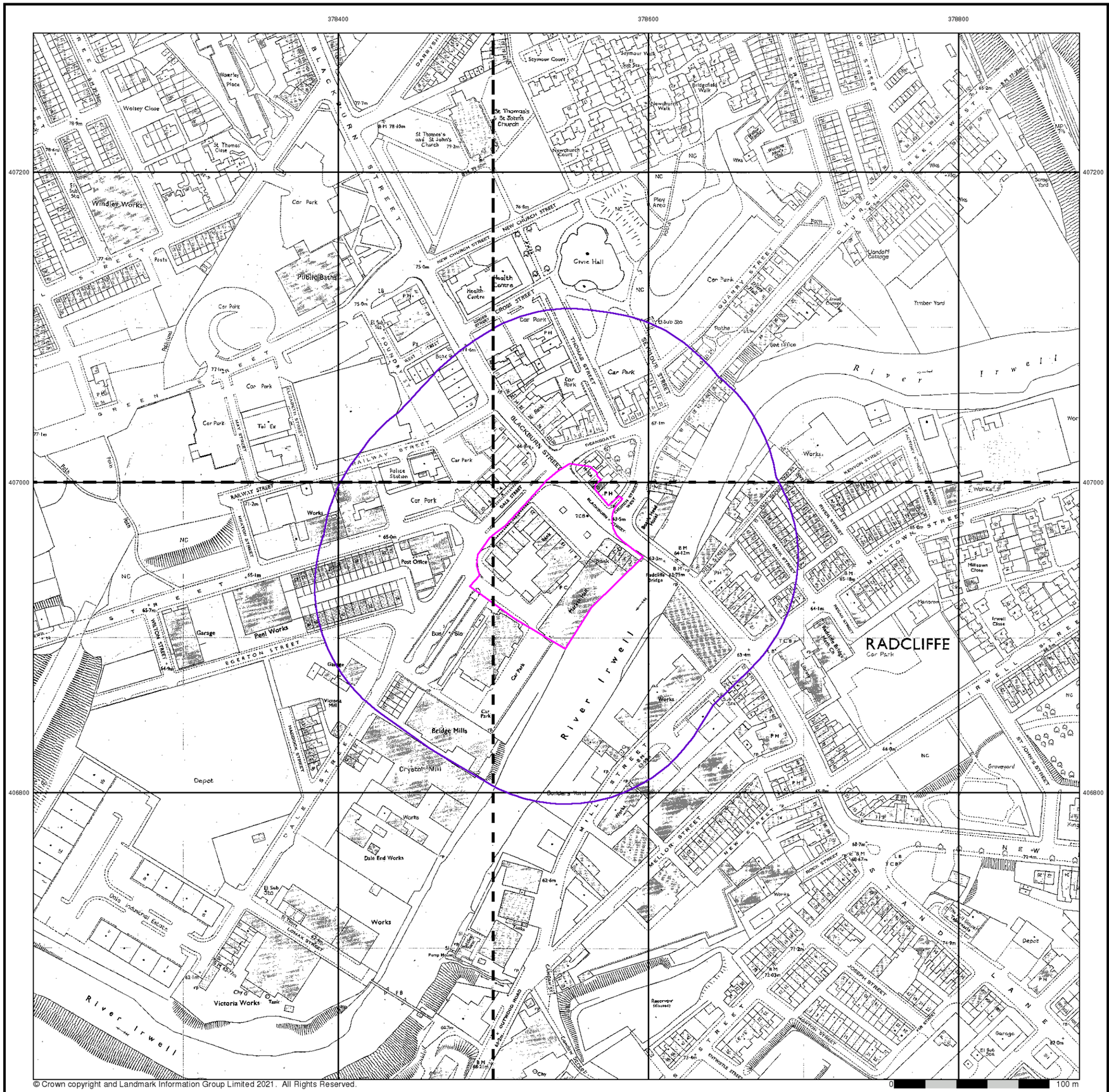
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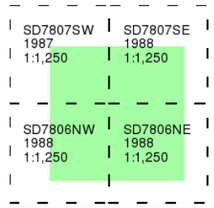
Additional SIMs

Published 1987 - 1988

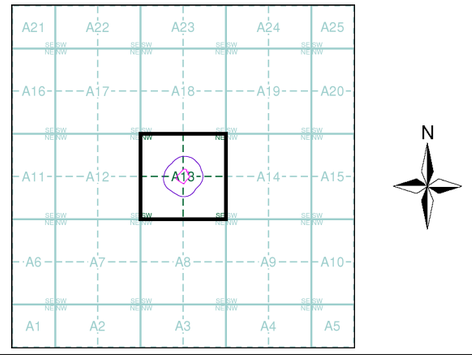
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



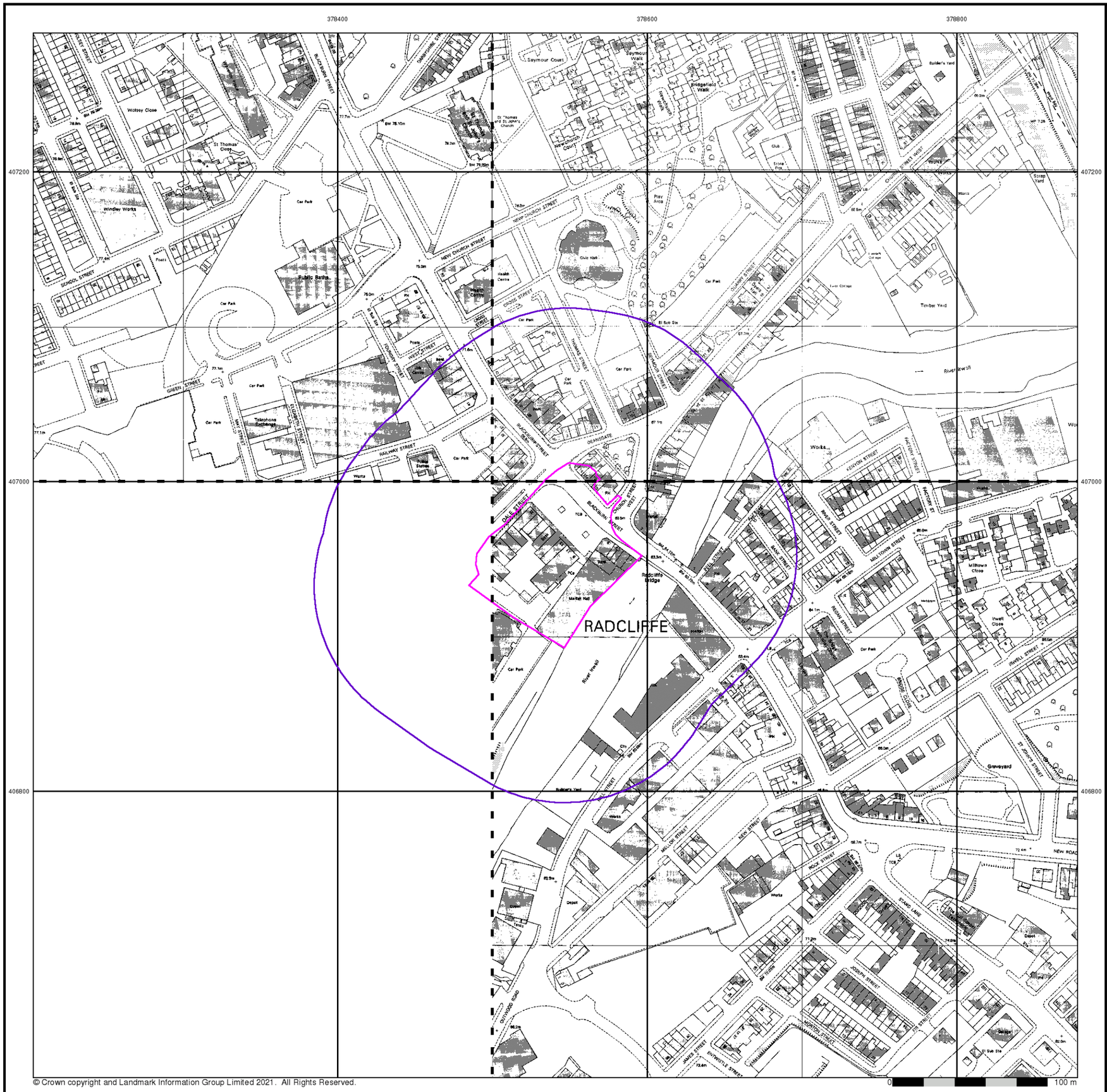
Order Details

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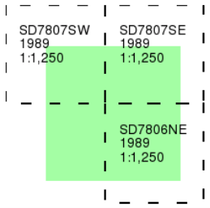
Ordnance Survey Plan

Published 1989

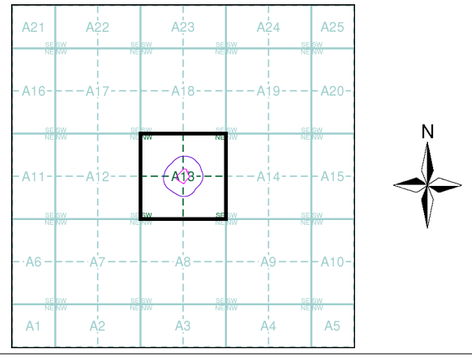
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

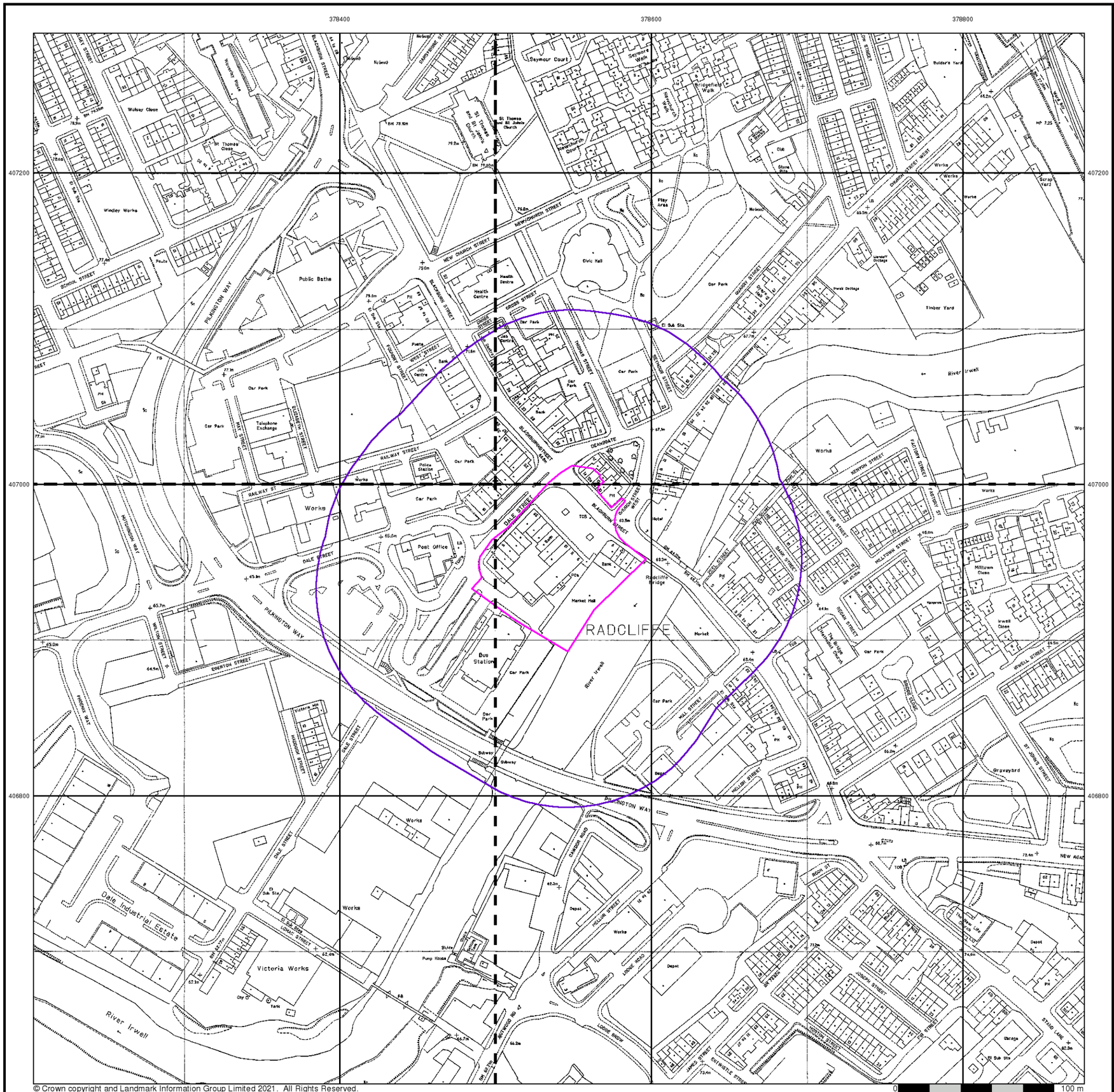
Order Number:	287964086_1_1
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National Grid Reference:	378540, 406950
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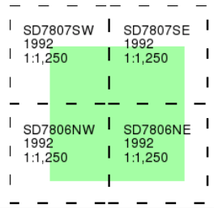
Large-Scale National Grid Data

Published 1992

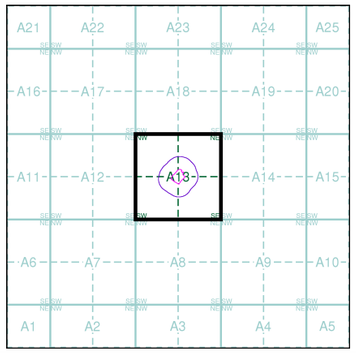
Source map scale - 1:1,250

'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)



Historical Map - Segment A13



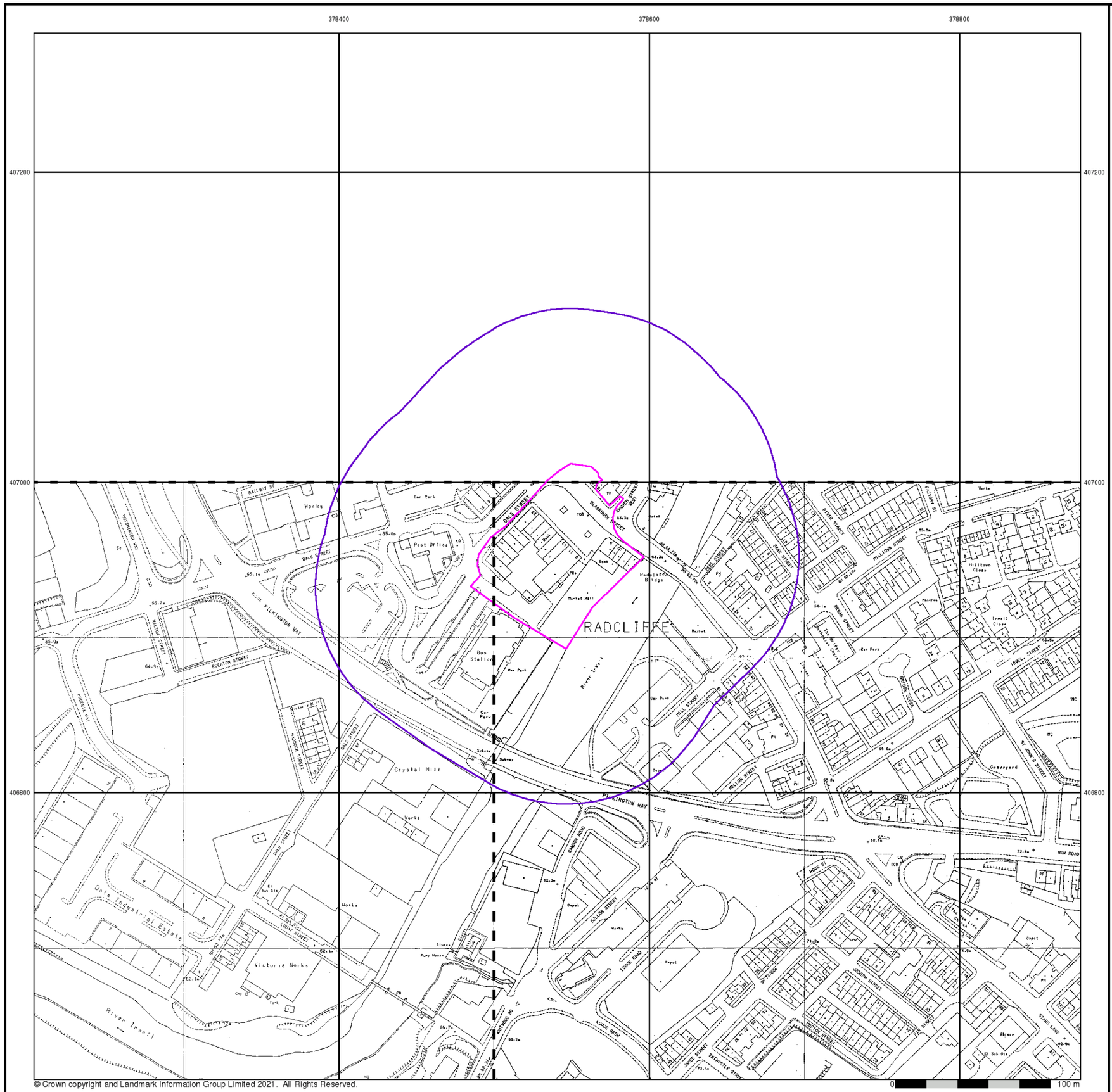
Order Details

Order Number:	287964086_1_1
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National Grid Reference:	378540, 406950
Slice:	A
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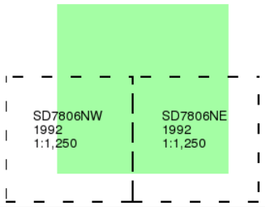
Additional SIMs

Published 1992

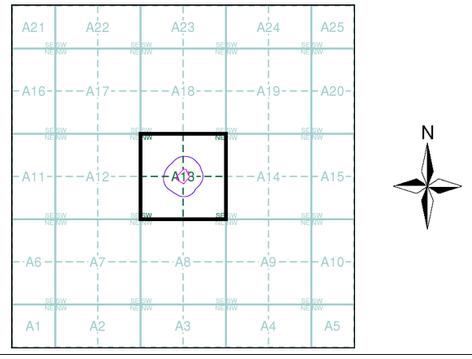
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



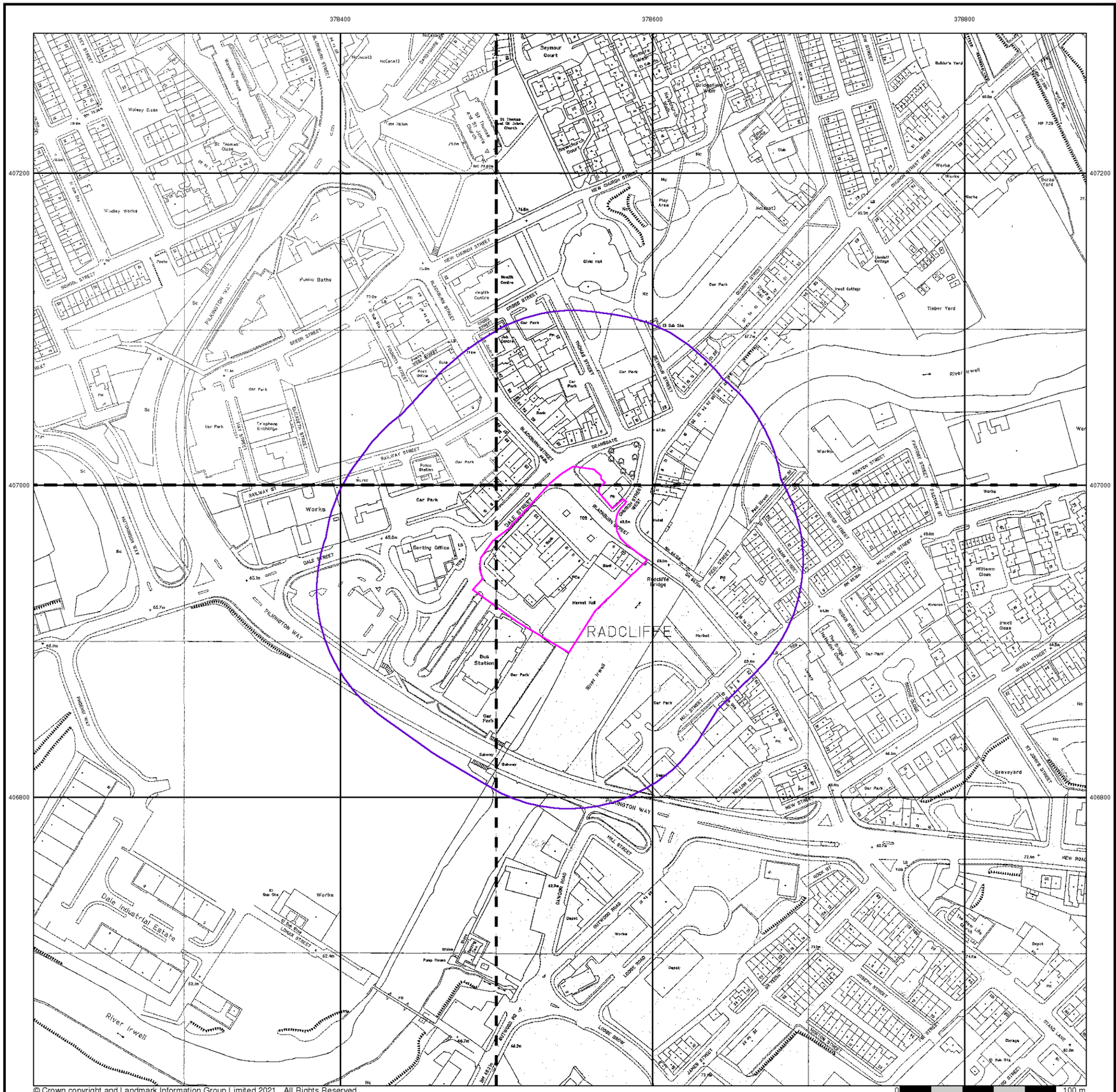
Order Details

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Slice:	A
Site Area (Ha):	0.73
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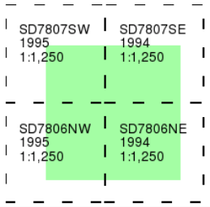
Large-Scale National Grid Data

Published 1994 - 1995

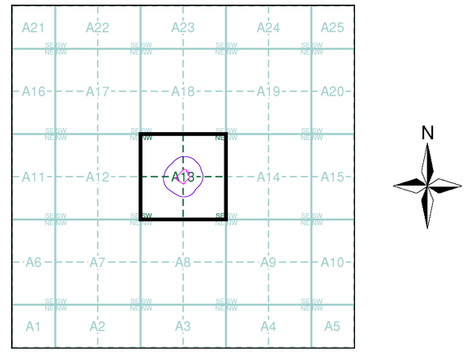
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



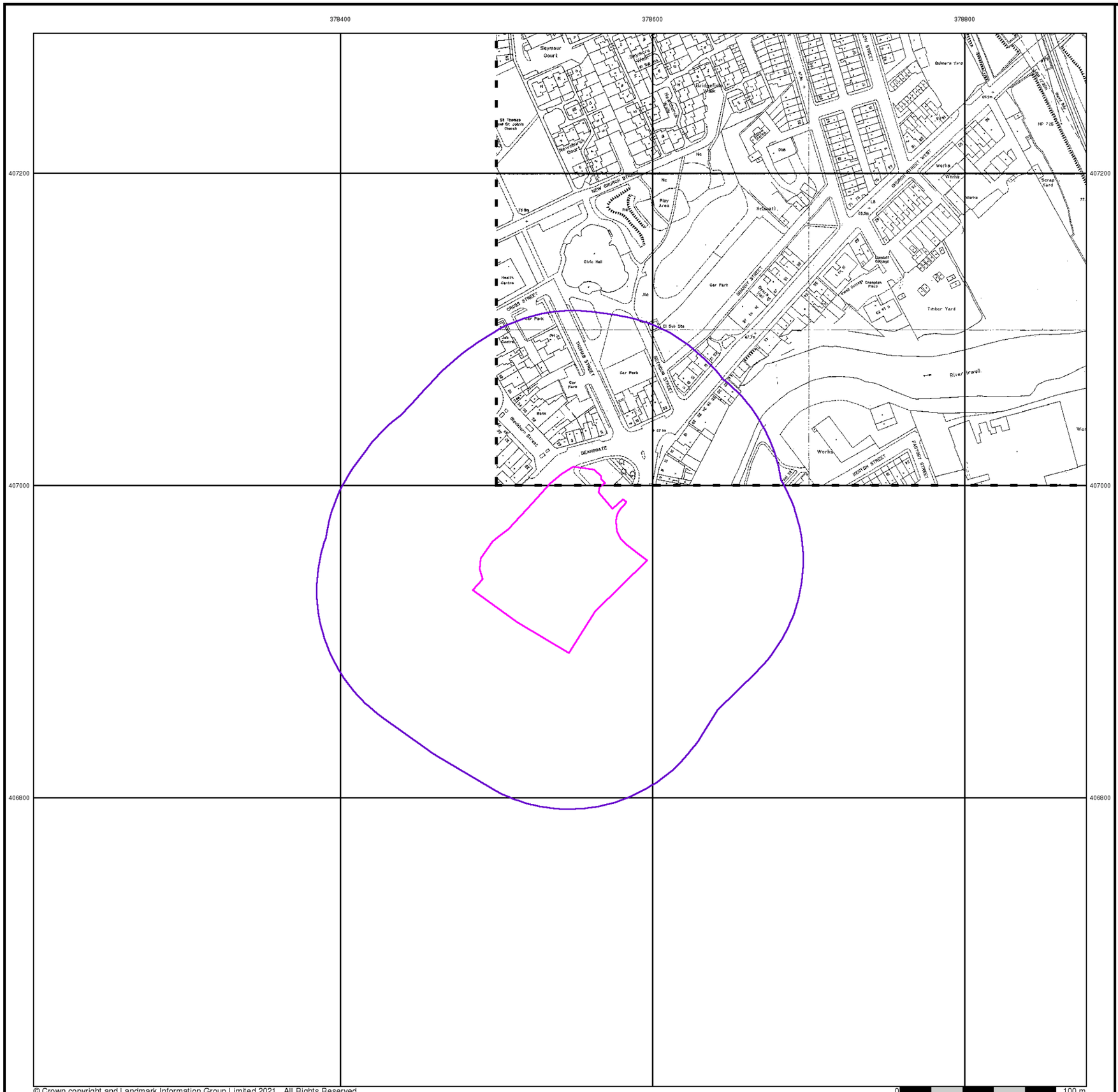
Order Details

Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
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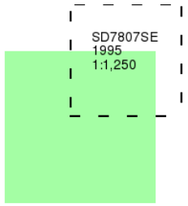
Large-Scale National Grid Data

Published 1995

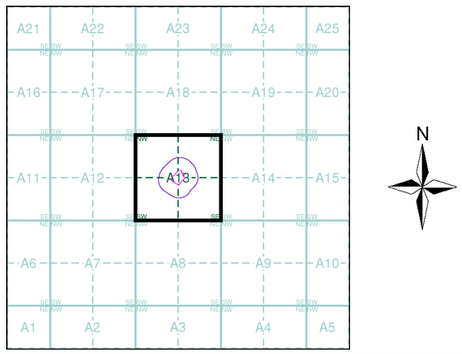
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



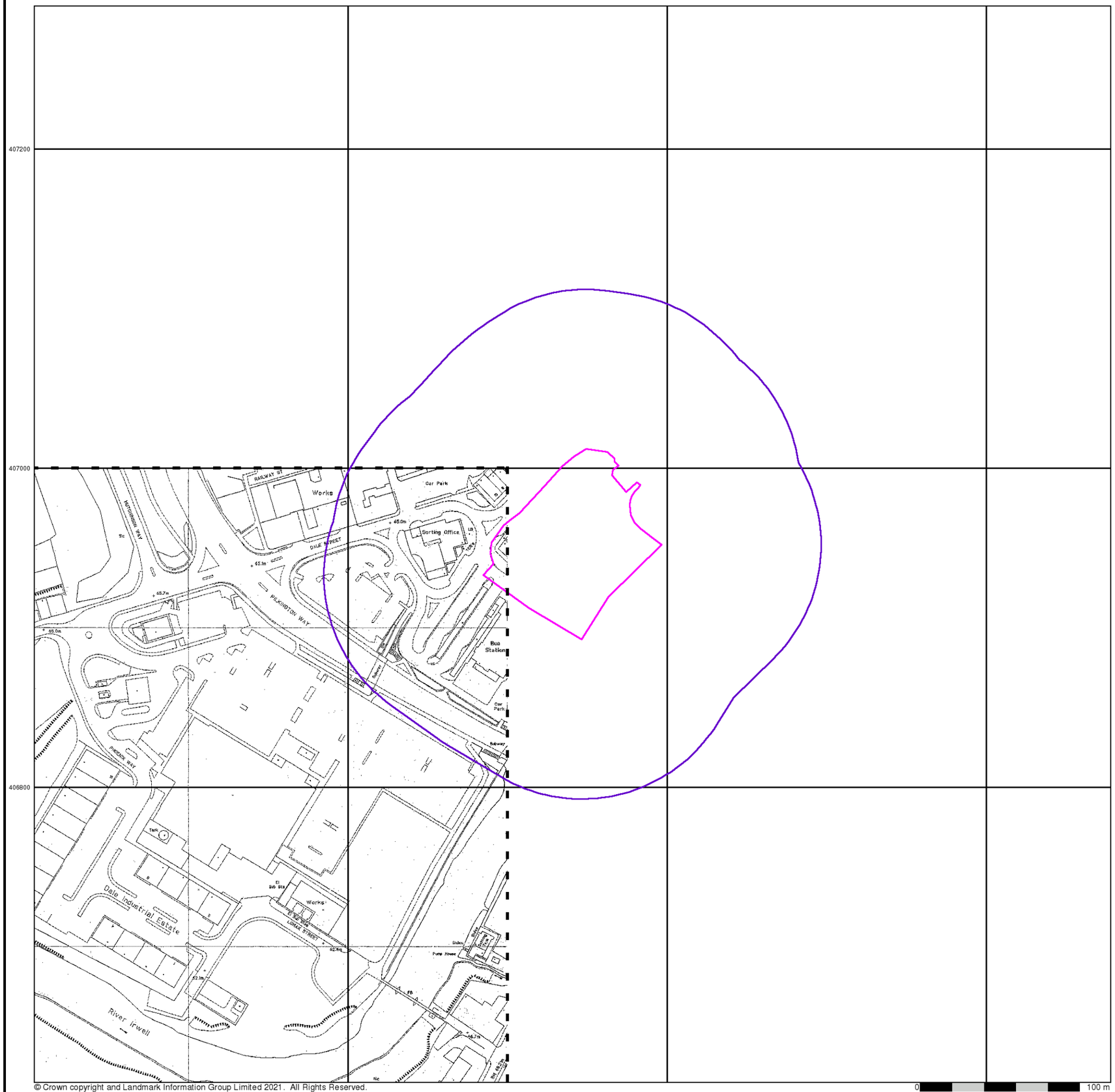
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Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
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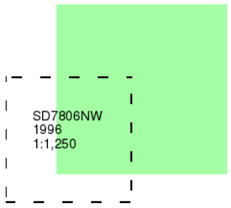
Large-Scale National Grid Data

Published 1996

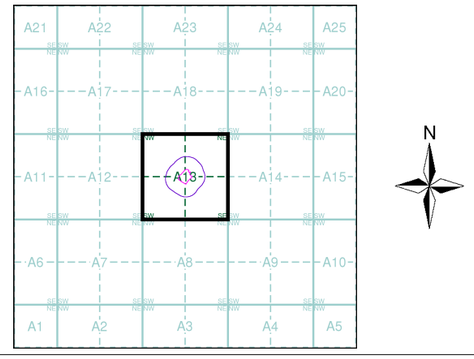
Source map scale - 1:1,250

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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	287964086_1_1
Customer Ref:	5238
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Slice:	A
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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

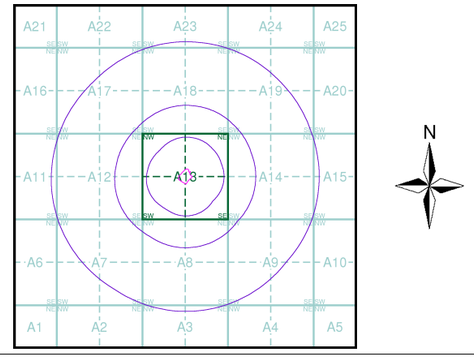
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community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

iGeo

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1848 - 1851	2
Lancashire And Furness	1:10,560	1894 - 1895	3
Lancashire And Furness	1:10,560	1910 - 1911	4
Lancashire And Furness	1:10,560	1923 - 1931	5
Lancashire And Furness	1:10,560	1932	6
Lancashire And Furness	1:10,560	1938	7
Ordnance Survey Plan	1:10,000	1955	8
Ordnance Survey Plan	1:10,000	1965	9
Ordnance Survey Plan	1:10,000	1980	10
Ordnance Survey Plan	1:10,000	1989	11
Ordnance Survey Plan	1:10,000	1992	12
10K Raster Mapping	1:10,000	1999	13
Street View	Variable		14

Historical Map - Slice A



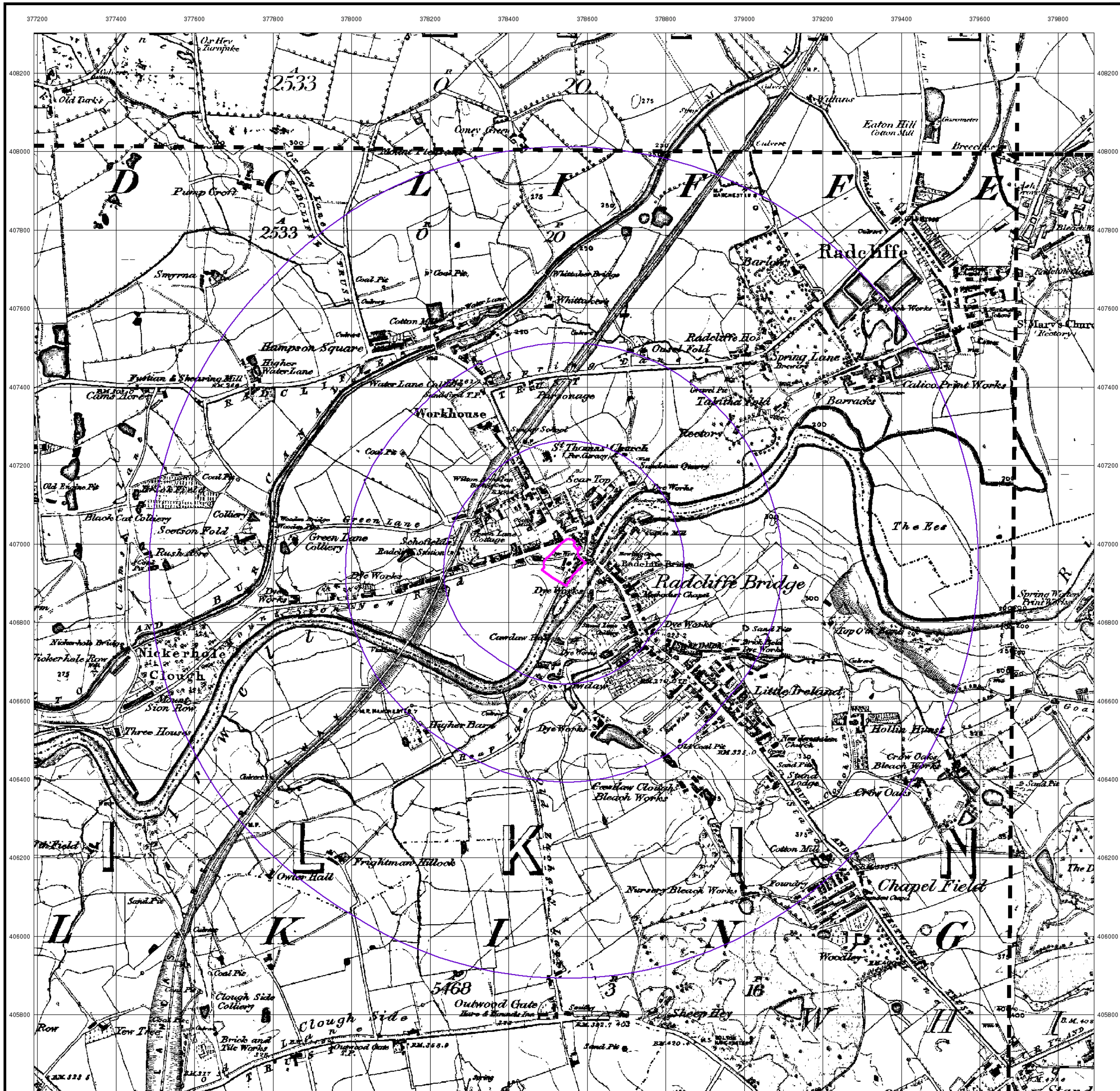
Order Details

Order Number: 287964086_1_1
Customer Ref: 5238
National Grid Reference: 378540, 406950
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 1000

Site Details

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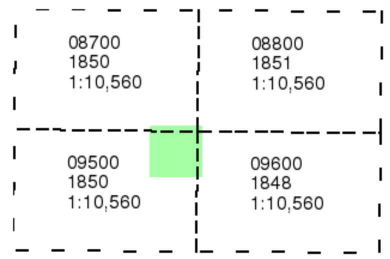
Lancashire And Furness

Published 1848 - 1851

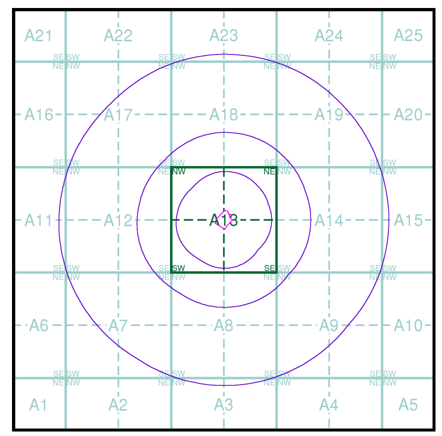
Source map scale - 1:10,560

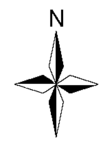
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some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



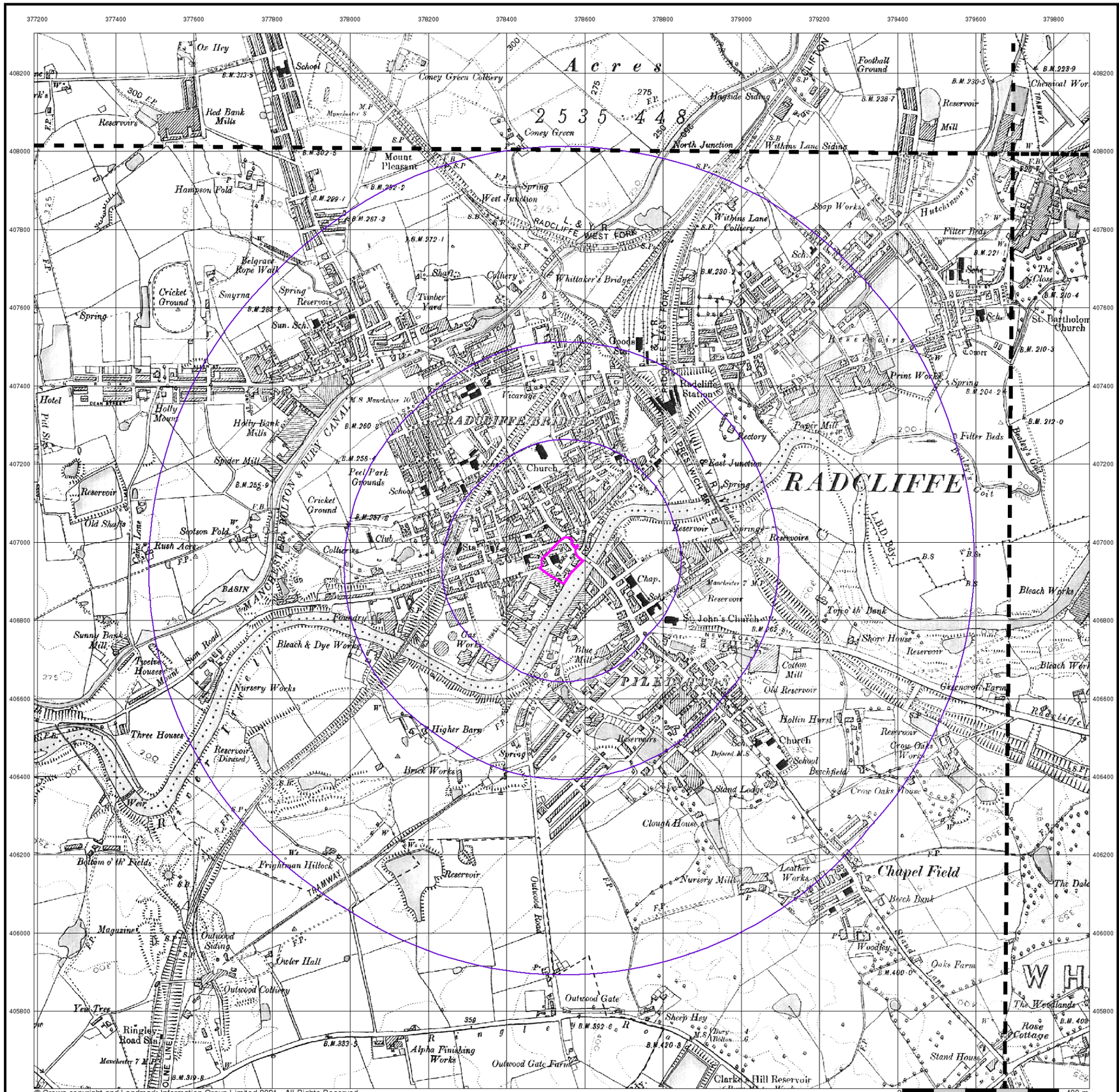


Order Details

Order Number: 287964086_1_1
Customer Ref: 5238
National Grid Reference: 378540, 406950
Slice: A
Site Area (Ha): 0.73
Search Buffer (m): 1000

Site Details

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Lancashire And Furness

Published 1894 - 1895

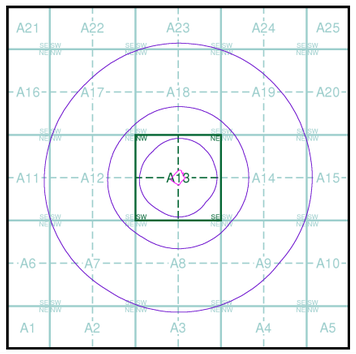
Source map scale - 1:10,560

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)

087SE 1894 1:10,560	088SW 1894 1:10,560
095NE 1895 1:10,560	096NW 1894 1:10,560

Historical Map - Slice A



Order Details

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Lancashire And Furness

Published 1910 - 1911

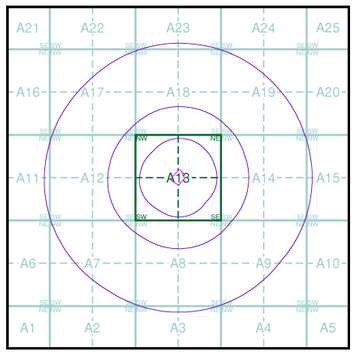
Source map scale - 1:10,560

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Map Name(s) and Date(s)

087SE 1911 1:10,560	088SW 1910 1:10,560
095NE 1910 1:10,560	096NW 1910 1:10,560

Historical Map - Slice A



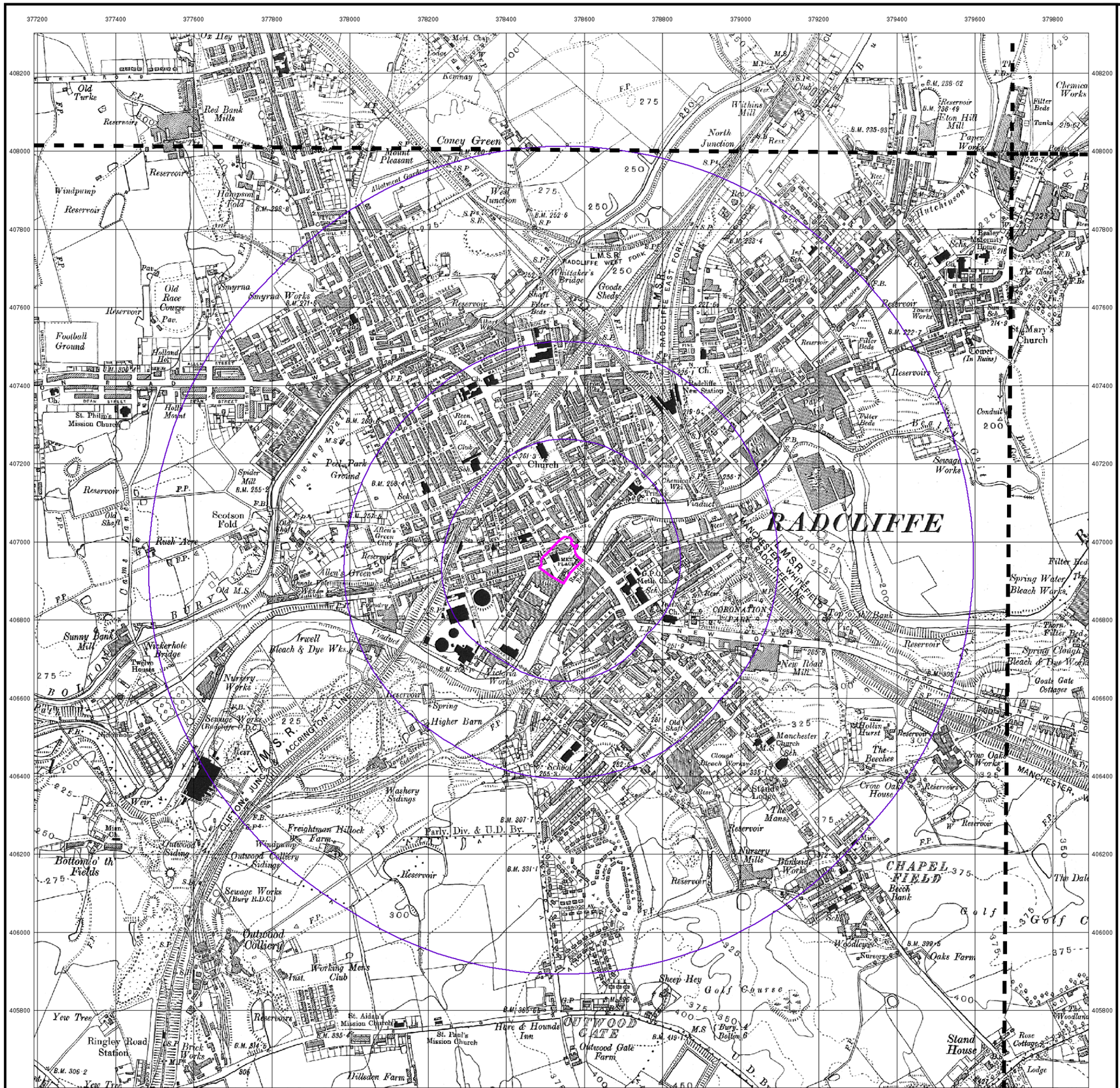
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Lancashire And Furness

Published 1923 - 1931

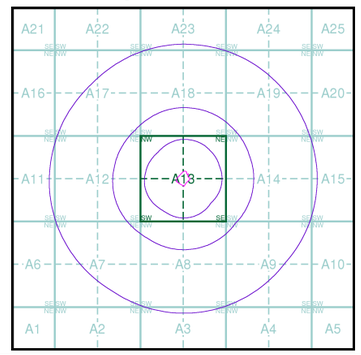
Source map scale - 1:10,560

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

Map Name(s) and Date(s)

087SE 1931 1:10,560	088SW 1931 1:10,560
095NE 1930 1:10,560	096NW 1923 1:10,560

Historical Map - Slice A



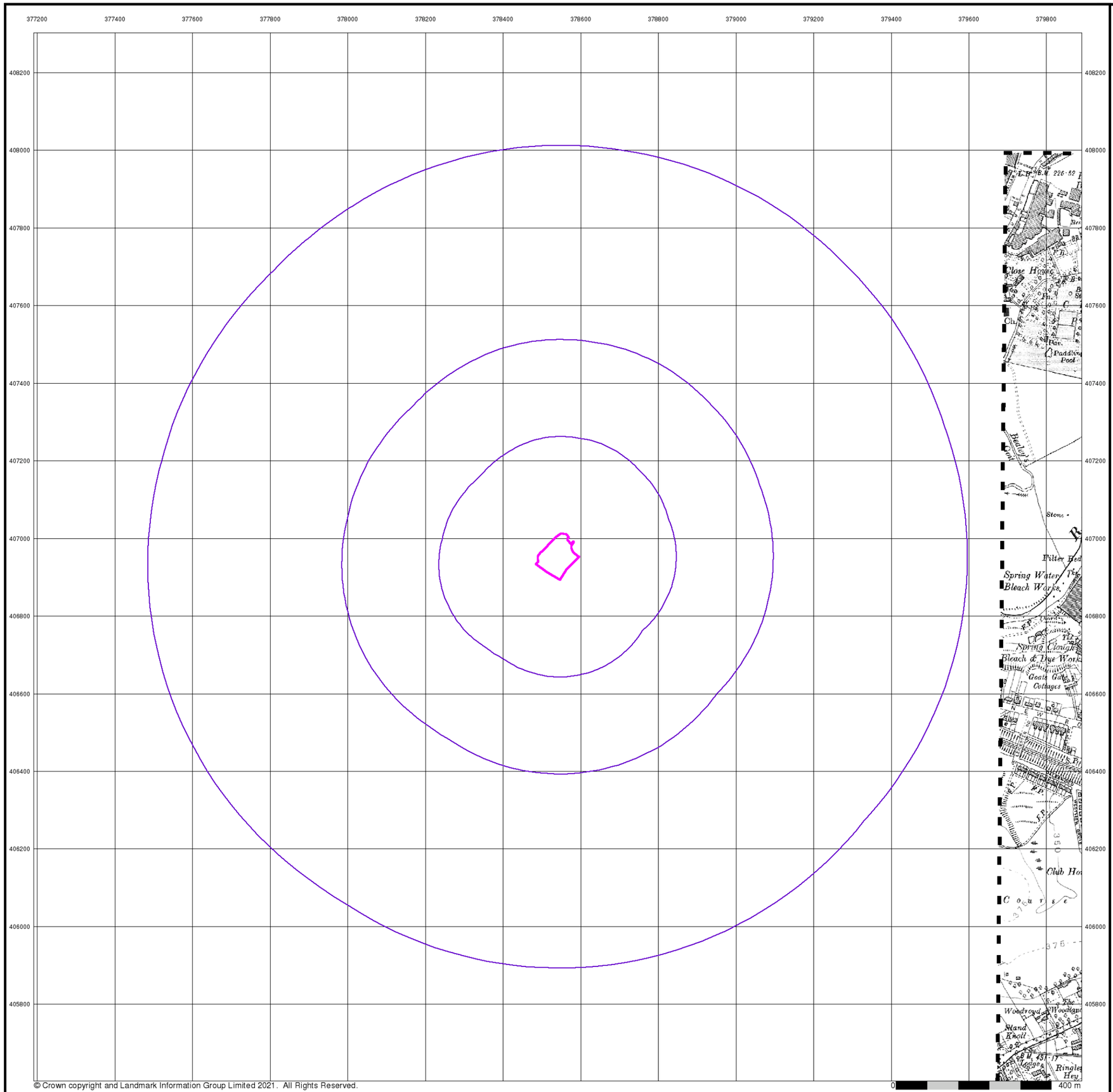
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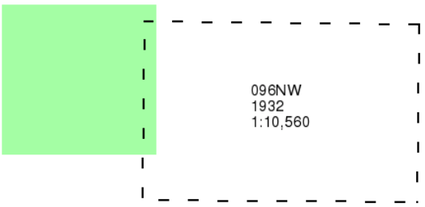
Lancashire And Furness

Published 1932

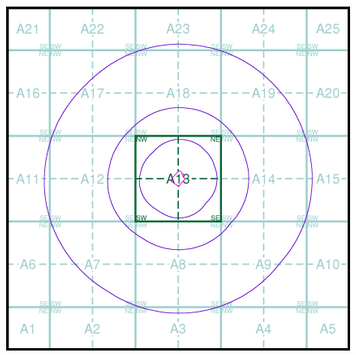
Source map scale - 1:10,560

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:	287964086_1_1
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National Grid Reference:	378540, 406950
Slice:	A
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Search Buffer (m):	1000

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Lancashire And Furness

Published 1938

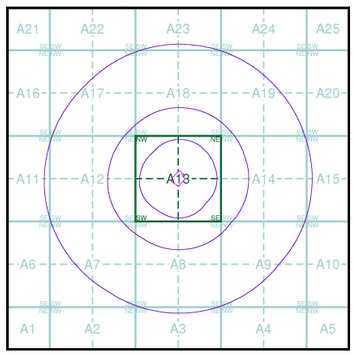
Source map scale - 1:10,560

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Map Name(s) and Date(s)

087SE 1938 1:10,560	088SW 1938 1:10,560
095NE 1938 1:10,560	096NW 1938 1:10,560

Historical Map - Slice A



Order Details

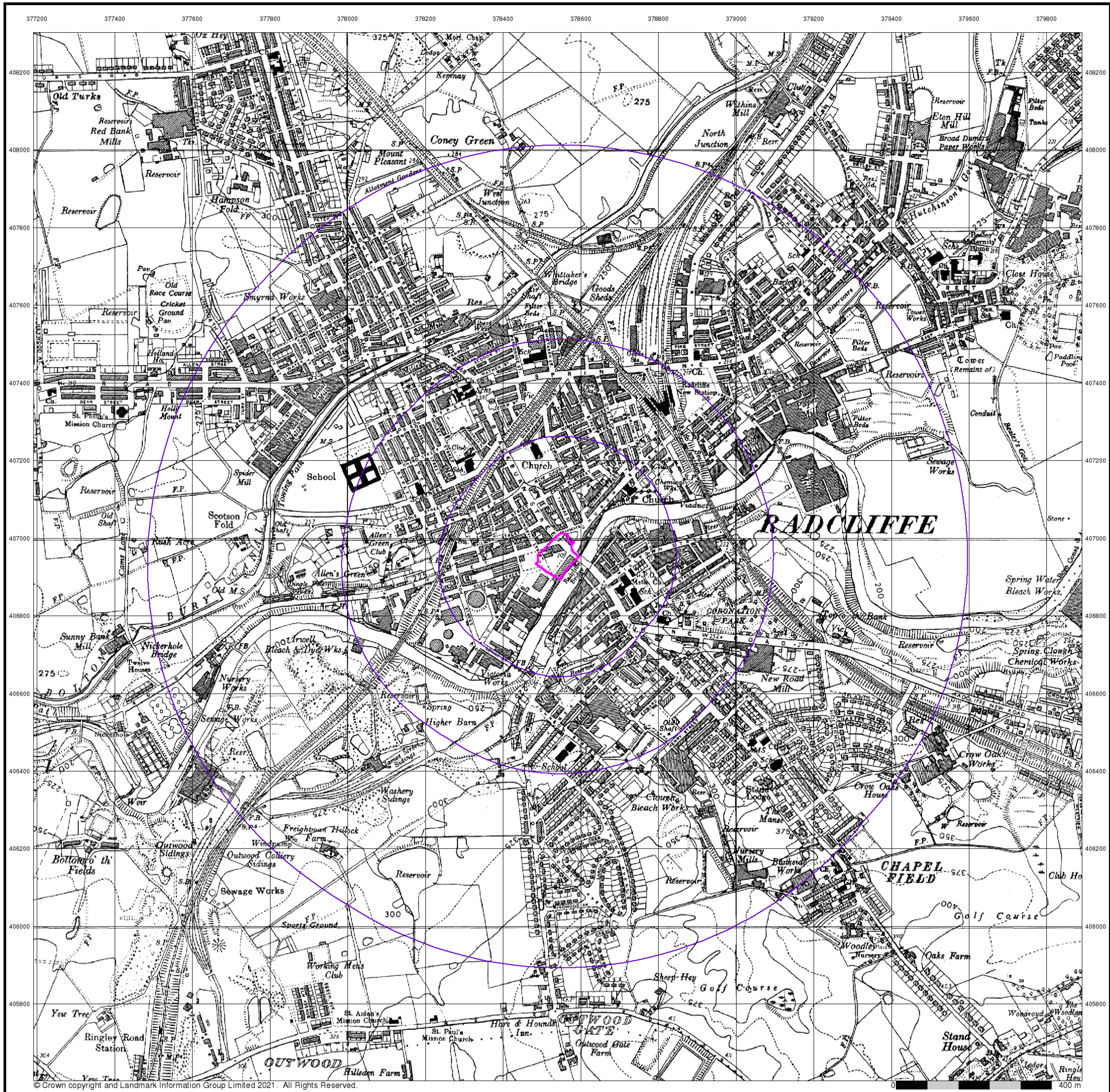
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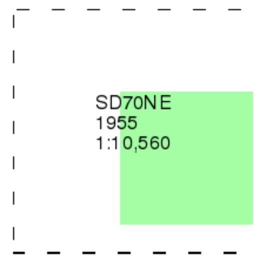
Ordnance Survey Plan

Published 1955

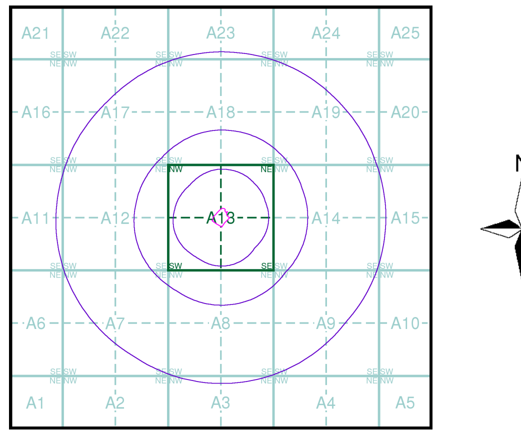
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

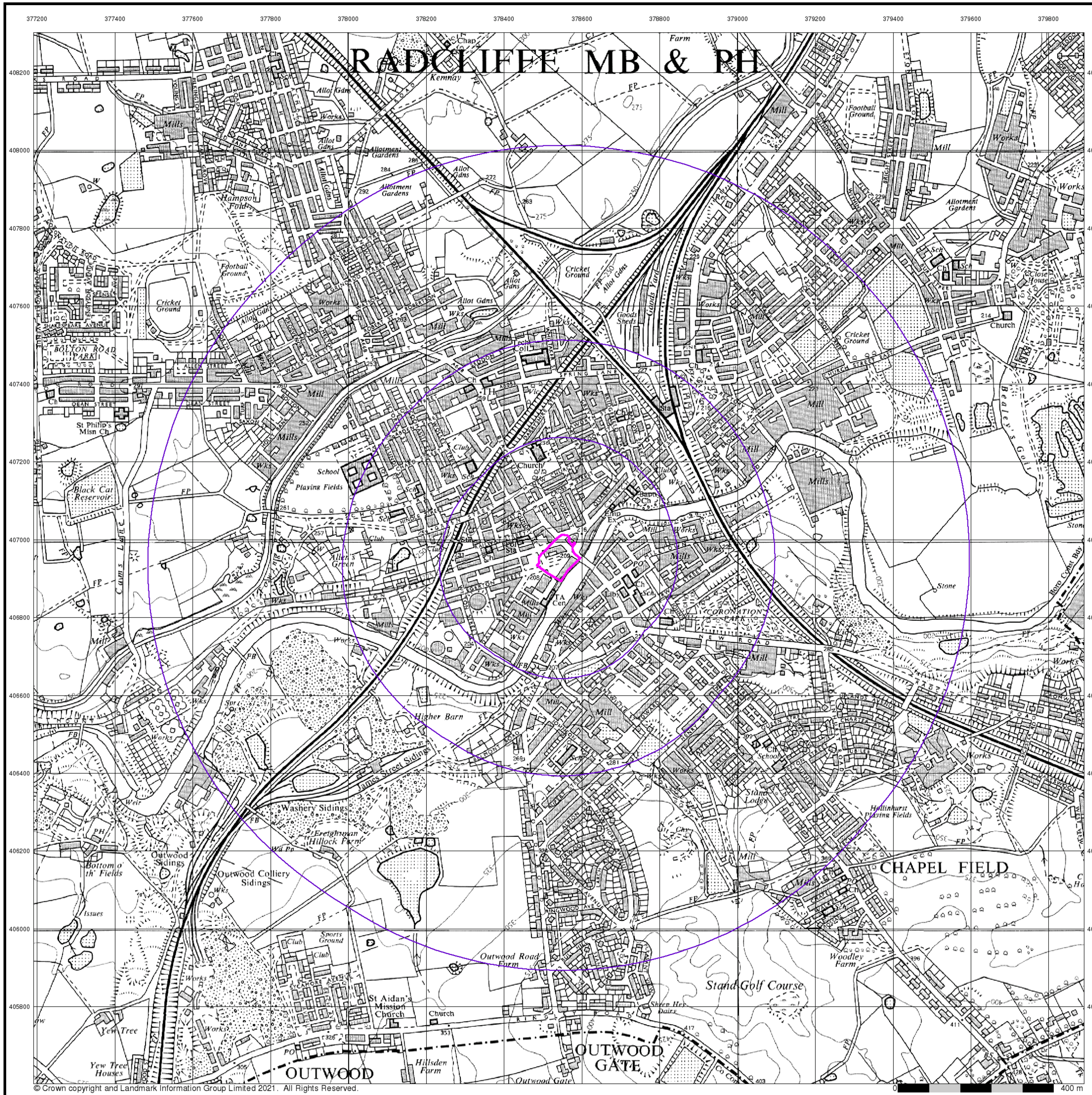
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Slice: A
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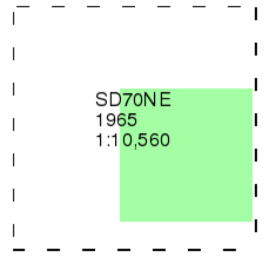
Ordnance Survey Plan

Published 1965

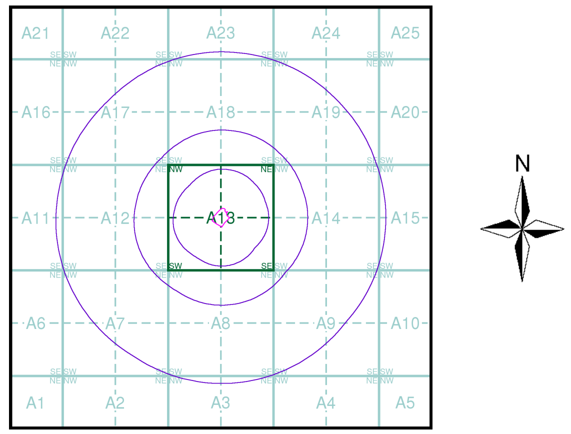
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



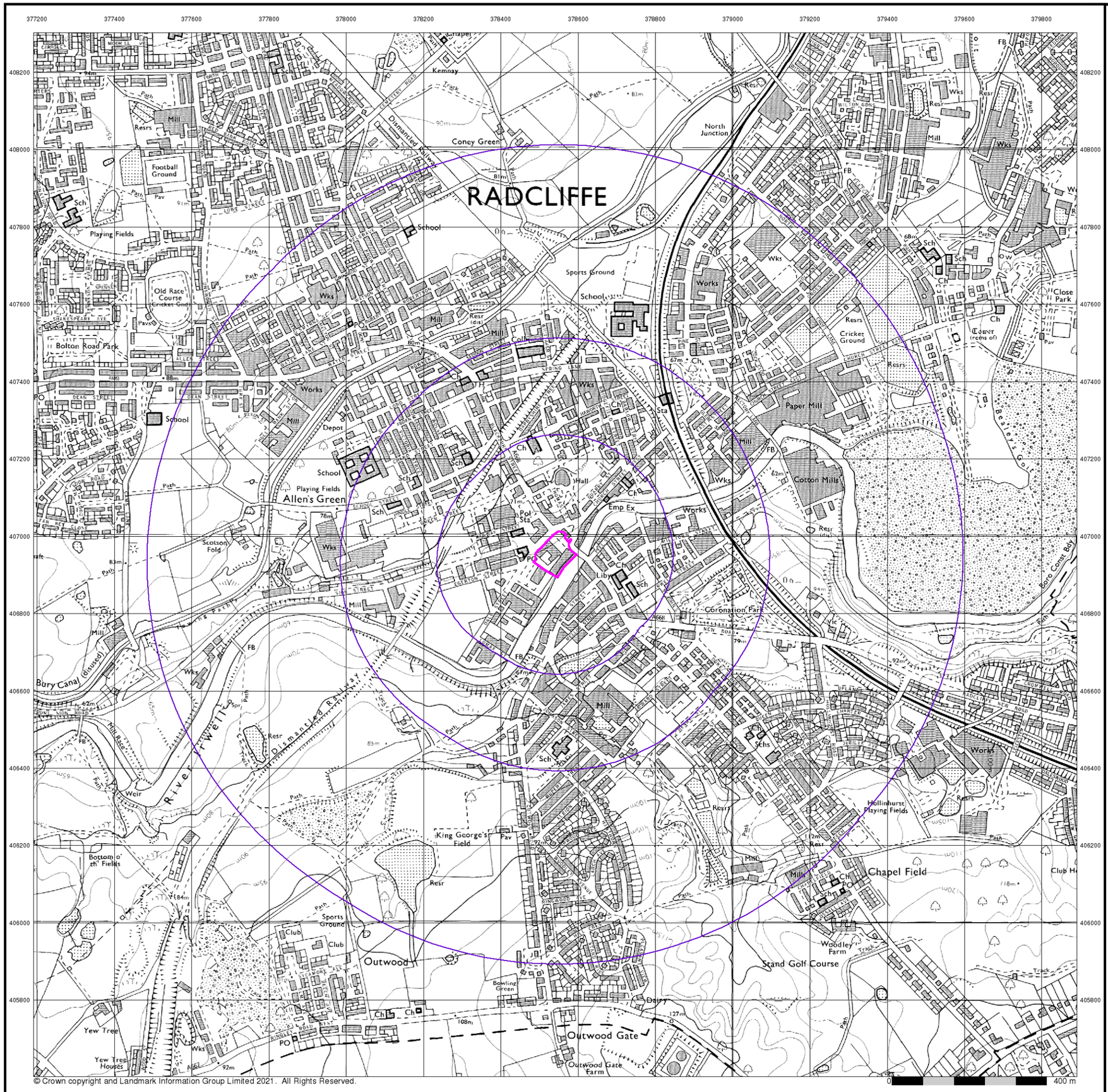
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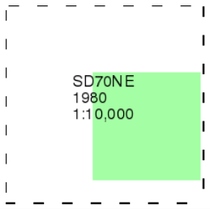
Ordnance Survey Plan

Published 1980

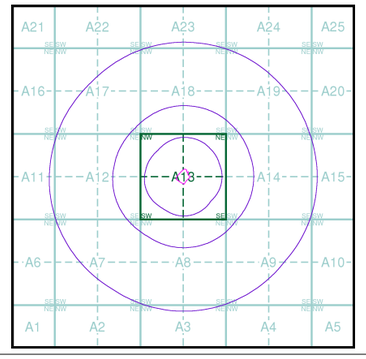
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Historical Map - Slice A



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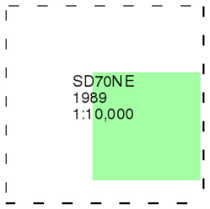
Ordnance Survey Plan

Published 1989

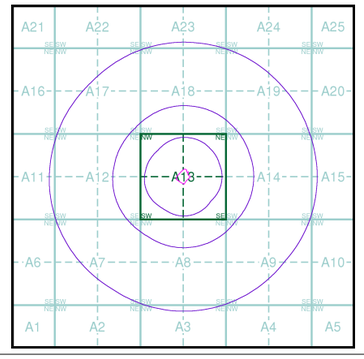
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	287964086_1_1
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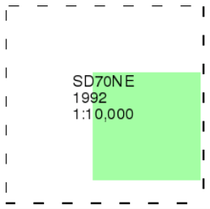
Ordnance Survey Plan

Published 1992

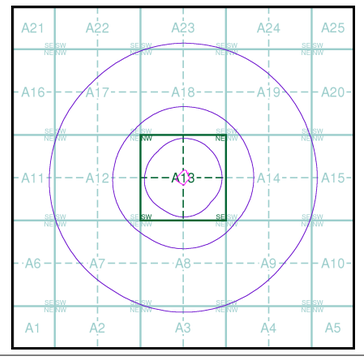
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Map Name(s) and Date(s)



Historical Map - Slice A



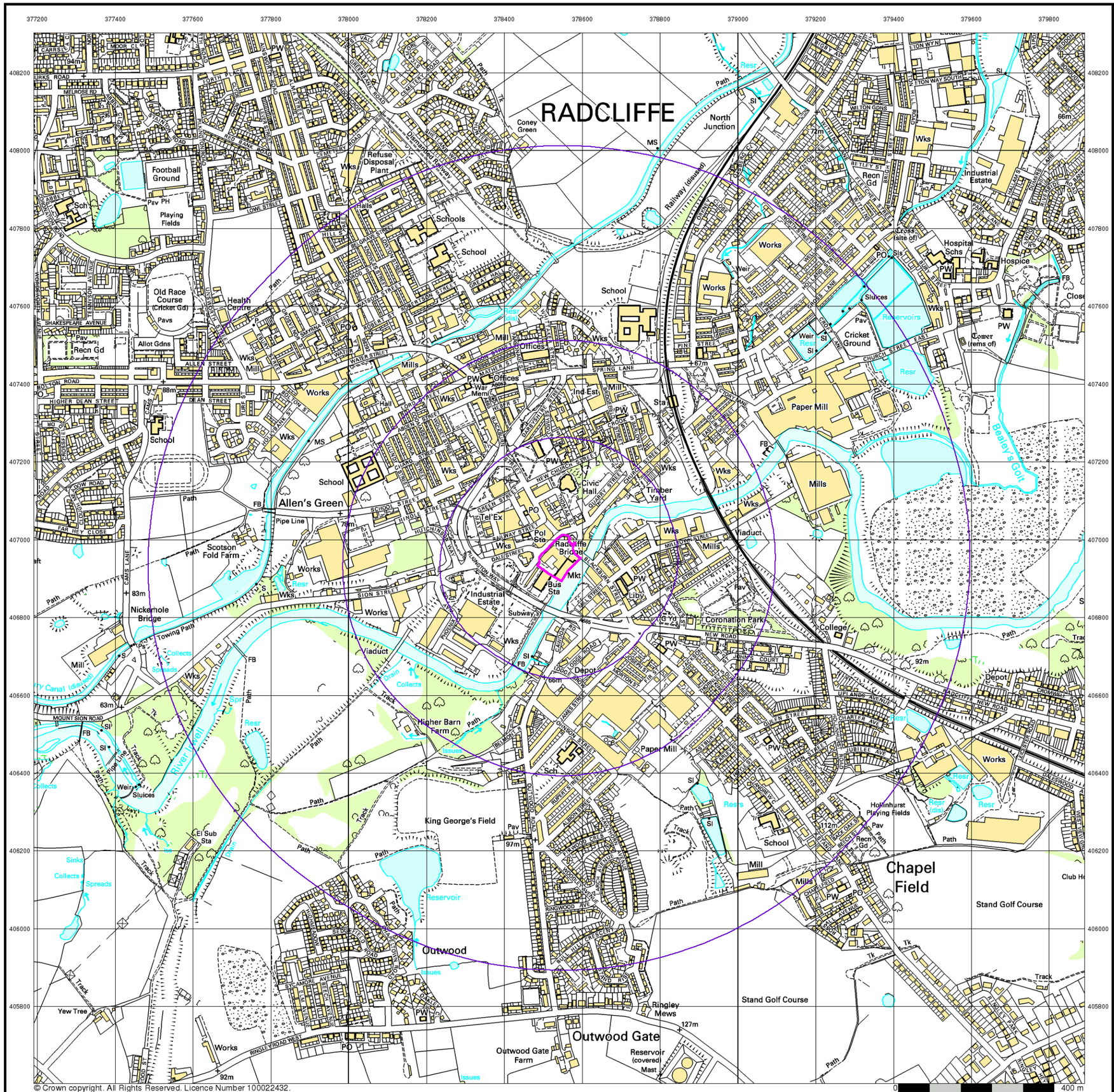
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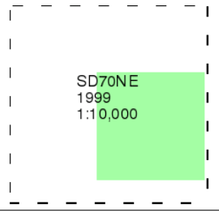
10k Raster Mapping

Published 1999

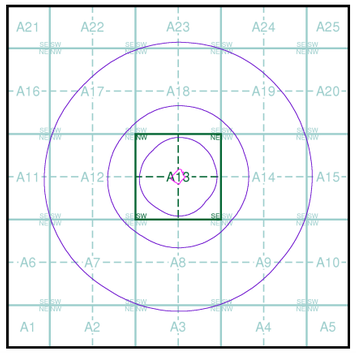
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

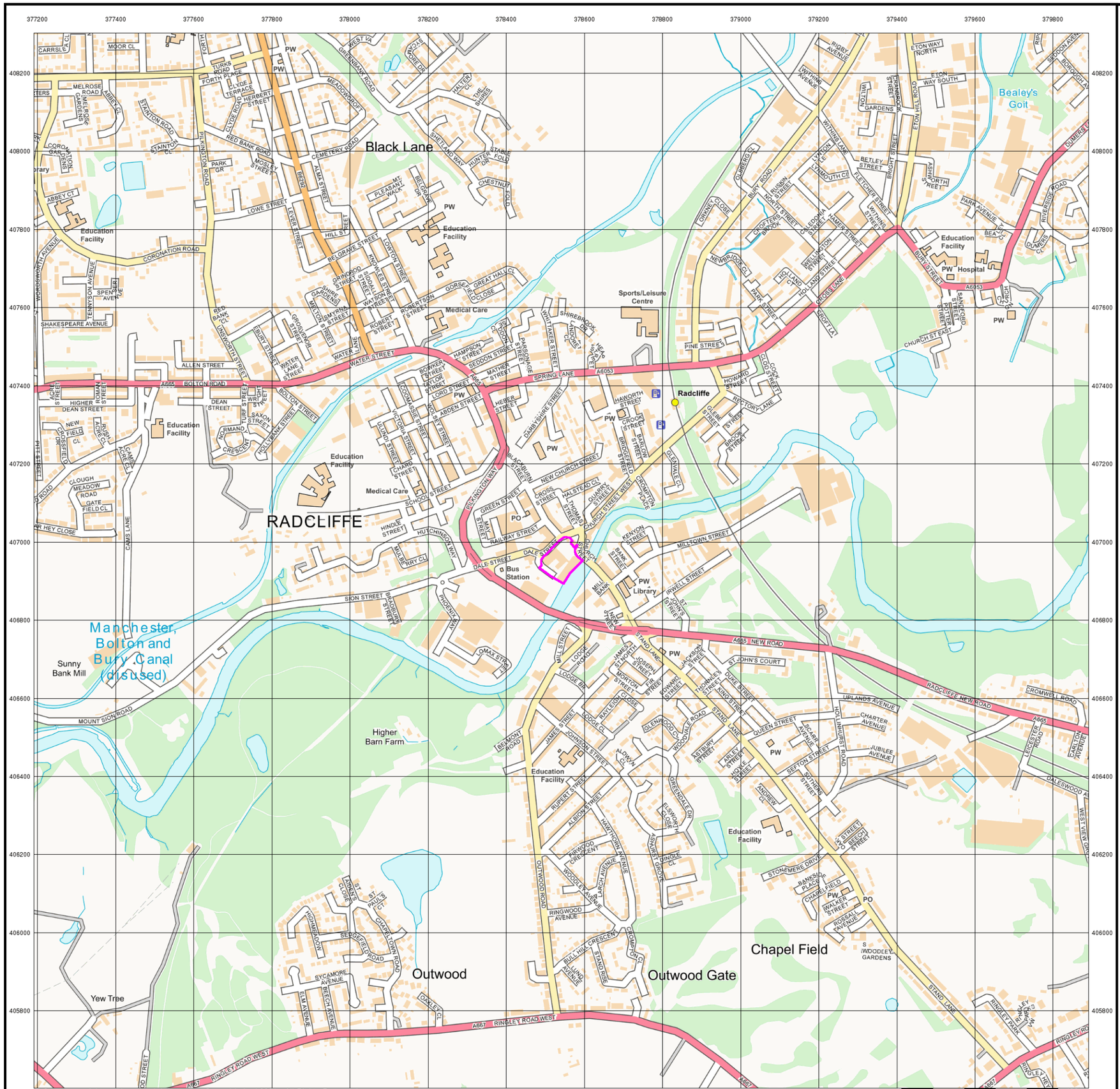
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Street View

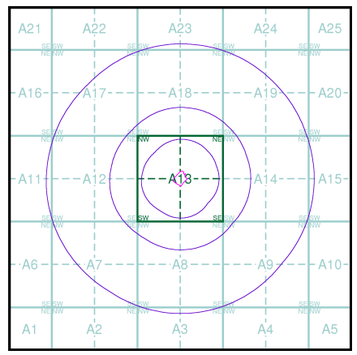
Published 2021

Source map scale - 1:10,000

Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)

Street View Map - Slice A



Order Details

Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

Radcliffe Hub, Radcliffe, MANCHESTER

Landmark INFORMATION GROUP

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

Appendix C

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
287964086_1_1

Customer Reference:
5238

National Grid Reference:
378540, 406950

Slice:
A

Site Area (Ha):
0.73

Search Buffer (m):
1000

Site Details:

Radcliffe Hub
Radcliffe
MANCHESTER

Client Details:

Dr B Rice-Birchall
iD GeoEnvironmental Ltd
Caledonian House
Tatton Street
Knutsford
Cheshire
WA16 6AG

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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 3		25	6	17
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices	pg 15				1
Integrated Pollution Controls	pg 15			5	8
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 17		4	2	5
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 19		Yes		
Pollution Incidents to Controlled Waters	pg 19		9	1	17
Prosecutions Relating to Authorised Processes	pg 23				2
Registered Radioactive Substances					
River Quality	pg 24		1		
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 24		1		2
Water Abstractions	pg 24		1		5 (*21)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 31	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 31	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 31	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 31	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 32	Yes	Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 32		4	12	41

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites	pg 39				1
Historical Landfill Sites	pg 39		1	1	10
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)	pg 41				1
Licensed Waste Management Facilities (Locations)	pg 41				3
Local Authority Landfill Coverage	pg 42	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Registered Landfill Sites	pg 42				5
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 45	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites	pg 45		3	6	9
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 48	Yes	n/a	n/a	n/a
Mining Instability	pg 48	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 48	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 48		Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 48	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 48	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 49	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 49	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 50	3	41	92	130
Fuel Station Entries	pg 73		2		3
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt	pg 74			1	2
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves	pg 74			1	
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (S)	0	1	378542 406900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SW)	0	1	378542 406952
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	25	1	378500 407000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	60	1	378450 407000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	88	1	378542 407100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	96	1	378450 407050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	130	1	378450 407100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	188	1	378542 407200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	188	1	378550 407200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (S)	193	1	378550 406700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	201	1	378600 406700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	243	1	378600 407250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	243	1	378542 406650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	248	1	378500 406650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SE)	249	1	378750 406750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	250	1	378250 406850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (E)	258	1	378850 407000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (E)	259	1	378850 406900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	274	1	378850 406850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	284	1	378400 406650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	293	1	378600 407300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	311	1	378650 406600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	315	1	378200 406800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	338	1	378300 406650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	340	1	378850 407200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	342	1	378150 407000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	354	1	378950 406950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	357	1	378950 407000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	358	1	378950 406900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	367	1	378950 407050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	368	1	378950 406850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	376	1	378700 406550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (SW)	379	1	378300 406600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	397	1	378600 406500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	404	1	379000 406952
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	407	1	379000 406900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	408	1	378150 406700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (SW)	408	1	378250 406600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (NE)	415	1	378800 407350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	417	1	379000 406850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (SE)	429	1	378900 406650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A7NE (SW)	439	1	378200 406600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NW (SW)	440	1	378350 406500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	443	1	378550 406450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	446	1	378600 406450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	454	1	379050 406952
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	455	1	378650 406450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	456	1	379050 407000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	457	1	379050 406900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (SE)	458	1	378850 406550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A9NW (SE)	459	1	378900 406600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	464	1	379050 407050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (W)	472	1	378050 406750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	479	1	379050 406800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (W)	486	1	378000 406900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	493	1	378542 406400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	493	1	378550 406400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	494	1	378050 406700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	496	1	378600 406400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9NW (SE)	499	1	378950 406600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (NE)	500	1	378800 407450
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0056 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: 10th January 2017 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	4	2	378600 406950

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0056 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	4	2	378600 406950
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0030 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A13NE (E)	5	2	378600 406955
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0030 Permit Version: 4 Effective Date: 11th April 2018 Issued Date: 11th April 2018 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	6	2	378597 406958
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0056 Permit Version: 3 Effective Date: 11th January 2017 Issued Date: 11th January 2017 Revocation Date: 4th October 2017 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	6	2	378597 406958

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0030 Permit Version: 3 Effective Date: 22nd March 2016 Issued Date: 22nd March 2016 Revocation Date: 10th April 2018 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	6	2	378597 406958
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0030 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: 21st March 2016 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	9	2	378600 406960
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Cso Outside The Bridge Tavern Blackburn Street, Radcliffe, Manchester, Greater Manchester, M26 1nn Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982932 Permit Version: 3 Effective Date: 31st March 2015 Issued Date: 19th March 2010 Revocation Date: 31st March 2015 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	9	2	378600 406960
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982932 Permit Version: 1 Effective Date: 14th June 1995 Issued Date: Not Supplied Revocation Date: 7th November 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A13NE (E)	9	2	378600 406960

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982932 Permit Version: 2 Effective Date: 8th November 1995 Issued Date: Not Supplied Revocation Date: 31st March 2015 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A13NE (E)	9	2	378600 406960
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Stand Lane Cso 09058 Car Park Jct Mill Bank Stand Lne, ., Radcliffe, Manchester, M26 1nw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0035 Permit Version: 4 Effective Date: 1st November 2011 Issued Date: 29th March 2012 Revocation Date: 9th November 2012 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	33	2	378620 406930
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Stand Lane Cso 09058 Car Park Jct Mill Bank Stand Lne, ., Radcliffe, Manchester, M26 1nw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0035 Permit Version: 2 Effective Date: 31st March 2010 Issued Date: 31st March 2010 Revocation Date: 31st October 2011 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	33	2	378620 406930
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Stand Lane Cso 09058 Car Park Jct Mill Bank Stand Lne, ., Radcliffe, Manchester, M26 1nw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0036 Permit Version: 2 Effective Date: 1st October 2011 Issued Date: 26th March 2010 Revocation Date: 31st October 2012 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status:** **Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	36	2	378630 406940

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: North West Water Limited Property Type: Not Given Location: Stand Lane, RADCLIFFE Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: BRY0035 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge-Storm Effluent Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A13SE (E)	36	2	378630 406940
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Stand Lane Cso 09058 Car Park Jct Mill Bank Stand Lne, ., Radcliffe, Manchester, M26 1nw Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0036 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 30th September 2011 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A13SE (E)	38	2	378630 406935
1	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Stand Lane Cso 09058 Car Park Jct Mill Bank Stand Lne, ., Radcliffe, Manchester, M26 1nw Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0035 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 30th March 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A13SE (E)	43	2	378635 406935
2	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Stand Lane Cso 09058 Car Park Jct Mill Bank Stand Lne, ., Radcliffe, Manchester, M26 1nw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0036 Permit Version: 4 Effective Date: 1st April 2018 Issued Date: 26th March 2018 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	37	2	378603 406907

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Stand Lane Cso 09058 Car Park Jct Mill Bank Stand Lne, ., Radcliffe, Manchester, M26 1nw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0036 Permit Version: 3 Effective Date: 1st November 2012 Issued Date: 2nd March 2012 Revocation Date: 31st March 2018 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	37	2	378603 406907
3	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982932 Permit Version: 5 Effective Date: 6th August 2018 Issued Date: 6th August 2018 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	123	2	378664 407082
3	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Radcliffe Central Cso River Court, 2 Blackburn Street, Radcliffe, Manchester, M26 1ww Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982932 Permit Version: 4 Effective Date: 1st April 2015 Issued Date: 27th November 2014 Revocation Date: 5th August 2018 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	123	2	378664 407082
4	**Discharge Consents** Operator: United Utilities Water Limited Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Mill St, Radcliffe, Bury, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01bry0034 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	176	2	378480 406730

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Church Street West Cso 091kb Church Street West, ., Radcliffe, Manchester, M26 2sy Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0029 Permit Version: 4 Effective Date: 1st April 2018 Issued Date: 21st March 2018 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	219	2	378781 407083
5	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Church Street West Cso 091kb Church Street West, ., Radcliffe, Manchester, M26 2sy Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0029 Permit Version: 3 Effective Date: 5th February 2016 Issued Date: 5th February 2016 Revocation Date: 31st March 2018 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	221	2	378780 407090
5	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Church Street West Cso 091kb Church Street West, ., Radcliffe, Manchester, M26 2sy Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0029 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: 4th February 2016 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	221	2	378780 407090
5	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Church Street West Cso 091kb Church Street West, ., Radcliffe, Manchester, M26 2sy Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0029 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	221	2	378780 407090

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Discharge Consents** Operator: United Utilities Water Plc (?) Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Lomax Street Cso Radcliffe, Bury, Greater Manchester, ., M26 1px Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993829 Permit Version: 1 Effective Date: 21st March 2006 Issued Date: 21st March 2006 Revocation Date: 30th January 2013 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Irwell **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SW (S)	252	2	378450 406660
6	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Lomax Street Cso Radcliffe, Bury, Greater Manchester, ., M26 1px Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 01BRY0033 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: 1st January 1995 Revocation Date: 20th March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	252	2	378450 406660
7	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Lomax Street Cso Radcliffe, Bury, Greater Manchester, ., M26 1px Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993829 Permit Version: 3 Effective Date: 16th November 2018 Issued Date: 16th November 2018 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	279	2	378399 406657
7	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Lomax Street Cso Radcliffe, Bury, Greater Manchester, ., M26 1px Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993829 Permit Version: 2 Effective Date: 31st January 2013 Issued Date: 21st December 2012 Revocation Date: 15th November 2018 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Irwell **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	279	2	378399 406657

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Discharge Consents** Operator: United Utilities Water Plc (?) Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Dale St, Bury Mdc, Radcliffe, Lancashire Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993830 Permit Version: 1 Effective Date: 21st March 2006 Issued Date: 21st March 2006 Revocation Date: 14th July 2014 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: The River Irwell **Status: Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	344	2	378290 406650
8	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Dale St, Bury Mdc, Radcliffe, Lancashire Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 01BRY0055 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: 1st January 1995 Revocation Date: 20th March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	344	2	378290 406650
9	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Sion Street Cso 09026 Opp Mason Arms Ph Sion Street, ., Radcliffe, Manchester, M26 3sb Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0032 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 10th April 2018 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	547	2	377950 406820
9	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Sion Street Cso 09026 Opp Mason Arms Ph Sion Street, ., Radcliffe, Manchester, M26 3sb Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0032 Permit Version: 2 Effective Date: 11th April 2018 Issued Date: 11th April 2018 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	553	2	377944 406819

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Bolton Rd Canute Street Cso 270 Bolton Rd Junc Canute Street, ., Radcliffe, Manchester, M26 3gw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0027 Permit Version: 4 Effective Date: 1st April 2018 Issued Date: 12th March 2018 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	572	2	377923 406828
9	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Bolton Rd Canute Street Cso 270 Bolton Rd Junc Canute Street, ., Radcliffe, Manchester, M26 3gw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0027 Permit Version: 3 Effective Date: 1st October 2012 Issued Date: 21st August 2012 Revocation Date: 31st March 2018 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	572	2	377923 406828
9	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Bolton Rd Canute Street Cso 270 Bolton Rd Junc Canute Street, ., Radcliffe, Manchester, M26 3gw Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0027 Permit Version: 2 Effective Date: 1st October 2011 Issued Date: 25th March 2010 Revocation Date: 30th September 2012 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	572	2	377923 406828
9	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Bolton Rd Canute Street Cso 270 Bolton Rd Junc Canute Street, ., Radcliffe, Manchester, M26 3gw Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0027 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 30th September 2011 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	575	2	377920 406830

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Milltown St Ww Ntwk Ps (09008) Milltown Street, Radcliffe, ., Lancashire, M26 1wn Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982126 Permit Version: 1 Effective Date: 1st January 1900 Issued Date: Not Supplied Revocation Date: 1st January 1900 Discharge Type: Storm /emergency overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A14NW (E)	550	2	379120 407120
11	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Ainsworth Rd, Radcliffe, Bury, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0129 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A14NW (NE)	568	2	379090 407245
11	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Church Street East 09003 Side Of 13 Baybutt Street, ., Radcliffe, Manchester, M26 2pr Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 01BRY0031 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: 1st January 1995 Revocation Date: 30th May 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Consent revoked or revised: New Consent issued (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	570	2	379090 407250
11	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Milltown St Ww Ntwk Ps (09008) Milltown Street, Radcliffe, ., Lancashire, M26 1wn Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0061 Permit Version: 3 Effective Date: 10th June 2016 Issued Date: 10th June 2016 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	581	2	379119 407214

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Milltown St Ww Ntwk Ps (09008) Milltown Street, Radcliffe, ., Lancashire, M26 1wn Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01bry0061 Permit Version: 2 Effective Date: 3rd September 2010 Issued Date: 3rd September 2010 Revocation Date: 9th June 2016 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	585	2	379120 407220
11	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Milltown St Ww Ntwk Ps (09008) Milltown Street, Radcliffe, ., Lancashire, M26 1wn Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01BRY0061 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 2nd September 2010 Discharge Type: Storm /emergency overflow Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A14NW (NE)	585	2	379120 407220
12	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Church Street East 09003 Side Of 13 Baybutt Street, ., Radcliffe, Manchester, M26 2pr Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993586 Permit Version: 2 Effective Date: 18th June 2018 Issued Date: 18th June 2018 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unnamed Trib Of River Irwell **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	576	2	379040 407340
12	**Discharge Consents** Operator: United Utilities Water Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Church Street East 09003 Side Of 13 Baybutt Street, ., Radcliffe, Manchester, M26 2pr Authority: Environment Agency, North West Region Catchment Area: Irwell Reference: 016993586 Permit Version: 1 Effective Date: 31st May 2006 Issued Date: 31st May 2006 Revocation Date: 17th June 2018 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unnamed Trib Of River Irwell **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	576	2	379040 407340

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**Discharge Consents** Operator: Irwell Valley Housing Association Ltd Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: Irwell Valley Ha Development Swo, Butterworth Street, Radcliffe, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016991037 Permit Version: 1 Effective Date: 30th September 1985 Issued Date: Not Supplied Revocation Date: 15th February 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Crow Trees Farm Brook **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	657	2	379000 407500
14	**Discharge Consents** Operator: P & F Properties Limited Property Type: MAKING OF PAPER+PAPER PRODUCTS Location: Church St East, Radcliffe, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016993109 Permit Version: 1 Effective Date: 19th December 1995 Issued Date: Not Supplied Revocation Date: 1st January 2004 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: River Irwell **Status: Consent revoked: Discharge ceased (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A14NE (NE)	688	2	379220 407250
15	**Discharge Consents** Operator: United Utilities Water Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Ainsworth Rd, Radcliffe, Bury, Greater Manchester Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01bry0028 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 25th October 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Brook Culvert **Status: Authorisation revoked** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	689	2	378050 407490
16	**Enforcement and Prohibition Notices** Location: Church Street, Radcliffe, MANCHESTER, Greater Manchester, M26 9PR Permit Reference: AA2933 Enforcement Date: 16th September 1994 Details: Concentration of particles emitted exceeded limits of Authority; under EPA90. Positional Accuracy: Unknown	A19SE (NE)	734	2	379218 407356
17	**Integrated Pollution Controls** Name: Radcliffe Paper And Board Location: Johnson Street, MANCHESTER, Lancashire, M26 1AW Authority: Environment Agency, North West Region Permit Reference: BC6276 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A8NE (S)	393	2	378556 406500
17	**Integrated Pollution Controls** Name: Radcliffe Paper And Board Location: Johnson Street, Radcliffe, MANCHESTER, M26 1AW Authority: Environment Agency, North West Region Permit Reference: AK0154 Dated: 5th November 1993 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A8NE (S)	404	2	378584 406491

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	**Integrated Pollution Controls** Name: Radcliffe Paper And Board Location: Johnson Street, Radcliffe, MANCHESTER, Lancashire, M26 1AW Authority: Environment Agency, North West Region Permit Reference: AB7078 Dated: 12th March 1993 Process Type: IPC new application Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the road within the address or location	A8NE (S)	404	2	378584 406491
18	**Integrated Pollution Controls** Name: Bpb Paperboard Ltd Location: BPB Radcliffe, Stand Lane, Radcliffe, MANCHESTER, Lancashire, M26 1LJ Authority: Environment Agency, North West Region Permit Reference: AU6854 Dated: 24th January 1997 Process Type: IPC new application Description: 6.1 A (B) Paper and Pulp manufacturing processes within Miscellaneous Industries **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	468	2	378800 406500
18	**Integrated Pollution Controls** Name: Bpb Paperboard Ltd Location: Radcliffe Mill, Stand Lane, MANCHESTER, Greater Manchester, M26 1GS Authority: Environment Agency, North West Region Permit Reference: BD4279 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 6.1 A (B) Paper and Pulp manufacturing processes within Miscellaneous Industries **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	472	2	378800 406495
19	**Integrated Pollution Controls** Name: Scottish And Southern Energy Plc Location: East Lancashire Paper Mill Co Ltd, Ratcliffe, MANCHESTER, Lancashire, M26 2EL Authority: Environment Agency, North West Region Permit Reference: AW6766 Dated: 16th January 1997 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	708	2	379191 407352
19	**Integrated Pollution Controls** Name: Scottish And Southern Energy Plc Location: East Lancashire Paper Mill Co Ltd, Radcliffe, MANCHESTER, M26 2EL Authority: Environment Agency, North West Region Permit Reference: AO5018 Dated: 18th November 1994 Process Type: IPC new application Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	711	2	379191 407357
19	**Integrated Pollution Controls** Name: Scottish And Southern Energy Plc Location: East Lancashire Paper Mill Co Ltd, Ratcliffe, MANCHESTER, Greater Manchester, M26 9PR Authority: Environment Agency, North West Region Permit Reference: BD6921 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	712	2	379196 407352
19	**Integrated Pollution Controls** Name: East Lancashire Paper Mill Co Ltd Location: Church Street East, Radcliffe, MANCHESTER, M26 2EL Authority: Environment Agency, North West Region Permit Reference: AH7763 Dated: 9th March 1993 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status: Authorisation revoked** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	731	2	379218 407351

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**Integrated Pollution Controls** Name: East Lancashire Paper Mill Co Ltd Location: Church Street East, Radcliffe, MANCHESTER, Lancashire, M26 2EL Authority: Environment Agency, North West Region Permit Reference: AA2933 Dated: 10th June 1992 Process Type: IPC new application Description: 1.3 A (A) Combustion processes within the Fuel & Power Industry **Status:** **Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	736	2	379223 407351
20	**Integrated Pollution Controls** Name: East Lancashire Paper Mill Co Ltd Location: Church Street East, Radcliffe, MANCHESTER, M26 2PG Authority: Environment Agency, North West Region Permit Reference: BH9701 Dated: 8th May 2000 Process Type: IPC minor (non-substantial) variation to previous variation Description: 6.1 A (B) Paper and Pulp manufacturing processes within Miscellaneous Industries **Status:** **Authorisation revoked** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	741	2	379200 407400
20	**Integrated Pollution Controls** Name: East Lancashire Paper Mill Co Ltd Location: Church Street East, Radcliffe, MANCHESTER, M26 2PG Authority: Environment Agency, North West Region Permit Reference: BD4651 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 6.1 A (B) Paper and Pulp manufacturing processes within Miscellaneous Industries **Status:** **Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	741	2	379200 407400
20	**Integrated Pollution Controls** Name: East Lancashire Paper Mill Co Ltd Location: Church Street East, Radcliffe, MANCHESTER, M26 2PG Authority: Environment Agency, North West Region Permit Reference: AU7702 Dated: 6th October 1997 Process Type: IPC new application Description: 6.1 A (B) Paper and Pulp manufacturing processes within Miscellaneous Industries **Status:** **Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	741	2	379200 407400
21	**Local Authority Pollution Prevention and Controls** Name: Johnsons The Cleaners Location: 24 Blackburn Street, Radcliffe, M26 9nq Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC0610 Dated: 1st December 2006 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A13NW (N)	26	3	378535 407033
22	**Local Authority Pollution Prevention and Controls** Name: Mark Doran Commercial Vehicle Spraying Location: Unit 2 Lodge Road, Radcliffe, M26 1al Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC06-02 Dated: 1st July 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status:** **Permitted** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	164	3	378604 406740
23	**Local Authority Pollution Prevention and Controls** Name: Asda Radcliffe Pfs Location: Pilkington Way, Radcliffe, BURY, Lancashire, M26 3DA Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC05-19 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	231	3	378267 406859

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
24	**Local Authority Pollution Prevention and Controls** Name: Point To Point Location: 9 New Road, Radcliffe, Bury, M26 1ls Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC06-14 Dated: 1st February 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	233	3	378763 406789
25	**Local Authority Pollution Prevention and Controls** Name: K.C Motors Location: Back Barlow Street, Radcliffe, M26 2su Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC06-03 Dated: 1st October 2006 Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status:** **Permitted** Positional Accuracy: Manually positioned to the road within the address or location	A18SE (NE)	365	3	378754 407321
26	**Local Authority Pollution Prevention and Controls** Name: Radcliffe Auto Centre Location: Unit 9, Spring Lane, Radcliffe, M26 2ta Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC04-15 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A18SE (N)	409	3	378620 407415
27	**Local Authority Pollution Prevention and Controls** Name: Strebor Diecasting Location: School Street, Radcliffe, MANCHESTER, Lancashire, M26 3AR Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: 3 Dated: 1st August 1992 Process Type: Local Authority Air Pollution Control Description: PG2/4 Iron, steel and non-ferrous metal foundry processes **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the road within the address or location	A12NE (W)	553	3	377949 407066
28	**Local Authority Pollution Prevention and Controls** Name: Greencroft Service Station Location: New Road, Radcliffe, BURY, Lancashire, M25 9LS Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC05-07 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	566	3	379110 406715
29	**Local Authority Pollution Prevention and Controls** Name: F.A.M. Engineering Location: Holly Bank Mills, Bolton Street, Radcliffe, BURY, Lancashire, M26 3SY Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: Lappc03-08 Dated: 1st November 2000 Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status:** **Authorised** Positional Accuracy: Located by supplier to within 100m	A12NW (W)	733	3	377800 407200
30	**Local Authority Pollution Prevention and Controls** Name: Central Service Station (Co-Op) Location: Bury Road, Radcliffe, M26 2UG Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: LAPPC05-03 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	831	3	378903 407768

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	**Local Authority Pollution Prevention and Controls** Name: Stand Motor Co Location: Stand Lane, Radcliffe, BURY, Lancashire, M26 1JP Authority: Bury Metropolitan Borough Council, Environmental Health Department Permit Reference: Ps28 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	954	3	379205 406204
	Nearest Surface Water Feature	A13SE (E)	1	-	378596 406951
32	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: River Irwell Incident Date: 4th October 1995 Incident Reference: 95622463 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	40	2	378600 406900
32	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Unknown Note: River Irwell Incident Date: 24th April 1995 Incident Reference: 95620890 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	44	2	378600 406895
33	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: No Pollution Found Incident Date: 4th February 1996 Incident Reference: 96620206 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (W)	99	2	378400 406995
33	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Unknown Note: River Irwell; Contaminatec Ground Incident Date: 1st August 1995 Incident Reference: 95621945 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Land Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (W)	102	2	378400 407000
34	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: River Irwell; No Pollution Found Incident Date: 3rd May 1995 Incident Reference: 95621018 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (S)	104	2	378500 406800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: River Irwell; No Pollution Found Incident Date: 10th May 1995 Incident Reference: 95621094 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (S)	109	2	378500 406795
35	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 1st February 1995 Incident Reference: 95620197 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (N)	195	2	378500 407200
36	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: None Pollution Found Incident Date: 31st July 1995 Incident Reference: 95621921 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (S)	203	2	378505 406695
36	**Pollution Incidents to Controlled Waters** Property Type: Connection To Surface Drains Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Detergents/Surfactant Note: River Irwell Incident Date: 2nd May 1995 Incident Reference: 95620992 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Wrong Connection Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (S)	204	2	378500 406695
37	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage: Sewage Works And Septic Tanks Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Sewage - Septic Tank Effluent Note: River Irwell; Crude Sewage Incident Date: 21st March 1994 Incident Reference: 94620714 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Blocked Sewer Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	328	2	378400 406600
38	**Pollution Incidents to Controlled Waters** Property Type: No Premises Identified Location: Water Street, Greater Manchester Authority: Environment Agency, North West Region Pollutant: No Pollutant Note: Not Supplied Incident Date: 15th September 1999 Incident Reference: 32472 Catchment Area: Bolton Bury Canal (Lever) Receiving Water: Canal Cause of Incident: Other Cause Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	542	2	378305 407495

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
39	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Rubble/Litter Or Solids Note: River Irwell Incident Date: 7th March 1994 Incident Reference: 94620426 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	603	2	379100 407300
40	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Fire water / Foam Note: Not Supplied Incident Date: 13th August 1995 Incident Reference: 95622067 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Fire Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (E)	652	2	379200 407200
41	**Pollution Incidents to Controlled Waters** Property Type: Pollution Found Source Not Determined Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Colour Note: River Irwell; Colour Incident Date: 18th April 1996 Incident Reference: 96620839 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	689	2	379200 407295
41	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Other Fuel Oil Note: Bealeys Goyt Incident Date: 23rd November 1995 Incident Reference: 95622847 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Overfilling During Delivery Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	691	2	379200 407300
42	**Pollution Incidents to Controlled Waters** Property Type: WSC Sewage, Sewerage & Supply: Northumbrian Water Ltd Location: River Irwell, Mythan Road, Greater Manchester Authority: Environment Agency, North West Region Pollutant: Sewage and Sewerage Material Note: Not Supplied Incident Date: 11th September 1999 Incident Reference: 32372 Catchment Area: Irwell Receiving Water: River Stretch (Freshwater) Cause of Incident: Drainage Failures : Combined Sewer Failure Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	698	2	377800 406800
43	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: River Irwell Incident Date: 10th February 1995 Incident Reference: 95620266 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	724	2	377800 406700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
44	**Pollution Incidents to Controlled Waters** Property Type: Garage Premises Location: Bolton Street , RADCLIFFE Authority: Environment Agency, North West Region Pollutant: Rubbish Note: Bury Bolton Canal; Rubbish Incident Date: 6th May 1997 Incident Reference: 97620800 Catchment Area: Manchester; Bolton; Bury Canal Receiving Water: Freshwater Stream/River Cause of Incident: Poor Operational Practice Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	772	2	377800 407300
45	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: River Irwell; None Pollution Found Incident Date: 23rd November 1994 Incident Reference: 94622556 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	790	2	378500 407800
46	**Pollution Incidents to Controlled Waters** Property Type: WSC Sewage, Sewerage & Supply: Northumbrian Water Ltd Location: River Irwell, Past Pub On Mount Sion Road, Greater Manchester Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 15th September 1999 Incident Reference: 32486 Catchment Area: Irwell Receiving Water: River Stretch (Freshwater) Cause of Incident: Other Cause Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	816	2	377705 406695
46	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Irwell, Opposite Mason, RADCLIFFE Authority: Environment Agency, North West Region Pollutant: Sewage - Storm Overflow Note: Red Dye Incident Date: 11th October 1998 Incident Reference: SO981868 Catchment Area: Irwell Receiving Water: Freshwater Stream/River Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	819	2	377700 406700
46	**Pollution Incidents to Controlled Waters** Property Type: WSC Sewage, Sewerage & Supply: Northumbrian Water Ltd Location: Mount Sion Road, Radcliffe, RADCLIFFE, Greater Manchester Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 17th August 1999 Incident Reference: 31444 Catchment Area: Irwell Receiving Water: River Stretch (Freshwater) Cause of Incident: Drainage Failures : Combined Sewer Failure Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 10m	A12SW (W)	821	2	377700 406695
47	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Natural Note: Tributary River Irwell; Iron Ochre Incident Date: 1st May 1995 Incident Reference: 95620964 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	817	2	379000 407700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Foul Sewer Location: Radcliffe, MANCHESTER Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Liquid Sewage From Manhole Grid Incident Date: 16th January 1998 Incident Reference: SO980116 Catchment Area: Irwell Receiving Water: Freshwater Stream/River Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	862	2	377900 406300
49	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Natural Note: Bury Bolton Canal Incident Date: 27th July 1995 Incident Reference: 95621889 Catchment Area: Manchester; Bolton; Bury Canal Receiving Water: Not Given Cause of Incident: Algal Bloom Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	876	2	378000 407695
49	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Natural Note: Bury Bolton Canal Incident Date: 24th July 1995 Incident Reference: 95621844 Catchment Area: Manchester; Bolton; Bury Canal Receiving Water: Not Given Cause of Incident: Algal Bloom Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	880	2	378000 407700
50	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Greater Manchester Authority: Environment Agency, North West Region Pollutant: Unknown Note: None Affected; Discoloration Report Incident Date: 16th April 1996 Incident Reference: 96620777 Catchment Area: Irwell Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	915	2	379400 407400
51	**Prosecutions Relating to Authorised Processes** Location: Land At Barlow Mill, Stand Lane, Radcliffe, Manchester, M26 Prosecution Text: Storing too much waste for too long a period of time Prosecution Act: Epa90 S33(6) Hearing Date: 19th August 2004 Verdict: Guilty Fine: 2500 Costs: 1530 Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	629	2	379021 406480
52	**Prosecutions Relating to Authorised Processes** Location: 59 Bury Road, Radcliffe, Lancashire, M26 2UT Prosecution Text: Running an illegal waste transfer station Prosecution Act: Epa90 S33(1)(B) Hearing Date: 13th September 2005 Verdict: Guilty Fine: 4000 Costs: 3732 Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	839	2	378929 407765

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	River Quality Name: Irwell GQA Grade: River Quality E Reach: Roch To Salford University Estimated Distance (km): 22.9 Flow Rate: Flow less than 20 cumecs Flow Type: River Year: 2000	A13SE (SE)	67	2	378637 406892
53	**Substantiated Pollution Incident Register** Authority: Environment Agency - North West Region, South Area Incident Date: 7th July 2001 Incident Reference: 14560 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Contaminated Water: Other Contaminated Water	A13SW (S)	83	2	378511 406818
54	**Substantiated Pollution Incident Register** Authority: Environment Agency - North West Region, South Area Incident Date: 3rd August 2020 Incident Reference: 1833130 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Pollutant Not Identified: Not Identified	A14NW (NE)	543	2	379083 407200
55	**Substantiated Pollution Incident Register** Authority: Environment Agency - North West Region, South Area Incident Date: 3rd July 2001 Incident Reference: 13180 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Crude Sewage	A17SE (NW)	611	2	378148 407474
56	**Water Abstractions** Operator: Bpb Radcliffe Licence Number: 2569004013 Permit Version: 100 Location: R Irwell At Radcliffe, Manchester Authority: Environment Agency, North West Region Abstraction: Paper And Printing: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 5000 Yearly Rate (m3): 1000000 Details: Premises At Johnson Street,Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 28th April 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13SW (S)	199	2	378500 406700
57	**Water Abstractions** Operator: British Waterways Board Licence Number: 2569004994 Permit Version: Not Supplied Location: Bolton & Bury Canal Authority: Environment Agency, North West Region Abstraction: Manufacturing Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 1136 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	544	2	378300 407495

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	**Water Abstractions** Operator: British Waterways Board Licence Number: 2569004037 Permit Version: Not Supplied Location: Bolton & Bury Canal Authority: Environment Agency, North West Region Abstraction: Not Supplied Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Bolton & Bury Canal Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	548	2	378300 407500
58	**Water Abstractions** Operator: Pioneer Dyers Ltd. Licence Number: 2569004041 Permit Version: Not Supplied Location: River Irwell At Premises, Pioneer Mills, Milltown Street, RADCLIFFE Authority: Environment Agency, North West Region Abstraction: Manufacturing Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 330 Yearly Rate (m3): 72600 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14NE (E)	719	2	379300 407100
59	**Water Abstractions** Operator: St Regis Paper Company U K Ltd Licence Number: 2569004004 Permit Version: 101 Location: Reservoir Fed By Surface Drainage Atradcliffe Authority: Environment Agency, North West Region Abstraction: Paper And Printing: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Church Street East, Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 5th May 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A18NE (N)	825	2	378800 407800
59	**Water Abstractions** Operator: The East Lancashire Paper Mill Co Licence Number: 2569004004 Permit Version: 100 Location: Reservoir Fed By Surface Drainage Atradcliffe Authority: Environment Agency, North West Region Abstraction: Paper And Printing: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 109 Yearly Rate (m3): 40005 Details: Church Street East, Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 28th January 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A18NE (N)	825	2	378800 407800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: D & H Dyers Ltd Licence Number: 2569004005 Permit Version: Not Supplied Location: Radcliffe, RADCLIFFE Authority: Environment Agency, North West Region Abstraction: Manufacturing Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 486 Yearly Rate (m3): 113650 Details: Borehole And Well Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	1102	2	379500 407600
	Water Abstractions Operator: Polyflor Ltd Licence Number: 2569004030 Permit Version: 101 Location: Well Point System At Premises Radcliffe Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st March 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A10NW (SE)	1197	2	379600 406300
	Water Abstractions Operator: James Halstead Ltd Licence Number: 2569004030 Permit Version: 100 Location: Wellpoint System At Premises, Radcliffe Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 382 Yearly Rate (m3): 68200 Details: Premises At Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 24th January 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A10NW (SE)	1197	2	379600 406300
	Water Abstractions Operator: Stand Golf Club Limited Licence Number: 2569004053 Permit Version: 102 Location: Borehole At Stand Golf Club Authority: Environment Agency, North West Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Stand Golf Club, Whitefield Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 12th May 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NW (SE)	1591	2	379754 405858

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: The Trustees Of Stand Golf Club Licence Number: 2569004053 Permit Version: 101 Location: Borehole At Stand Golf Club Whitefield Authority: Environment Agency, North West Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Stand Golf Club, Whitefield Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 7th September 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NW (SE)	1594	2	379760 405860
	Water Abstractions Operator: Stand Golf Club Licence Number: 2569004053 Permit Version: 100 Location: A Borehole At Stand Golf Club, Whitefield Authority: Environment Agency, North West Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 55 Yearly Rate (m3): 9000 Details: Land At Stand Golf Club, Whitefield Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 28th May 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NW (SE)	1594	2	379760 405860
	Water Abstractions Operator: North West Water Authority; Eastern Division Licence Number: 2569001209 Permit Version: Not Supplied Location: River Irwell, Bury Effluent Treatment Works, BURY Authority: Environment Agency, North West Region Abstraction: Effluent Treatment Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 818 Yearly Rate (m3): 13638 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A20NE (NE)	1675	2	380100 407700
	Water Abstractions Operator: St Regis Paper Company U K Ltd Licence Number: 2569004019 Permit Version: 102 Location: Withins Reservor Fed By Unnamed Tributary Of River Irwell Authority: Environment Agency, North West Region Abstraction: Paper and Printing: Boiler Feed Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Church St East,Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 5th May 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1689	2	378600 408700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: St Regis Paper Company U K Ltd Licence Number: 2569004019 Permit Version: 102 Location: Withins Reservor Fed By Unnamed Tributary Of River Irwell Authority: Environment Agency, North West Region Abstraction: Paper And Printing: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Church St East,Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 5th May 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1689	2	378600 408700
	Water Abstractions Operator: The East Lancashire Paper Mill Co Licence Number: 2569004019 Permit Version: 101 Location: Withins Reservoir, Fed By & O/Flow To Unnamed Trib Of R Irw Authority: Environment Agency, North West Region Abstraction: Paper And Printing: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Church St East,Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th May 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1689	2	378600 408700
	Water Abstractions Operator: The East Lancashire Paper Mill Co Licence Number: 2569004019 Permit Version: 101 Location: Withins Reservoir, Fed By & O/Flow To Unnamed Trib Of R Irw Authority: Environment Agency, North West Region Abstraction: Paper and Printing: Boiler Feed Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 8728 Yearly Rate (m3): 2705779 Details: Premises At Church St East,Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th May 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1689	2	378600 408700
	Water Abstractions Operator: Ahlstrom Chirnside Ltd Licence Number: 2569004024 Permit Version: 102 Location: River Irwell At Mount Sion Works Radcliffe Authority: Environment Agency, North West Region Abstraction: Textiles And Leather: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Mount Sion Works Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st November 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1718	2	376800 406600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Ahlstrom Dexter Ltd Licence Number: 2569004024 Permit Version: 101 Location: R Irwell At Mount Sion Works, Radcliffe Authority: Environment Agency, North West Region Abstraction: Textiles And Leather: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Mount Sion Works Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st September 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1718	2	376800 406600
	Water Abstractions Operator: Dexter Non Wovens Licence Number: 2569004024 Permit Version: 100 Location: R Irwell At Mount Sion Works, Radcliffe Authority: Environment Agency, North West Region Abstraction: Textiles And Leather: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 8183 Yearly Rate (m3): 2127528 Details: Premises At Mount Sion Works Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 13th November 1990 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1718	2	376800 406600
	Water Abstractions Operator: British Waterways Board Licence Number: 2569004054 Permit Version: 100 Location: The Manchester, Bolton And Bury Canal At Bank Top, Bury Authority: Environment Agency, North West Region Abstraction: Textiles And Leather: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 1200 Yearly Rate (m3): 200000 Details: Land At Intex Yarns, Bury Road, Radcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 4th December 1998 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1891	2	379200 408790
	Water Abstractions Operator: British Waterways Board Licence Number: 2569004998 Permit Version: Not Supplied Location: Bolton & Bury Canal, Intex Yarns Authority: Environment Agency, North West Region Abstraction: Manufacturing Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 149973 Details: Licence Status: Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1896	2	379200 408795

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: British Waterways Board Licence Number: 2569004037 Permit Version: Not Supplied Location: Bolton & Bury Canal Authority: Environment Agency, North West Region Abstraction: Not Supplied Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Bolton & Bury Canal Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1900	2	379200 408800
	Water Abstractions Operator: Total Fitness Health Clubs Limited Licence Number: Nw/069/0004/004 Permit Version: 1 Location: Borehole At Whitefield, Manchester Authority: Environment Agency, North West Region Abstraction: Sports Grounds/Facilities: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Total Fitness, Bury Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 29th January 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1940	2	380450 406381
	Water Abstractions Operator: Total Fitness Uk Ltd Licence Number: 2569004056 Permit Version: 1 Location: Land At Total Fitness Bury New Road Whitefield Bury Authority: Environment Agency, North West Region Abstraction: Sports Grounds/Facilities: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Total Fitness, Bury Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th February 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1940	2	380450 406380
	Water Abstractions Operator: Ahlstrom Chirnside Ltd Licence Number: 2569004043 Permit Version: 101 Location: Shore Top Reservoir At Radcliffe Authority: Environment Agency, North West Region Abstraction: Textiles And Leather: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises At Mount Sion Works Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st September 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1959	2	376600 406400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Dexter Non Wovens Licence Number: 2569004043 Permit Version: 100 Location: Shore Top Reservoir At Radcliffe Authority: Environment Agency, North West Region Abstraction: Textiles And Leather: Process Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 2273 Yearly Rate (m3): 454600 Details: Premises At Mount Sion Works Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 20th January 1992 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1959	2	376600 406400
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Low Vulnerability Combined Vulnerability: Low Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: <40% Superficial Patchiness: >90% Superficial Thickness: >10m Superficial Recharge: High	A13SE (SE)	0	4	378562 406916
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - Low Vulnerability Combined Vulnerability: Low Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: <40% Superficial Patchiness: >90% Superficial Thickness: >10m Superficial Recharge: High	A13SE (SW)	0	4	378542 406952
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - Low Vulnerability Combined Vulnerability: Low Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: <40% Superficial Patchiness: >90% Superficial Thickness: 3-10m Superficial Recharge: Low	A13NE (N)	0	4	378542 407000
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (SW)	0	4	378542 406952
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (SE)	0	4	378562 406916
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	0	2	378569 406961

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	13	2	378531 406888
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	88	2	378491 406822
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	0	2	378573 406929
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	12	2	378601 406965
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	88	2	378495 406820
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 931.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A13SE (SE)	12	5	378587 406916
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 63.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A13SW (S)	214	5	378477 406691
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A13SW (S)	217	5	378453 406697
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 271.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A13SW (S)	218	5	378513 406677
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 210.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A13SW (SW)	320	5	378377 406622

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 118.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A13SW (SW)	320	5	378377 406622
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 60.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A12SE (SW)	383	5	378186 406695
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A12SE (SW)	383	5	378186 406695
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A12SE (SW)	400	5	378150 406715
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 245.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A12SE (SW)	400	5	378150 406715
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 92.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A8NW (SW)	413	5	378349 406531
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 125.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A12SE (SW)	415	5	378140 406703
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 60.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A8NE (SE)	419	5	378734 406519
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A8NE (SE)	477	5	378772 406472

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A8NW (SW)	497	5	378275 406477
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A8NE (SE)	500	5	378790 406457
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7NE (SW)	524	5	378202 406491
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7NE (SW)	538	5	378183 406488
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A8NE (SE)	543	5	378824 406427
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7NE (SW)	543	5	378175 406487
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 61.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A8NE (SE)	557	5	378843 406421
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 39.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A12SE (W)	562	5	377945 406779
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A12SE (W)	572	5	377923 406828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
83	**OS Water Network Lines** Watercourse Form: Canal Watercourse Length: 347.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Manchester, Bolton and Bury Canal (disused) Catchment Name: Mersey Primacy: 2	A18SW (N)	577	5	378304 407535
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 402.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A12SE (W)	577	5	377923 406805
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 266.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A14NW (NE)	581	5	379101 407253
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 192.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A14NW (NE)	583	5	379111 407237
87	**OS Water Network Lines** Watercourse Form: Canal Watercourse Length: 63.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Manchester, Bolton and Bury Canal (disused) Catchment Name: Mersey Primacy: 2	A18SW (NW)	592	5	378215 407500
88	**OS Water Network Lines** Watercourse Form: Canal Watercourse Length: 670.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Manchester, Bolton and Bury Canal (disused) Catchment Name: Mersey Primacy: 2	A17SE (NW)	603	5	378157 407471
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 112.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A9NW (SE)	609	5	378892 406391
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 96.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A19SW (NE)	662	5	379021 407487
91	**OS Water Network Lines** Watercourse Form: Canal Watercourse Length: 727.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Manchester, Bolton and Bury Canal (disused) Catchment Name: Mersey Primacy: 2	A18NW (N)	680	5	378495 407690

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
92	**OS Water Network Lines** Watercourse Form: Canal Watercourse Length: 187.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Manchester, Bolton and Bury Canal (disused) Catchment Name: Mersey Primacy: 2	A12NW (W)	697	5	377789 406962
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 589.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A14NE (E)	703	5	379293 407043
94	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 99.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A9NW (SE)	717	5	378926 406285
95	**OS Water Network Lines** Watercourse Form: Transfer Watercourse Length: 489.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Bealey's Goit Catchment Name: Mersey Primacy: 1	A14NE (E)	723	5	379271 407212
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A19SW (NE)	741	5	379039 407577
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A19SW (NE)	741	5	379039 407577
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 52.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A19NW (NE)	785	5	378988 407670
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.7 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A19NW (NE)	810	5	378962 407714
100	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A9SW (SE)	813	5	378953 406190

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 319.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A19NW (NE)	813	5	378961 407719
102	**OS Water Network Lines** Watercourse Form: Canal Watercourse Length: 1044.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Manchester, Bolton and Bury Canal (disused) Catchment Name: Mersey Primacy: 2	A12SW (W)	822	5	377669 406833
103	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 39.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A9SW (SE)	832	5	378939 406160
104	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 134.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7SE (SW)	844	5	378166 406141
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7NW (SW)	869	5	377698 406565
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 158.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7NW (SW)	878	5	377801 406383
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7NW (SW)	902	5	377664 406560
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 307.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A7NW (SW)	917	5	377645 406565
109	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A14SE (E)	941	5	379522 406787

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 690.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Irwell Catchment Name: Mersey Primacy: 1	A14SE (E)	941	5	379522 406787
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 261.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Hutchinson's Goit Catchment Name: Mersey Primacy: 1	A19SE (NE)	954	5	379399 407484
112	**OS Water Network Lines** Watercourse Form: Reservoir Watercourse Length: 65.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A19SE (NE)	954	5	379399 407484
113	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 15.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A11SE (W)	959	5	377526 406949
114	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 21.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A14SE (E)	960	5	379532 406740
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A7SE (S)	964	5	378170 406007
116	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Mersey Primacy: 1	A12SW (W)	981	5	377537 406683

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
117	**BGS Recorded Landfill Sites** Site Name: DANO Plant Location: Cemetery Rd, Radcliffe, MANCHESTER, Gt Manchester Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Good	A18NW (N)	924	-	378267 407892
118	**Historical Landfill Sites** Licence Holder: Bury Metropolitan Borough Council Location: Sion Street and Bradbury Street, Radcliffe, Bury, Greater Manchester Name: Land South West Of Sion Street Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16005 First Input Date: 31st March 1991 Last Input Date: 31st May 1991 Specified Waste Type: Deposited Waste included Inert Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4200/9329 BGS Ref: Not Supplied Other Ref: GDO C092, RD/LIC/635/90	A13SW (W)	221	2	378264 406942
119	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Radcliffe, Bury, Greater Manchester Name: Land at Darbyshire Street Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15963 First Input Date: 31st December 1974 Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: C116	A13NW (N)	265	2	378422 407244
120	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Outwood Road, Radcliffe, Bury, Greater Manchester Name: King George V Playing Fields Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16041 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: C068	A8NW (S)	517	2	378407 406395
121	**Historical Landfill Sites** Licence Holder: The Radcliffe Paper Mill Company Location: Off Outwood Road, Radcliffe, Bury, Greater Manchester Name: Land at Freightman Hillock Farm Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD18084 First Input Date: 31st December 1934 Last Input Date: 31st December 1993 Specified Waste Type: Deposited Waste included Inert and Industrial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4200/9297 BGS Ref: Not Supplied Other Ref: RD/LIC/025/76, C020	A7NE (SW)	703	2	378096 406348

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
122	**Historical Landfill Sites** Licence Holder: East Lancashire Paper Mill Company Limited Location: Rear of Church Street East, Radcliffe, Bury, Greater Manchester Name: East Lancashire Paper Mill Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD17961 First Input Date: 1st March 1979 Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Inert and Industrial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4200/9210 BGS Ref: Not Supplied Other Ref: C002, WML/0109, RD/LIC/109/77	A14NE (E)	732	2	379318 407072
123	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Radcliffe New Road, Lilly Hill, Radcliffe, Greater Manchester Name: Theodore St. Justs Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16009 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: C076	A14SE (E)	739	2	379297 406717
124	**Historical Landfill Sites** Licence Holder: P D Pollution Control Limited Location: Off Church Street East, Radcliffe, Bury, Greater Manchester Name: Tower Farm Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15950 First Input Date: 31st December 1980 Last Input Date: 31st December 1992 Specified Waste Type: Deposited Waste included Inert, Industrial, Commercial, Household and Special Waste, and Liquid Sludge EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4200/9224 BGS Ref: Not Supplied Other Ref: C010, RD/LIC/201/80, RD/LIC/018/76	A14NE (E)	766	2	379362 406967
125	**Historical Landfill Sites** Licence Holder: East Lancashire Paper Mill Company Limited Location: Church Street East, Radcliffe, Bury, Greater Manchester Name: Boiler house East Lancashire Paper Mill Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15972 First Input Date: 31st December 1939 Last Input Date: 31st December 1989 Specified Waste Type: Deposited Waste included Inert, Industrial and Special Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4200/9190 BGS Ref: Not Supplied Other Ref: RD/LIC/240/82, C057	A19SE (E)	881	2	379406 407303
126	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Hawthorne Avenue, Stand, Radcliffe, Greater Manchester Name: Stand Golf Course Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16070 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: C64a, C064	A8SE (S)	918	2	378826 406019

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
127	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Radcliffe, Greater Manchester Name: Cemetery Road Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15923 First Input Date: 1st April 1969 Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Commercial and Household Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: 1677 Other Ref: C029	A18NW (N)	922	2	378267 407889
128	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Lowe Street, Radcliffe, Bury, Greater Manchester Name: Red Bank Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15932 First Input Date: 31st December 1950 Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Household Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: C115	A17NE (NW)	928	2	377866 407644
129	**Historical Landfill Sites** Licence Holder: Greater Manchester Waste Disposal Authority Location: Sion Street, Radcliffe, Bury, Greater Manchester Name: Land at Mount Sion Street Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16024 First Input Date: 31st December 1965 Last Input Date: 31st December 1976 Specified Waste Type: Deposited Waste included Inert, Industrial, Commercial and Household Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4200/9648 BGS Ref: Not Supplied Other Ref: C062	A7NW (W)	949	2	377609 406569
130	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: East Lancashire Papermill Landfill Licence Number: 53692 Location: Church Street East, Radcliffe, Manchester, M26 2EL Licence Holder: The East Lancashire Paper Mill Co. Ltd. Authority: Environment Agency - North West Region, South Area Site Category: Industrial Waste Landfills Max Input Rate: Small (Less than 25,000 tonnes per year) **Licence Status:** **Inactive** Issued: 10th January 1995 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A14NE (E)	731	2	379317 407071
131	**Licensed Waste Management Facilities (Locations)** Licence Number: 53833 Location: Barlow Mill Transfer Station, Stand Lane, Radcliffe, Manchester, M26 1JT Operator Name: Progress Motors Ltd Operator Location: 369 Stand Lane, Radcliffe, Manchester, M26 4HF Authority: Environment Agency - North West Region, South Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status:** **Issued** Issued: 30th September 1992 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	856	2	378983 406157

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
131	**Licensed Waste Management Facilities (Locations)** Licence Number: 53833 Location: Units 3 & 4 Barlows Mill, Off Stand Lane, Radcliffe, Manchester, M26 1JT Operator Name: A W R Rent A Skip Ltd Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status: Expired** Issued: 30th September 1992 Last Modified: 7th May 2003 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	856	2	378983 406157
132	**Licensed Waste Management Facilities (Locations)** Licence Number: 50254 Location: Nursery Works, Sion Street, Radcliffe, Manchester, M26 3SJ Operator Name: Waters Colin Operator Location: Not Supplied Authority: Environment Agency - North West Region, South Area Site Category: End of Life Vehicles **Licence Status: Expired** Issued: 5th August 2004 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A7NW (W)	914	2	377630 406611
	Local Authority Landfill Coverage Name: Bury Metropolitan Borough Council - Has not been able to supply Landfill data		0	6	378542 406952
133	**Registered Landfill Sites** Licence Holder: Bury M.B.C. Licence Reference: 00635/90 Site Location: Sion Street / Bradbury Street, Radcliffe, Manchester, Greater Manchester Licence Easting: 377900 Licence Northing: 406650 Operator Location: Lester House, 21 Broad Street, BURY, Lancashire, BL9 0DA Authority: Environment Agency - North West Region, South Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st March 1991 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Ash, Clinker Gmwda Group 1 - Non Decomp.W -But Only Max.Waste Permitted By Licence-Stated Silica Stone, Clay, Sand Uncontam. Hardcore And Rubble Uncontam. Soil - Gmwda Class A Prohibited Waste: Liquid/Sludge Wastes Waste In Drums Waste In Skips Waste N.O.S.	A12SE (SW)	650	2	377900 406650

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
134	**Registered Landfill Sites** Licence Holder: Radcliffe Paper Mill Co Licence Reference: 00025/76/M2 Site Location: Frieghtman Hillock Farm, Radcliffe, Manchester, Greater Manchester Licence Easting: 378050 Licence Northing: 406250 Operator Location: Johnson Street, Radcliffe, BURY, Lancashire, M26 9AU Authority: Environment Agency - North West Region, South Area Site Category: Landfill Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: Waste produced/controlled by licence holder Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 14th December 1978 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Construction And Demolition Wastes Ind. Non-Haz. Waste Prohibited Waste: Liquid Wastes	A7SE (SW)	809	2	378050 406250
135	**Registered Landfill Sites** Licence Holder: East Lancashire Paper Mill Co Ltd Licence Reference: 00109/M05 Site Location: Rear Of East Lancs Paper Mill, Church Street East, Radcliffe, Manchester, Greater Manchester Licence Easting: 379400 Licence Northing: 407200 Operator Location: Church Street East, Radcliffe, Manchester, Greater Manchester, M26 9pr Authority: Environment Agency - North West Region, South Area Site Category: Landfill Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: Waste produced/controlled by licence holder Status: Licence has completion certificateSurrendered Dated: 10th January 1995 Preceded By Licence: 00109/77/M4 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Ewc010401- Gravel & Rocks Ewc010402- Sand & Clays Ewc030307- Rejects From Paper Recyc. Ewc030399- Non-Haz.Paper Prod/Proc'G Ewc030606- Fibre & Paper Sludge Ewc150102- Plastic Packaging Ewc170101- Concrete Ewc170501- Stones & Soil Ewc200101- Com. Waste - Paper Ewc200101- Com. Waste - Small Metal Ewc200101- Com. Waste - Small Plastic Prohibited Waste: Waste N.O.S.	A14NE (E)	841	2	379400 407200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
135	**Registered Landfill Sites** Licence Holder: East Lancashire Paper Mill Co Ltd Licence Reference: 00109/77/M4 Site Location: Rear Of East Lancs Paper Mill, Church Street East, Radcliffe, Manchester, Greater Manchester Licence Easting: 379400 Licence Northing: 407200 Operator Location: Church Street East, Radcliffe, Manchester, Greater Manchester, M26 9pr Authority: Environment Agency - North West Region, South Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: Waste produced/controlled by licence holder Status: Record supersededSuperseded Dated: 22nd September 1983 Preceded By Licence: Not Given Superseded By Licence: 00109/M05 Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Cellulose Wastes Construction And Demolition Wastes Empty Used Containers Incinerator Residues Industrial Effluent Treatment Sludge Polymeric Material, Products/Scrap	A14NE (E)	841	2	379400 407200
136	**Registered Landfill Sites** Licence Holder: East Lancashire Paper Mill Co Ltd Licence Reference: 00240/82/M1 Site Location: East Lancs Paper Mill (Boiler House), Church Street East, Radcliffe, Manchester, Greater Manchester Licence Easting: 379500 Licence Northing: 407320 Operator Location: Church Street East, Radcliffe, Manchester, Greater Manchester, M26 9pr Authority: Environment Agency - North West Region, South Area Site Category: Landfill Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 26th August 1982 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Cellulose Wastes (Natural/Synth.) Construction And Demolition Wastes Empty Used Containers Incinerator Residues Ind. Non-Haz. Waste Polymeric Material, Products/Scrap	A19SE (E)	975	2	379500 407320

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pennine Middle Coal Measures Formation And South Wales Middle Coal Measures Formation (Undifferentiated)	A13SE (SW)	0	1	378542 406952
137	**BGS Recorded Mineral Sites** Site Name: Stand Lane Colliery Location: Chapel Field, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187568 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	140	1	378621 406775
137	**BGS Recorded Mineral Sites** Site Name: Stand Lane Colliery, Cawdaw Pit Location: Chapel Field, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187569 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	165	1	378627 406749
138	**BGS Recorded Mineral Sites** Site Name: Scar Top Location: Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96824 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	227	1	378722 407171
139	**BGS Recorded Mineral Sites** Site Name: Stand Lane Colliery, Blind Pit Location: Chapel Field, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187570 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SE (S)	292	1	378664 406626
140	**BGS Recorded Mineral Sites** Site Name: Stand Lane Colliery, Air Pit Location: Chapel Field, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187571 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	409	1	378834 406602

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
141	**BGS Recorded Mineral Sites** Site Name: Radcliffe Bridge Sand Pits Location: Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96825 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A14SW (E)	441	1	379003 406781
142	**BGS Recorded Mineral Sites** Site Name: Stand Lane Colliery, Meadow Pits Location: Chapel Field, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187572 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	454	1	378827 406537
142	**BGS Recorded Mineral Sites** Site Name: Stand Lane Colliery, Meadow Pits Location: Chapel Field, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187573 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	493	1	378835 406493
143	**BGS Recorded Mineral Sites** Site Name: Radcliffe Bridge Brick Field Location: Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96826 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A14SW (E)	495	1	379050 406754
144	**BGS Recorded Mineral Sites** Site Name: Radcliffe Gravel Pit Location: Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96823 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: River Terrace Deposits, 1 Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	530	1	378907 407412
145	**BGS Recorded Mineral Sites** Site Name: Higher Barn Brick Works Location: Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96848 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	546	1	378300 406406

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
146	**BGS Recorded Mineral Sites** Site Name: Whitefield Colliery, New Pit Location: Outwood, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187574 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	606	1	378089 406475
147	**BGS Recorded Mineral Sites** Site Name: Whitefield Colliery Location: Outwood, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187575 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	687	1	378042 406409
148	**BGS Recorded Mineral Sites** Site Name: Chapel Field Sand Pits Location: Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96827 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	782	1	379182 406435
149	**BGS Recorded Mineral Sites** Site Name: Grundy'S Pit Location: Outwood, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187576 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	890	1	377819 406344
149	**BGS Recorded Mineral Sites** Site Name: Whitefield Colliery Location: Outwood, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187577 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	893	1	377833 406324
149	**BGS Recorded Mineral Sites** Site Name: Whitefield Colliery Location: Outwood, Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 187578 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	908	1	377810 406326

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
150	**BGS Recorded Mineral Sites** Site Name: Black Cat Colliery Location: Radcliffe, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96828 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A12NW (W)	950	1	377555 407127
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13SE (SW)	0	7	378542 406952
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SE (SW)	0	-	378542 406952
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	127	1	378676 407075
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	200	1	378487 406702
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	127	1	378676 407075
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	134	1	378680 407082
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	193	1	378486 406710
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	378571 406929
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	378545 406941
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	31	1	378609 406913
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	127	1	378676 407075

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	378568 406978
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	112	1	378448 406822
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	378542 406952

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
151	**Contemporary Trade Directory Entries** Name: Gas & Fireplace Centre Location: 1, Dale Street, Radcliffe, Manchester, M26 1AB Classification: Fireplaces & Mantelpieces **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	0	-	378516 406965
151	**Contemporary Trade Directory Entries** Name: Advanced Motorcare Ltd Location: Unit 5, Dale Street Industrial Estate, Radcliffe, Manchester, M26 1AD Classification: Mot Testing Centres **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	0	-	378510 406957
151	**Contemporary Trade Directory Entries** Name: Smile Photo Location: 2, Dale Street, Radcliffe, Manchester, M26 1AB Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	22	-	378507 407003
151	**Contemporary Trade Directory Entries** Name: Johnson Cleaners (Uk) Ltd Location: 24, Blackburn Street, Radcliffe, Manchester, M26 1NQ Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	27	-	378537 407036
151	**Contemporary Trade Directory Entries** Name: Brightside Brewing Company Location: Unit 10, Dale Street Industrial Estate, Radcliffe, Manchester, M26 1AD Classification: Brewers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	31	-	378483 406992
151	**Contemporary Trade Directory Entries** Name: Electronic Service Centre Location: 31, Blackburn Street, Radcliffe, Manchester, M26 1NR Classification: Electrical goods - servicing & repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	35	-	378504 407019
152	**Contemporary Trade Directory Entries** Name: Hallmark Foods Location: Blackburn st, Radcliffe, Manchester, Lancashire, M26 1NN Classification: Meat - Wholesale **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SW (W)	0	-	378536 406952
153	**Contemporary Trade Directory Entries** Name: The Paint Shop Location: 8, Church Street West, Radcliffe, Manchester, M26 2SQ Classification: Wallpapers & Wall Coverings **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	37	-	378615 407008
153	**Contemporary Trade Directory Entries** Name: Rose Marketing Location: 17, Deansgate, Radcliffe, Manchester, M26 2SH Classification: Bottle Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	51	-	378593 407051
153	**Contemporary Trade Directory Entries** Name: L & T Electrical Discount Stores Location: 11, Church Street West, Radcliffe, Manchester, M26 2SP Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	77	-	378616 407065
154	**Contemporary Trade Directory Entries** Name: Computer Bargains Location: 1, Stand Lane, Radcliffe, Manchester, M26 1NW Classification: Computer Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	41	-	378637 406953
154	**Contemporary Trade Directory Entries** Name: Direct Hardware Ltd Location: 1, Stand Lane, Radcliffe, Manchester, Lancashire, M26 1NW Classification: Computer Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	41	-	378637 406953

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
154	**Contemporary Trade Directory Entries** Name: Timepieces Direct Location: 1, Stand Lane, Radcliffe, Manchester, M26 1NW Classification: Clocks & Watches - Manufacturers & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	41	-	378637 406953
155	**Contemporary Trade Directory Entries** Name: Optical Glazing Services Location: 42, Blackburn Street, Radcliffe, Manchester, M26 1NQ Classification: Optical Goods - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	73	-	378511 407074
156	**Contemporary Trade Directory Entries** Name: Alpin Aircon Maintenance Ltd Location: 3, MILL BANK, RADCLIFFE, MANCHESTER, M26 1AJ Classification: Air Conditioning & Refrigeration Contractors **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	99	-	378657 406873
156	**Contemporary Trade Directory Entries** Name: Money 4 Clothes Location: 26a, Stand Lane, Radcliffe, MANCHESTER, M26 1LJ Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	106	-	378665 406872
157	**Contemporary Trade Directory Entries** Name: B & S Motor Services Location: 15, Mill Bank, Radcliffe, Manchester, M26 1AJ Classification: Commercial Vehicle Servicing, Repairs, Parts & Accessories **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A13SE (S)	105	-	378595 406800
158	**Contemporary Trade Directory Entries** Name: Electronica Location: 43, Milltown Street, Radcliffe, Manchester, M26 1WD Classification: Electronic Component Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A13SE (E)	141	-	378737 406951
158	**Contemporary Trade Directory Entries** Name: Jax Location: Unit 30 Milltown St, Radcliffe, Manchester, M26 1WD Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (E)	168	-	378764 406964
158	**Contemporary Trade Directory Entries** Name: Mawson Taylor Ltd Location: Milltown St, Radcliffe, Manchester, M26 1WX Classification: Plastics - Injection Moulding **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (E)	173	-	378768 406966
158	**Contemporary Trade Directory Entries** Name: Radcliffe Ltd Location: Milltown St, Radcliffe, Manchester, Lancashire, M26 1WD Classification: Footwear Manufacturers & Wholesale **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (E)	181	-	378776 406970
159	**Contemporary Trade Directory Entries** Name: B & C Motors Location: 2 Quarry St, Radcliffe, Manchester, M26 2SN Classification: Car Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (NE)	146	-	378655 407123
160	**Contemporary Trade Directory Entries** Name: Express Tyres Location: 1a Outwood Rd, Radcliffe, Manchester, Lancashire, M26 1AQ Classification: Tyre Repairs & Retreading **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	169	-	378571 406726
160	**Contemporary Trade Directory Entries** Name: Radcliffe Glass & Windows Ltd Location: Lodge Brow, Radcliffe, Manchester, M26 1AL Classification: Fascias and Soffits **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	170	-	378595 406730

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
160	**Contemporary Trade Directory Entries** Name: A W T International Location: Unit 3,Lodge Brow, Radcliffe, Manchester, Greater Manchester, M26 1AL Classification: Mechanical Handling Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (S)	174	-	378597 406727
160	**Contemporary Trade Directory Entries** Name: Molygran & Co Ltd Location: Lodge Rd, Radcliffe, Manchester, M26 1AL Classification: Packaging & Wrapping Equipment & Supplies **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	201	-	378595 406698
161	**Contemporary Trade Directory Entries** Name: Howley Motors Ltd Location: Unit E1 Motorhouse,Outwood Road, Radcliffe, Manchester, Greater Manchester, M26 1AQ Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	173	-	378651 406756
161	**Contemporary Trade Directory Entries** Name: Starlite Productions Location: 6 Lodge Brow, Radcliffe, Manchester, Greater Manchester, M26 1AL Classification: Industrial Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	197	-	378682 406751
162	**Contemporary Trade Directory Entries** Name: Warburton Holder Ltd Location: Milltown Street, Radcliffe, Manchester, M26 1WH Classification: Machinery - Industrial & Commercial **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	206	-	378798 406990
162	**Contemporary Trade Directory Entries** Name: Site Electrical Ltd Location: Constellation House, Milltown Street, Radcliffe, Manchester, M26 1WD Classification: Pumps - Sales, Servicing & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	206	-	378798 406990
163	**Contemporary Trade Directory Entries** Name: Asda Petrol Location: Pilkington Way, Radcliffe, Manchester, M26 3DA Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	214	-	378323 406794
164	**Contemporary Trade Directory Entries** Name: A J S Cleaning Services Location: 1-3, Lodge Brow, Radcliffe, M26 1AL Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	216	-	378545 406678
164	**Contemporary Trade Directory Entries** Name: Bridge Door Systems Location: 1-3 Lodge Brow, Radcliffe, Manchester, Greater Manchester, M26 1AL Classification: Door Manufacturers - Industrial **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (S)	216	-	378545 406678
164	**Contemporary Trade Directory Entries** Name: Radcliffe Glass & Windows Location: 1-3 Lodge Brow, Radcliffe, Manchester, Greater Manchester, M26 1AL Classification: PVC-U Products - Manufacturers & Suppliers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (S)	216	-	378545 406678
165	**Contemporary Trade Directory Entries** Name: Howarth Sheet Metal & Fabrication Ltd Location: Lodge Brow, Radcliffe, Manchester, M26 1AL Classification: Sheet Metal Work **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	223	-	378608 406678

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
165	**Contemporary Trade Directory Entries** Name: Mark Doran Location: Unit 2 Lodge Road, Radcliffe, Manchester, Greater Manchester, M26 1AL Classification: Commercial Vehicle Bodybuilders & Repairers **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A13SE (S)	224	-	378608 406678
165	**Contemporary Trade Directory Entries** Name: C M Cleaning Location: Lodge Brow, Radcliffe, Manchester, Lancashire, M26 1AL Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	247	-	378574 406648
166	**Contemporary Trade Directory Entries** Name: Bp Supplies Location: 5-7, New Road, Radcliffe, Manchester, Lancashire, M26 1LS Classification: Cleaning Materials & Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	226	-	378752 406789
166	**Contemporary Trade Directory Entries** Name: Point To Point Location: 9, New Road, Radcliffe, Manchester, M26 1LS Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	235	-	378764 406788
167	**Contemporary Trade Directory Entries** Name: Steelow (Uk) Ltd Location: Bridgefield Street, Radcliffe, Manchester, M26 2SG Classification: Wrought Ironwork **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	232	-	378677 407212
167	**Contemporary Trade Directory Entries** Name: Raptech Location: Bridgefield Street, Radcliffe, Manchester, M26 2SG Classification: Engineers - General **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	234	-	378678 407213
168	**Contemporary Trade Directory Entries** Name: J C S Plant Ltd Location: 1, Outwood Road, Radcliffe, Manchester, M26 1AQ Classification: Plant & Machinery Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (S)	236	-	378474 406668
168	**Contemporary Trade Directory Entries** Name: Southlands Print Location: Outwood Road, Radcliffe, Manchester, Lancashire, M26 1AQ Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (S)	236	-	378474 406668
169	**Contemporary Trade Directory Entries** Name: Strebor Diecasting Co Ltd Location: P O Box 6 Allens Green Works,Hutchinson Way, Radcliffe, Manchester, M26 3AR Classification: Die-Casting Equipment & Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NW (W)	247	-	378249 407006
170	**Contemporary Trade Directory Entries** Name: Hiltons Location: 68, Stand Lane, Radcliffe, Manchester, M26 1JU Classification: Hardware **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	253	-	378742 406733
171	**Contemporary Trade Directory Entries** Name: H C Electrical Location: 15, Milltown Close, Radcliffe, Manchester, Lancashire, M26 1WF Classification: Fascias and Soffits **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	258	-	378854 406950

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
172	**Contemporary Trade Directory Entries** Name: M B W Doors Ltd Location: Unit 8,Dale St Ind Est, Radcliffe, Manchester, Lancashire, M26 1AD Classification: Door & Gate Operating Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	272	-	378284 406750
172	**Contemporary Trade Directory Entries** Name: M B W Doors Location: Unit 8, Dale Street Industrial Estate, Radcliffe, Manchester, Lancashire, M26 1AD Classification: Door Manufacturers - Industrial **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	273	-	378284 406750
173	**Contemporary Trade Directory Entries** Name: Dee Bee Ceramica Location: Albert Place Business Centre, 25-39, James Street, Radcliffe, Manchester, M26 1LN Classification: Pottery Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	275	-	378664 406644
174	**Contemporary Trade Directory Entries** Name: Must Have Ltd Location: Unit 14, Dale Street Industrial Estate, Radcliffe, Manchester, M26 1AD Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	277	-	378235 406816
174	**Contemporary Trade Directory Entries** Name: The Hire Business Location: Unit 14-16, Dale Street Industrial Estate, Radcliffe, Manchester, M26 1AD Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	277	-	378235 406816
174	**Contemporary Trade Directory Entries** Name: Fleet Controller Installations Location: Unit 14/16, Dale Street Industrial Estate, Radcliffe, Manchester, Lancashire, M26 1AD Classification: Commercial Vehicle Component Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	297	-	378223 406795
175	**Contemporary Trade Directory Entries** Name: The Car Clinic Manchester Ltd Location: 136, Sion Street, Radcliffe, Manchester, Lancashire, M26 3SB Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (W)	278	-	378208 406917
175	**Contemporary Trade Directory Entries** Name: Cleaner Please Location: 36, Mulberry Close, Radcliffe, Manchester, M26 3AR Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (W)	305	-	378181 406938
176	**Contemporary Trade Directory Entries** Name: Nigel Crompton Vehicle Repairs Location: Unit 7 Globe House,Bridgefield Street, Radcliffe, Manchester, Greater Manchester, M26 2SG Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13NE (NE)	283	-	378712 407250
176	**Contemporary Trade Directory Entries** Name: Globe Motor Services Location: 7 Bridgefield St, Radcliffe, Manchester, Lancashire, M26 2SG Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (NE)	291	-	378694 407270
177	**Contemporary Trade Directory Entries** Name: Motor Tune (Whitefield) Location: Outwood Road, Radcliffe, Manchester, M26 1AQ Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (S)	288	-	378466 406616

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
177	**Contemporary Trade Directory Entries** Name: Motorhouse M O T Centre Location: Unit 3 Outwood Road, Radcliffe, Manchester, Greater Manchester, M26 1AQ Classification: Mot Testing Centres **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13SW (S)	289	-	378466 406616
177	**Contemporary Trade Directory Entries** Name: Outwood Cars Location: Outwood Rd, Radcliffe, Manchester, M26 1AQ Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A8NW (S)	294	-	378483 406606
177	**Contemporary Trade Directory Entries** Name: Faith In Nature Ltd Location: Faith House, James Street, Radcliffe, Manchester, M26 1LN Classification: Cosmetic Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	317	-	378497 406580
177	**Contemporary Trade Directory Entries** Name: A & A Motors Location: Outwood Rd, Radcliffe, Manchester, M26 1AQ Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A8NW (S)	331	-	378466 406572
178	**Contemporary Trade Directory Entries** Name: Bodywerx Accident & Repair Centre Location: Dale St Ind Est, Radcliffe, Manchester, Lancashire, M26 1AD Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SW (SW)	290	-	378279 406730
178	**Contemporary Trade Directory Entries** Name: Dcp Racing Location: Dale St Ind Est, Radcliffe, Manchester, Lancashire, M26 1AD Classification: Car Engine Tuning & Diagnostic Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13SW (SW)	299	-	378266 406730
178	**Contemporary Trade Directory Entries** Name: Cool & Heat Ltd Location: Unit 2-3,Dale Industrial Estate, Radcliffe, Manchester, Greater Manchester, M26 1AD Classification: Air Conditioning & Refrigeration Contractors **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	319	-	378276 406692
178	**Contemporary Trade Directory Entries** Name: Glass Inc Ltd Location: Unit 2-4, Dale Street Industrial Estate, Radcliffe, MANCHESTER, M26 1AD Classification: Window Frame Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	325	-	378273 406687
178	**Contemporary Trade Directory Entries** Name: Excel Compressor Engineering Location: Unit 2-3, Dale Street Industrial Estate, Radcliffe, MANCHESTER, M26 1AD Classification: Air Compressors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	325	-	378273 406687
179	**Contemporary Trade Directory Entries** Name: Direct Fencing & Gates Ltd Location: Unit 5,Endora House,Lodge Brow, Radcliffe, Manchester, Lancashire, M26 1AL Classification: Fencing Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A8NW (S)	307	-	378534 406587
180	**Contemporary Trade Directory Entries** Name: Renwood Ltd Location: Radcliffe, M26 2JS Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	310	-	378401 407284

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
180	**Contemporary Trade Directory Entries** Name: Farnworth Express Location: 109-111, Blackburn Street, Radcliffe, Manchester, M26 3WQ Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	325	-	378366 407280
180	**Contemporary Trade Directory Entries** Name: Ascot Design Location: 109, Blackburn Street, Radcliffe, Manchester, M26 3WQ Classification: Furniture Manufacturers - Home & Office **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	325	-	378366 407280
180	**Contemporary Trade Directory Entries** Name: Ohm Electrics Location: 115, Blackburn Street, Radcliffe, Manchester, Lancashire, M26 3WQ Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	340	-	378356 407292
180	**Contemporary Trade Directory Entries** Name: C F C Sales Location: Lancaster House 70-76, Blackburn Street, Radcliffe, Manchester, M26 2JW Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SW (N)	341	-	378395 407316
181	**Contemporary Trade Directory Entries** Name: Phoenix Electroplating Ltd Location: Milltown Street, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Metal Finishing Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	310	-	378898 407022
182	**Contemporary Trade Directory Entries** Name: Ams Location: Stand La, Radcliffe, Manchester, Lancashire, M26 1JU Classification: Mot Testing Centres **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13SE (SE)	310	-	378784 406695
183	**Contemporary Trade Directory Entries** Name: Rk Property Maintenance Location: 25, Mulberry Close, Radcliffe, Manchester, M26 3AR Classification: Gas Companies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	316	-	378173 406980
184	**Contemporary Trade Directory Entries** Name: Bolton & Bury Blinds Location: 8, Wolsey Close, Radcliffe, Manchester, M26 3AG Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	331	-	378293 407226
184	**Contemporary Trade Directory Entries** Name: Bolton & Bury Blinds Location: 8, Wolsey Close, Radcliffe, Manchester, M26 3AG Classification: Blinds, Awnings & Canopies **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	331	-	378293 407226
185	**Contemporary Trade Directory Entries** Name: Distinctive Kitchens & Bedrooms Location: Unit 11,Dale St Ind Est, Radcliffe, Manchester, Lancashire, M26 1AD Classification: Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SE (SW)	332	-	378202 406760
185	**Contemporary Trade Directory Entries** Name: Highgrove Fine Furniture Location: Unit 10, Dale Street Industrial Estate, Radcliffe, Manchester, M26 1AD Classification: Furniture Manufacturers - Home & Office **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	342	-	378196 406750
185	**Contemporary Trade Directory Entries** Name: Shaheen Foods Location: Unit 9, Dale Street Industrial Estate, Radcliffe, Manchester, M26 1AD Classification: Food Products - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	354	-	378190 406737

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
186	**Contemporary Trade Directory Entries** Name: West & Senior Ltd Location: Milltown Street, Radcliffe, Manchester, M26 1WE Classification: Colour Manufacturers & Suppliers **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	341	-	378936 406981
187	**Contemporary Trade Directory Entries** Name: K G B Engineering Supplies Location: Unit 3, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, M26 2TA Classification: Engineering Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	344	-	378565 407355
187	**Contemporary Trade Directory Entries** Name: Advantage Auto Bodies Location: Unit 2, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, M26 2TA Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	352	-	378561 407363
187	**Contemporary Trade Directory Entries** Name: Darbyshire St Garages Location: Unit 5, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, M26 2TA Classification: Car Breakdown & Recovery Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	353	-	378594 407362
187	**Contemporary Trade Directory Entries** Name: Nrc Motor Services Location: Unit 5, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, Lancashire, M26 2TA Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18SE (N)	353	-	378594 407362
187	**Contemporary Trade Directory Entries** Name: Biomass Energy Co-Operative Location: Unit 1, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, M26 2TA Classification: Boiler Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	367	-	378548 407379
187	**Contemporary Trade Directory Entries** Name: Matchbrook Ltd Location: Unit 1, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, M26 2TA Classification: Clothing & Fabrics - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	367	-	378548 407379
187	**Contemporary Trade Directory Entries** Name: Radcliffe Tyre Bay Location: Unit 7, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, M26 2TA Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SE (N)	385	-	378573 407396
188	**Contemporary Trade Directory Entries** Name: J B Ashworth Location: 13, Ulundi Street, Radcliffe, Manchester, M26 3AN Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	347	-	378164 407071
189	**Contemporary Trade Directory Entries** Name: Radcliffe Enginnering Services Location: 101, Church Street West, Radcliffe, Manchester, M26 2SX Classification: Mechanical Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	347	-	378770 407288
189	**Contemporary Trade Directory Entries** Name: Radcliffe Engineering Services Location: 101, Church Street West, Radcliffe, Manchester, Lancashire, M26 2SX Classification: Materials Handling Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	347	-	378770 407288

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
189	**Contemporary Trade Directory Entries** Name: Radcliffe Engineering Services Location: 101, Church Street West, Radcliffe, Manchester, M26 2SX Classification: Materials Handling Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	347	-	378770 407288
189	**Contemporary Trade Directory Entries** Name: M B M Garage Services Location: CHURCH STREET WEST, RADCLIFFE, MANCHESTER, M26 2SX Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	353	-	378769 407296
189	**Contemporary Trade Directory Entries** Name: Harrison Sheet Metal Location: 101, Church Street West, Radcliffe, MANCHESTER, M26 2SX Classification: Sheet Metal Work **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	369	-	378765 407318
189	**Contemporary Trade Directory Entries** Name: Radcliffe Engineering Services Location: 101, Church Street West, Radcliffe, Manchester, Lancashire, M26 2SX Classification: Engineering Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18SE (NE)	369	-	378765 407318
189	**Contemporary Trade Directory Entries** Name: K C Motors Location: Barlow Street, Radcliffe, Manchester, M26 2SU Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	376	-	378760 407330
190	**Contemporary Trade Directory Entries** Name: Hilbar Plastics Location: Windley Works, Wolsey Street, Radcliffe, Manchester, Lancashire, M26 3BB Classification: Plastics - Injection Moulding **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	348	-	378239 407196
190	**Contemporary Trade Directory Entries** Name: Louis Taylor Location: Windley Works, Wolsey Street, Radcliffe, Manchester, M26 3BB Classification: Soft Furnishings - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	348	-	378238 407195
191	**Contemporary Trade Directory Entries** Name: Church Street Autos Location: 101 Church St West, Radcliffe, Manchester, Lancashire, M26 2SX Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (NE)	348	-	378815 407250
192	**Contemporary Trade Directory Entries** Name: M-Star Location: 91a, Stand Lane, Radcliffe, Manchester, M26 1JR Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	352	-	378847 406706
192	**Contemporary Trade Directory Entries** Name: Hi-Q Location: 91A Stand La, Radcliffe, Manchester, M26 1JR Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	354	-	378846 406702
193	**Contemporary Trade Directory Entries** Name: G D P Ltd Location: 6a, Heber Street, Radcliffe, Manchester, Lancashire, M26 2TG Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18SW (N)	358	-	378390 407332
194	**Contemporary Trade Directory Entries** Name: Raymat Quilts & Textiles Location: Bridgefield Street, Radcliffe, Manchester, M26 2SG Classification: Bed & Mattress Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	360	-	378637 407362

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
194	**Contemporary Trade Directory Entries** Name: Raymat Quilts & Textiles Location: Bridgefield Street, Radcliffe, Manchester, M26 2SG Classification: Textile Manufacturing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	360	-	378637 407362
194	**Contemporary Trade Directory Entries** Name: Raymat Quilts & Textiles Location: Building Directly North of Albert Iron Works, Bridgefield Street, Radcliffe, M26 2SG Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	371	-	378648 407371
195	**Contemporary Trade Directory Entries** Name: Eton Garage Location: School Street, Radcliffe, Manchester, M26 3BP Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	363	-	378180 407142
196	**Contemporary Trade Directory Entries** Name: Dax Motor Company Ltd Location: Motorhouse Industrial Estate,Outwood Road, Radcliffe, Manchester, Greater Manchester, M26 1AQ Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A8NW (S)	365	-	378471 406536
196	**Contemporary Trade Directory Entries** Name: Bike Hut Motorcycles Location: Unit 1 Motor House Industrial Estate,Outwood Road, Radcliffe, Manchester, Greater Manchester, M26 1AQ Classification: Garage Services **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A8NW (S)	365	-	378471 406536
196	**Contemporary Trade Directory Entries** Name: Ck Motors Location: Outwood Rd, Radcliffe, Manchester, M26 1AQ Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A8NW (S)	374	-	378450 406532
196	**Contemporary Trade Directory Entries** Name: Outwood Tyres Location: Motorhouse, Outwood Road, Radcliffe, Manchester, Greater Manchester, M26 1AQ Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A8NW (S)	376	-	378467 406526
196	**Contemporary Trade Directory Entries** Name: White Horse Car Sales Location: Outwood Rd, Radcliffe, Manchester, M26 1AQ Classification: Car Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A8NW (S)	390	-	378449 406516
197	**Contemporary Trade Directory Entries** Name: Deva Composites Location: Sion Street, Radcliffe, Manchester, M26 3SF Classification: Glass Fibre Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (W)	368	-	378128 406846
197	**Contemporary Trade Directory Entries** Name: B Y C Rollmakers Location: Sion Street, Radcliffe, Manchester, Greater Manchester, M26 3SF Classification: Engineers - General **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A12SE (W)	368	-	378128 406846
197	**Contemporary Trade Directory Entries** Name: Cope Engineering Radcliffe Ltd Location: Sion Street, Radcliffe, Manchester, M26 3SF Classification: Precision Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (W)	368	-	378128 406846

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
197	**Contemporary Trade Directory Entries** Name: Deva Composites Location: Sion st, Radcliffe, Manchester, Lancashire, M26 3SF Classification: Glass Fibre Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SE (W)	378	-	378113 406868
198	**Contemporary Trade Directory Entries** Name: Park Hills & M O T & Service Centre Location: Stand Lane, Radcliffe, Manchester, M26 1JU Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	376	-	378828 406645
198	**Contemporary Trade Directory Entries** Name: Go Wallpaper Ltd Location: 118, Stand Lane, Radcliffe, Manchester, M26 1GS Classification: Wallpapers & Wall Coverings **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	408	-	378857 406629
198	**Contemporary Trade Directory Entries** Name: Total Fire Solutions Ltd Location: 118, Stand Lane, Radcliffe, Manchester, M26 1GS Classification: Firefighting Equipment **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	408	-	378857 406629
198	**Contemporary Trade Directory Entries** Name: Bad Boy Fireworks Location: 105, Stand Lane, Radcliffe, Manchester, M26 1JR Classification: Firework Stockists **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	408	-	378878 406656
199	**Contemporary Trade Directory Entries** Name: G B Lighting Manufactuer Location: Sion Street, Radcliffe, Manchester, M26 3SB Classification: Lighting Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	396	-	378122 406775
200	**Contemporary Trade Directory Entries** Name: Van Dealers Ltd Location: Unit 10 Globe Industrial Estate,Darbyshire Street, Radcliffe, Manchester, Greater Manchester, M26 2TA Classification: Commercial Vehicle Dealers **Status: Active** Positional Accuracy: Manually positioned to the address or location	A18SE (N)	397	-	378627 407402
200	**Contemporary Trade Directory Entries** Name: Radcliffe Auto Centre Location: Unit 9, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, Lancashire, M26 2TA Classification: Mot Testing Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	409	-	378620 407415
200	**Contemporary Trade Directory Entries** Name: R C A Logistics Location: Unit 9, Globe Industrial Estate, Darbyshire Street, Radcliffe, Manchester, M26 2TA Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	410	-	378597 407419
201	**Contemporary Trade Directory Entries** Name: The Gas Works Location: 41, Victoria Street, Radcliffe, Manchester, M26 3AZ Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (NW)	406	-	378163 407194
202	**Contemporary Trade Directory Entries** Name: Refrigeration Spares Location: Milltown Street, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Refrigeration Equipment Manufacturers & Distributors **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	415	-	378998 407058

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
203	**Contemporary Trade Directory Entries** Name: Tottington Motor Bodies Location: East Street, Radcliffe, Manchester, M26 2PW Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	415	-	378914 407241
204	**Contemporary Trade Directory Entries** Name: Domestic-4-U Location: 109-121, Stand Lane, Radcliffe, Manchester, M26 1JR Classification: Washing Machines - Servicing & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	425	-	378891 406645
204	**Contemporary Trade Directory Entries** Name: Tower Metal Co (Recycling) Ltd Location: Barlows Mill,Stand La, Radcliffe, Manchester, M26 1JP Classification: Scrap Metal Merchants **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	444	-	378892 406614
204	**Contemporary Trade Directory Entries** Name: A1 Damproofing Location: Sunlight House, 125, Stand Lane, Radcliffe, Manchester, M26 1JR Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	468	-	378921 406612
205	**Contemporary Trade Directory Entries** Name: Ratcliffe Service & Tuning Location: Radcliffe, Manchester, Greater Manchester, M26 2TQ Classification: Garage Services **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A18SW (N)	437	-	378439 407435
206	**Contemporary Trade Directory Entries** Name: Radcliffe Motor Bodies Location: Outwood Rd, Radcliffe, Manchester, M26 1AQ Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A8NW (S)	441	-	378454 406462
207	**Contemporary Trade Directory Entries** Name: James Hesketh & Co Ltd Location: Sion Street, Radcliffe, Manchester, M26 3SB Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (W)	474	-	378022 406833
208	**Contemporary Trade Directory Entries** Name: 1st Motor Body Repairs Location: East Street, Radcliffe, Manchester, M26 2PW Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A14NW (NE)	475	-	378953 407287
208	**Contemporary Trade Directory Entries** Name: First Choice Packaging Location: Brook St, Radcliffe, Manchester, Lancashire, M26 2PQ Classification: Packaging Materials Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A14NW (NE)	485	-	378982 407264
208	**Contemporary Trade Directory Entries** Name: Uk Boxes Direct Location: 23, Brook Street, Radcliffe, Manchester, M26 2PQ Classification: Packaging & Wrapping Equipment & Supplies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	505	-	378990 407288
209	**Contemporary Trade Directory Entries** Name: Powder Coatings (Radcliffe) Ltd Location: Heap Street, Radcliffe, Manchester, M26 2SS Classification: Powder Coatings **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	477	-	378611 407485
210	**Contemporary Trade Directory Entries** Name: Pest Evictors Location: 15, Lord Street, Radcliffe, Manchester, M26 3BA Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	495	-	378171 407337

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
211	**Contemporary Trade Directory Entries** Name: Global Windows Location: Seddon House, Seddon Street, Radcliffe, Manchester, M26 4TF Classification: Fasteners & Fixing Devices **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	502	-	378353 407474
212	**Contemporary Trade Directory Entries** Name: Nfr Racewear Location: 15, Water Street, Radcliffe, Manchester, M26 3DE Classification: Car Accessories Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	506	-	378272 407434
212	**Contemporary Trade Directory Entries** Name: Seddon Street Autos Location: Seddon House, Seddon Street, Radcliffe, Manchester, M26 4TF Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	506	-	378305 407455
212	**Contemporary Trade Directory Entries** Name: Mel'S Cleaning Services Location: Seddon House, Seddon Street, Radcliffe, Manchester, M26 4TF Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	517	-	378306 407468
212	**Contemporary Trade Directory Entries** Name: Planet Advantage Ltd Location: Water St, Radcliffe, Manchester, Lancashire, M26 3DE Classification: Waste Processing Machinery **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A18SW (NW)	520	-	378276 407454
213	**Contemporary Trade Directory Entries** Name: Nu-Foam Location: 166-188, Sion Street, Radcliffe, Manchester, M26 3SB Classification: Soft Furnishings - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (W)	512	-	377978 406863
213	**Contemporary Trade Directory Entries** Name: Nu-Foam Location: 166-188, Sion Street, Radcliffe, Manchester, M26 3SB Classification: Soft Furnishings - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (W)	512	-	377978 406863
213	**Contemporary Trade Directory Entries** Name: Dotty Brown Location: 166-188, Sion Street, Radcliffe, Manchester, M26 3SB Classification: Soft Furnishings - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (W)	512	-	377978 406863
213	**Contemporary Trade Directory Entries** Name: Auto Craft Location: Unit 2 Sion St, Radcliffe, Manchester, M26 3SB Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SE (W)	540	-	377952 406846
214	**Contemporary Trade Directory Entries** Name: A Kerfoot Location: Barlows Mill,Stand La, Chapelfield/Radcliffe, Manchester, M26 1JT Classification: Pallets, Crates & Packing Cases **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	521	-	378945 406558
214	**Contemporary Trade Directory Entries** Name: Real Joinery Location: Barlows Mill,Stand La, Radcliffe, Manchester, Lancashire, M26 1JT Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	521	-	378945 406558
215	**Contemporary Trade Directory Entries** Name: Water Street Motors Location: 20, Rectory Lane, Radcliffe, Manchester, M26 2QU Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	532	-	379003 407316

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
216	**Contemporary Trade Directory Entries** Name: W Lewis Haulage Location: 26, Albion Street, Radcliffe, Manchester, M26 1BH Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NE (S)	540	-	378629 406360
217	**Contemporary Trade Directory Entries** Name: Chesholme Ltd Location: Rectory La, Radcliffe, Manchester, M26 2QU Classification: Precision Engineers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19SW (NE)	545	-	378969 407374
217	**Contemporary Trade Directory Entries** Name: Kontur Location: 13 Rectory La, Radcliffe, Manchester, Lancashire, M26 2QU Classification: Cabinet Makers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	552	-	378971 407382
217	**Contemporary Trade Directory Entries** Name: Kontur Location: 13, Rectory Lane, Radcliffe, Manchester, Lancashire, M26 2QU Classification: Cabinet Makers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	552	-	378971 407382
218	**Contemporary Trade Directory Entries** Name: Big Art & Banners Location: 31a, Hampson Street, Radcliffe, Manchester, M26 4TN Classification: Digital Printing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	553	-	378356 407530
219	**Contemporary Trade Directory Entries** Name: Dean Smith Car Sales Location: Pine Street Garage, 6, Pine Street, Radcliffe, Manchester, M26 2UW Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	558	-	378849 407488
219	**Contemporary Trade Directory Entries** Name: Kwik Fit Location: Bury Road, Radcliffe, Manchester, M26 2UG Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	588	-	378854 407521
219	**Contemporary Trade Directory Entries** Name: Radcliffe Service Station Location: Bury Road, Radcliffe, Manchester, M26 2UG Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	589	-	378854 407521
219	**Contemporary Trade Directory Entries** Name: Boss Prestige & Performance Location: Senator House, 7-11, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UG Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	602	-	378849 407539
220	**Contemporary Trade Directory Entries** Name: Greencroft Service Station Location: New Road, Radcliffe, Manchester, M26 1LS Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	566	-	379110 406715
220	**Contemporary Trade Directory Entries** Name: Esso Location: New Road, Radcliffe, Manchester, M26 1LS Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	566	-	379110 406715

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
220	**Contemporary Trade Directory Entries** Name: B P Service Station Location: New Road, Radcliffe, Manchester, M26 1LS Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	566	-	379110 406715
221	**Contemporary Trade Directory Entries** Name: G W Recovery Location: 30, Duke Street, Radcliffe, Manchester, M26 1NB Classification: Breakdown and Recovery **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	572	-	379029 406578
222	**Contemporary Trade Directory Entries** Name: Pioneer Gates Location: Unit 41a,Pioneer Mill,Milltown St, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Gate Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A14NW (E)	583	-	379144 407152
222	**Contemporary Trade Directory Entries** Name: Plasmatec Location: Unit 28, Pioneer Mill, Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Sheet Metal Work **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A14NW (E)	588	-	379153 407140
222	**Contemporary Trade Directory Entries** Name: Associated Wrought Iron Location: Unit 40, Pioneer Mill, Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Gate Manufacturers - Automated **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	596	-	379147 407180
222	**Contemporary Trade Directory Entries** Name: Mph Motors Location: Unit 30,Pioneer Mill,Milltown St, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A14NW (E)	622	-	379185 407153
222	**Contemporary Trade Directory Entries** Name: End Of Life Cars Location: Unit 55/56, Pioneer Mill, Milltown Street, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	636	-	379188 407185
222	**Contemporary Trade Directory Entries** Name: M62 Vehicle Movement & Recovery Location: Unit 5,Pioneer Mill,Milltown St, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Breakdown and Recovery **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A14NW (E)	636	-	379188 407185
223	**Contemporary Trade Directory Entries** Name: Vehicles 2 Lease Location: 52b Water St, Radcliffe, Manchester, Lancashire, M26 4DF Classification: Commercial Vehicle Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17SE (NW)	607	-	378179 407494
224	**Contemporary Trade Directory Entries** Name: M & E Autobody Repairs Location: Unit 28, Pioneer Mill, Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	609	-	379195 407060
224	**Contemporary Trade Directory Entries** Name: Champion Mouldings (Nw) Ltd Location: Unit 28, Pioneer Mill, Milltown Street, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Plastic Products - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	609	-	379195 407060

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
225	**Contemporary Trade Directory Entries** Name: Radcliffe Building Supplies Ltd Location: Lord Street, Radcliffe, Manchester, M26 3BA Classification: Builders' Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	610	-	378005 407324
225	**Contemporary Trade Directory Entries** Name: John H Blakey Ltd Location: New Bridge Mills, Lord Street, Radcliffe, Manchester, M26 3BZ Classification: Ropes & Hawsers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	626	-	378014 407361
226	**Contemporary Trade Directory Entries** Name: Rubbish Clearance Manchester Location: 23, Albion Street, Radcliffe, Manchester, M26 1BJ Classification: Waste Disposal Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NE (S)	612	-	378591 406283
227	**Contemporary Trade Directory Entries** Name: Securex Location: Unit 1,Albert Works,Water St, Radcliffe, Manchester, Lancashire, M26 4DF Classification: Door Manufacturers - Domestic **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A18SW (NW)	612	-	378283 407563
227	**Contemporary Trade Directory Entries** Name: Scorpion Motosport Location: Unit 2 Albert Works,Water Street, Radcliffe, Manchester, Greater Manchester, M26 4DF Classification: Mot Testing Centres **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	623	-	378263 407565
227	**Contemporary Trade Directory Entries** Name: P J Products (Uk) Ltd Location: Albert Works, Water Street, Radcliffe, Manchester, Lancashire, M26 4DF Classification: Ceramic Manufacturers, Supplies & Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18SW (NW)	623	-	378263 407565
228	**Contemporary Trade Directory Entries** Name: A & A Location: Barlows Mill,Stand La, Radcliffe, Manchester, Lancashire, M26 1JT Classification: Recycling Centres **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	626	-	379016 406480
229	**Contemporary Trade Directory Entries** Name: P Hamer Location: Sion St, Radcliffe, Manchester, M26 3SB Classification: Steam Cleaning Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	638	-	377854 406839
230	**Contemporary Trade Directory Entries** Name: Hamblo Mouldings Ltd Location: Unit 29, Pioneer Mill, Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Plastics - Injection Moulding **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	643	-	379202 407166
230	**Contemporary Trade Directory Entries** Name: Radcliffe Waste Recycling Ltd Location: Unit 59, Pioneer Mill, Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Recycling Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	643	-	379202 407166
230	**Contemporary Trade Directory Entries** Name: Copperflow Ltd Location: Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A14NW (E)	643	-	379202 407166

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
230	**Contemporary Trade Directory Entries** Name: Advanced Protective Packaging Ltd Location: Unit 58, Pioneer Mill, Milltown Street, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Packaging Materials Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	643	-	379202 407166
230	**Contemporary Trade Directory Entries** Name: Tayroll Engineering Location: Pioneer Mill,Milltown St, Radcliffe, Manchester, M26 1WN Classification: Mechanical Engineers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A14NW (E)	643	-	379202 407166
230	**Contemporary Trade Directory Entries** Name: P G Transport Services Location: Opposite Pioneer Mills,Milltown St, Radcliffe, Manchester, M26 1WD Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Manually positioned to an adjacent address or location	A14NW (E)	643	-	379202 407166
230	**Contemporary Trade Directory Entries** Name: Plastic Solutions Location: Pioneer Mill, Milltown Street, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Fascias and Soffits **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	643	-	379202 407166
230	**Contemporary Trade Directory Entries** Name: Pillow Talk Location: Unit 37a, Pioneer Mill, Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Soft Furnishings - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	643	-	379202 407166
230	**Contemporary Trade Directory Entries** Name: Dreamworks Location: Unit 32, Pioneer Mill, Milltown Street, Radcliffe, Manchester, M26 1WN Classification: Soft Furnishings - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	644	-	379212 407137
231	**Contemporary Trade Directory Entries** Name: Simpson'S Of Radcliffe Location: 51, Water Street, Radcliffe, Manchester, M26 3DE Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	647	-	378073 407455
232	**Contemporary Trade Directory Entries** Name: Fast Cash 4 Scrap Cars Radcliffe Aeg Location: Bury Road, Manchester, Lancashire, M26 2UG Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A18SE (NE)	676	-	378867 407613
233	**Contemporary Trade Directory Entries** Name: Ainsworth Road Garage Location: 4, Ainsworth Road, Radcliffe, Manchester, M26 4DJ Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	676	-	378087 407508
233	**Contemporary Trade Directory Entries** Name: Ainsworth Road Garage Location: 4, Ainsworth Road, Radcliffe, Manchester, M26 4DJ Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	676	-	378087 407508
234	**Contemporary Trade Directory Entries** Name: Spanners Motor Services Location: Apex Works, Water Street, Radcliffe, Manchester, Lancashire, M26 3DE Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	679	-	377996 407420

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
235	**Contemporary Trade Directory Entries** Name: Iron Art Fabrications Location: Unit 1, Dingle Vale Works, Sion Street, Radcliffe, Manchester, M26 3SB Classification: Gate Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	694	-	377796 406847
235	**Contemporary Trade Directory Entries** Name: Matt-A-Door Location: Unit 2,Dingle Vale Works,Sion St, Radcliffe, Manchester, Lancashire, M26 3SB Classification: Door Manufacturers - Domestic **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SW (W)	695	-	377796 406846
236	**Contemporary Trade Directory Entries** Name: A D-Uk Shutter Maintenance Ltd Location: 86, WATER STREET, RADCLIFFE, MANCHESTER, M26 4BE Classification: Roller Shutter Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	697	-	378033 407484
236	**Contemporary Trade Directory Entries** Name: A D Uk Group Ltd Location: 86, WATER STREET, RADCLIFFE, MANCHESTER, M26 4BE Classification: Roller Shutter Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	697	-	378033 407484
236	**Contemporary Trade Directory Entries** Name: East Lancashire Window Co Location: 88, Water Street, Radcliffe, Manchester, M26 4BE Classification: Window Frames - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	698	-	378029 407482
237	**Contemporary Trade Directory Entries** Name: M B W Doors Location: Unit 81, Pioneer Mill, Milltown Street, Radcliffe, Manchester, Lancashire, M26 1WN Classification: Door Manufacturers - Industrial **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	700	-	379267 407152
238	**Contemporary Trade Directory Entries** Name: Ringley Windows Location: 115, Outwood Road, Radcliffe, Manchester, M26 1AY Classification: Window Film Manufacturers and Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	707	-	378506 406187
239	**Contemporary Trade Directory Entries** Name: The Printer Guru Location: Unit 703,Apex House,Bolton St, Radcliffe, Manchester, Lancashire, M26 3SS Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	715	-	377892 407344
240	**Contemporary Trade Directory Entries** Name: F A M Engineering Location: Holly Bank Mill, Holly Bank Industrial Estate, Holly Bank Street, Radcliffe, Manchester, M26 3SY Classification: Breakdown and Recovery **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (W)	720	-	377826 407231
241	**Contemporary Trade Directory Entries** Name: East Lancashire Paper Mill Location: Church Street East, Radcliffe, Manchester, M26 2EL Classification: Paper & Pulp Mills **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	733	-	379218 407356
242	**Contemporary Trade Directory Entries** Name: Lancashire Granulations Plastic Recycling Location: 10-14, Ainsworth Road, Radcliffe, Manchester, M26 4EA Classification: Recycling Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	747	-	378038 407559

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
242	**Contemporary Trade Directory Entries** Name: Radcliffe Gas Centre Location: 22, Ainsworth Road, Radcliffe, Manchester, M26 4EA Classification: Gas Appliances - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	772	-	378029 407584
242	**Contemporary Trade Directory Entries** Name: J T S Location: Chapel House, Smyrna Street, Radcliffe, Manchester, M26 4BN Classification: Door Manufacturers - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	786	-	377998 407574
243	**Contemporary Trade Directory Entries** Name: Oak Industrial Services Location: 5, Larch Avenue, Radcliffe, Manchester, M26 1BW Classification: Waste Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	749	-	378659 406153
244	**Contemporary Trade Directory Entries** Name: J H & A Unsworth Ltd Location: Sheet Metal Works, 49, Bury Road, Radcliffe, Manchester, M26 2UG Classification: Sheet Metal Work **Status: Active** Positional Accuracy: Automatically positioned to the address	A18NE (NE)	750	-	378860 407698
244	**Contemporary Trade Directory Entries** Name: Arc Leasing Location: 51, Bury Road, Radcliffe, Manchester, M26 2UG Classification: Car Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18NE (NE)	779	-	378870 407726
244	**Contemporary Trade Directory Entries** Name: Bury Road Car Centre Location: 51, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UG Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18NE (NE)	781	-	378871 407727
245	**Contemporary Trade Directory Entries** Name: N B S Ltd Location: Wilton House, 2, Bury Road, Radcliffe, Manchester, M26 2UA Classification: Engineers - General **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	754	-	378973 407642
245	**Contemporary Trade Directory Entries** Name: N B S Location: Wilton House, 2, Bury Road, Radcliffe, Manchester, M26 2UA Classification: Gearboxes **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	760	-	378943 407668
245	**Contemporary Trade Directory Entries** Name: Ferrari Electroplating Location: Station Works, Bury Road, Radcliffe, Manchester, M26 2UA Classification: Metal Finishing Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	760	-	378943 407668
245	**Contemporary Trade Directory Entries** Name: Kestrel Forwarding Ltd Location: Station Works, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UA Classification: Freight Forwarders **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	760	-	378943 407668
245	**Contemporary Trade Directory Entries** Name: Chub Fire Services Location: Wilton House, 2, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UA Classification: Firefighting Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	760	-	378943 407668
245	**Contemporary Trade Directory Entries** Name: Chubb Fire Ltd Location: Wilton House, 2, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UA Classification: Firefighting Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	760	-	378943 407668

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
245	**Contemporary Trade Directory Entries** Name: N B S Location: Wilton House, 2, Bury Road, Radcliffe, Manchester, M26 2UA Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	760	-	378943 407668
245	**Contemporary Trade Directory Entries** Name: Northern Broaching Services Location: Wilton House, 2, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UA Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	760	-	378943 407668
246	**Contemporary Trade Directory Entries** Name: Japanese Knotweed Solutions Location: Itadori House, Melton Street, Radcliffe, Manchester, M26 4BR Classification: Chemicals & Allied Products **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	784	-	377962 407536
247	**Contemporary Trade Directory Entries** Name: Scrap Metal Collectors Location: 6, Uplands Avenue, Radcliffe, Manchester, M26 1LT Classification: Scrap Metal Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	793	-	379299 406584
248	**Contemporary Trade Directory Entries** Name: A Bradwell Ltd Location: Water Lane Street, Radcliffe, Manchester, M26 4BD Classification: Vending Machine Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	800	-	377851 407434
248	**Contemporary Trade Directory Entries** Name: Fires & Surrounds Location: Ebury St, Radcliffe, Manchester, Lancashire, M26 4BL Classification: Fireplaces & Mantelpieces **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17SW (NW)	841	-	377812 407450
249	**Contemporary Trade Directory Entries** Name: P D S Steam Cleaner Repairs Location: 2, Melton Street, Radcliffe, Manchester, M26 4BR Classification: Janitorial Equipment - Servicing & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	806	-	377927 407533
249	**Contemporary Trade Directory Entries** Name: Lex Business Equipment Ltd Location: Systems House, Smyrna Street, Radcliffe, MANCHESTER, M26 4BN Classification: Office Furniture & Equipment **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	840	-	377908 407562
250	**Contemporary Trade Directory Entries** Name: Ironxpress Location: 34-36, Ainsworth Road, Radcliffe, Manchester, Lancashire, M26 4EA Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	811	-	378016 407624
250	**Contemporary Trade Directory Entries** Name: Goldin Motor Services Location: Siddall Street, Radcliffe, Manchester, M26 4AX Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	838	-	378021 407663
251	**Contemporary Trade Directory Entries** Name: Prestwich Hosiery Co Location: 129, Water Street, Radcliffe, Manchester, Lancashire, M26 3BJ Classification: Hosiery Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	816	-	377800 407389
252	**Contemporary Trade Directory Entries** Name: A M Trade Centre Ltd Location: 8, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UU Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	819	-	378930 407742

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
252	**Contemporary Trade Directory Entries** Name: Brimar Trade Centre Location: 8, Bury Road, Radcliffe, Manchester, Lancashire, M26 2UU Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	819	-	378930 407742
252	**Contemporary Trade Directory Entries** Name: Central Service Station Location: 55 Bury Rd, Radcliffe, Manchester, Lancashire, M26 2UG Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	831	-	378904 407768
252	**Contemporary Trade Directory Entries** Name: Texaco Location: 55 Bury Road, Radcliffe, Manchester, M26 2UG Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	832	-	378902 407769
252	**Contemporary Trade Directory Entries** Name: R T K Grab Hire Location: 59, Bury Road, Radcliffe, Manchester, M26 2UT Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	845	-	378914 407779
252	**Contemporary Trade Directory Entries** Name: Pps Plastic Card Printing Location: 16, Bury Road, Radcliffe, Manchester, M26 2UU Classification: Printers - Glass, Metal, Plastics Etc. **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	867	-	378965 407777
253	**Contemporary Trade Directory Entries** Name: Arien Refrigeration Service Location: Premier Works,Caledonia Street, Radcliffe, Manchester, Greater Manchester, M26 2RA Classification: Refrigerators & Freezers - Servicing & Repairs **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A19NW (NE)	829	-	379068 407667
254	**Contemporary Trade Directory Entries** Name: K Door Aliminium Ltd Location: Mount Sion Road, Radcliffe, Manchester, M26 3SJ Classification: Aluminium Fabricators **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A12SW (W)	843	-	377668 406724
254	**Contemporary Trade Directory Entries** Name: Decramace Ltd Location: Mount Sion Road, Radcliffe, Manchester, M26 3SJ Classification: Plaster Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A12SW (W)	843	-	377668 406724
255	**Contemporary Trade Directory Entries** Name: Joinery Solutions Location: Castlefield Works, Ebury Street, Radcliffe, Manchester, M26 4BL Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	854	-	377797 407453
255	**Contemporary Trade Directory Entries** Name: Systems 7 Racewear Ltd Location: Moslo Mill Ebury st, Radcliffe, Manchester, Greater Manchester, M26 4BL Classification: Footwear - Manufacturers and Suppliers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17SW (NW)	856	-	377804 407465
255	**Contemporary Trade Directory Entries** Name: Uk First Joinery Location: Ebury St, Radcliffe, Manchester, M26 4BL Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17SW (NW)	867	-	377798 407476

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
255	**Contemporary Trade Directory Entries** Name: Secure Aluminium Ltd Location: Moslo Mill,Ebury Street, Radcliffe, Manchester, Greater Manchester, M26 4BL Classification: Aluminium Fabricators **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A17SW (NW)	878	-	377802 407499
255	**Contemporary Trade Directory Entries** Name: Car & Commercial Services Location: Unsworth Street, Radcliffe, Manchester, M26 3FN Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SW (NW)	883	-	377762 407452
255	**Contemporary Trade Directory Entries** Name: Fireplace Workshop Location: Moslo Mill,Ebury St, Radcliffe, Manchester, Lancs, M26 4BL Classification: Fireplaces & Mantelpieces **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17SW (NW)	891	-	377786 407500
255	**Contemporary Trade Directory Entries** Name: Motordrive Location: Ebury St, Radcliffe, Manchester, Lancashire, M26 4BL Classification: Seating Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A17SW (NW)	892	-	377786 407501
256	**Contemporary Trade Directory Entries** Name: Press To Impress Location: 40, Lowton Street, Radcliffe, Manchester, M26 4DP Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	857	-	378118 407752
257	**Contemporary Trade Directory Entries** Name: B P Print Location: 62, Cross Lane, Radcliffe, Manchester, M26 2RF Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	869	-	379206 407594
258	**Contemporary Trade Directory Entries** Name: Universal Doors Location: 48, Shire Gardens, Radcliffe, Manchester, M26 4EW Classification: Door Manufacturers - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	882	-	377909 407623
259	**Contemporary Trade Directory Entries** Name: K M Z Chemicals Location: 69, Bury Road, Radcliffe, Manchester, M26 2UT Classification: Chemicals - Distributors & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	890	-	378942 407815
259	**Contemporary Trade Directory Entries** Name: K M Z Location: 69, Bury Road, Radcliffe, Manchester, M26 2UT Classification: Chemicals - Distributors & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	890	-	378942 407815
260	**Contemporary Trade Directory Entries** Name: Suiteline Location: 138, Outwood Road, Radcliffe, Manchester, Lancashire, M26 1BG Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	893	-	378484 406003
260	**Contemporary Trade Directory Entries** Name: Automate Location: 153, Outwood Road, Radcliffe, Manchester, Lancashire, M26 1BQ Classification: Car Engine Tuning & Diagnostic Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	904	-	378523 405989
260	**Contemporary Trade Directory Entries** Name: Auto Mate Location: 153, Outwood Road, Radcliffe, Manchester, M26 1BQ Classification: Car Engine Tuning & Diagnostic Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	904	-	378523 405989

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
261	**Contemporary Trade Directory Entries** Name: James Halstead Group Plc Location: Beechfield, Hollinhurst Road, Radcliffe, MANCHESTER, M26 1JN Classification: Floorcoverings - Manufacturers & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	897	-	379314 406414
262	**Contemporary Trade Directory Entries** Name: Dulux Decorator Centre Location: Withins Mill, Bury Road, Radcliffe, Manchester, M26 2UT Classification: Painting & Decorating Supplies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	904	-	379080 407751
263	**Contemporary Trade Directory Entries** Name: Building Chemical Research Location: Mount Sion Road, Radcliffe, Manchester, M26 3SJ Classification: Chemicals - Distributors & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (W)	905	-	377621 406664
263	**Contemporary Trade Directory Entries** Name: V A S S North West Ltd Location: Mount Sion Road, Radcliffe, Manchester, M26 3SJ Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	920	-	377616 406631
263	**Contemporary Trade Directory Entries** Name: Radcliffe Breakers Location: Nursery Works, Mount Sion Road, Radcliffe, M26 3SJ Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	931	-	377599 406648
263	**Contemporary Trade Directory Entries** Name: A & S Motors Location: Garage, Nursery Works, Mount Sion Road, Radcliffe, M26 3SJ Classification: Mechanical Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	931	-	377599 406648
264	**Contemporary Trade Directory Entries** Name: Home Electrics Location: 109, Cross Lane, Radcliffe, Manchester, M26 2RJ Classification: Washing Machines - Servicing & Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NE (NE)	941	-	379234 407669
265	**Contemporary Trade Directory Entries** Name: L M T Engineering Ltd Location: 47, Shetland Way, Radcliffe, Manchester, M26 4UH Classification: Mechanical Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NW (N)	954	-	378334 407941
266	**Contemporary Trade Directory Entries** Name: Stand Motor Co Ltd Location: 252, Stand Lane, Radcliffe, Manchester, Lancashire, M26 1JP Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	954	-	379205 406204
267	**Contemporary Trade Directory Entries** Name: Atmospheric Control Engineers Ltd Location: St. Annes House, North Street, Radcliffe, Manchester, M26 2RN Classification: Air Conditioning & Refrigeration Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	957	-	379176 407745
267	**Contemporary Trade Directory Entries** Name: Atmospheric Control Engineers Ltd Location: St. Annes House, North Street, Radcliffe, Manchester, M26 2RN Classification: Ventilators & Ventilation Systems **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	957	-	379176 407745
267	**Contemporary Trade Directory Entries** Name: Beer Gas Direct Location: St. Annes House, North Street, Radcliffe, Manchester, M26 2RN Classification: Gas Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	957	-	379176 407745

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
268	**Contemporary Trade Directory Entries** Name: F G E Distribution Location: Unit 1,Mount Sion Rd, Radcliffe, Manchester, Lancashire, M26 3SJ Classification: Distribution Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (W)	963	-	377565 406650
268	**Contemporary Trade Directory Entries** Name: Radcliffe Car Breakers Location: Sion Street, Radcliffe, Manchester, M26 3SB Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	964	-	377569 406634
269	**Contemporary Trade Directory Entries** Name: Knowles Street Garage Location: 128, Knowles Street, Radcliffe, Manchester, M26 4DR Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	999	-	378011 407853
270	**Fuel Station Entries** Name: Asda Radcliffe Location: Sion Street , Radcliffe , Manchester, Greater Manchester, M26 3 Brand: Asda Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	231	-	378267 406859
270	**Fuel Station Entries** Name: Asda Radcliffe Location: Sion Street , Radcliffe , Manchester, Greater Manchester, M26 3DA Brand: ASDA Premises Type: Hypermarket **Status: Open** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	231	-	378267 406859
271	**Fuel Station Entries** Name: Greencroft Service Station Location: New Road , Radcliffe , Manchester, Greater Manchester, M26 1LS Brand: Esso Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	566	-	379110 406715
272	**Fuel Station Entries** Name: Rss Radcliffe Location: 55, Bury Road , Radcliffe , Manchester, Greater Manchester, M26 2UT Brand: Texaco Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	831	-	378904 407768
273	**Fuel Station Entries** Name: Stand Motor Company Location: 252, Stand Road , Radcliffe , Manchester, Greater Manchester, M26 1JP Brand: Q8 Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	954	-	379205 406204

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
274	**Areas of Adopted Green Belt** Authority: Bury Metropolitan Borough Council Plan Name: Bury Unitary Development Plan **Status: Adopted** Plan Date: 29th August 1997	A13SW (S)	252	6	378449 406660
275	**Areas of Adopted Green Belt** Authority: Bury Metropolitan Borough Council Plan Name: Bury Unitary Development Plan **Status: Adopted** Plan Date: 29th August 1997	A14SE (E)	644	6	379237 406897
276	**Areas of Adopted Green Belt** Authority: Bury Metropolitan Borough Council Plan Name: Bury Unitary Development Plan **Status: Adopted** Plan Date: 29th August 1997	A18NE (N)	754	6	378611 407763
277	**Local Nature Reserves** Name: Chapelfield Multiple Area: Y Area (m2): 55007.95 Source: Natural England Designation Date: Not Supplied	A8NE (SE)	402	8	378738 406540

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	June 2020	Annually
Manchester City Council - Environmental Health Department	October 2017	Annual Rolling Update
Salford City Council - Environmental Health Department	October 2017	Annual Rolling Update
Rochdale Metropolitan Borough Council - Environmental Health Department	October 2017	Annually
Bolton Metropolitan Borough Council - Environmental Health Department	September 2017	Annual Rolling Update
Bury Metropolitan Borough Council - Environmental Health Department	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - North West Region	July 2021	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - North West Region	March 2013	
Integrated Pollution Controls		
Environment Agency - North West Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - North West Region	July 2021	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Bury Metropolitan Borough Council - Environmental Health Department	February 2015	Variable
Bolton Metropolitan Borough Council - Environmental Health Department	July 2014	Variable
Rochdale Metropolitan Borough Council - Environmental Health Department	July 2014	Variable
Salford City Council - Environmental Health Department	March 2015	Variable
Manchester City Council - Environmental Health Department	September 2014	Variable
Local Authority Pollution Prevention and Controls		
Bury Metropolitan Borough Council - Environmental Health Department	February 2015	Not Applicable
Rochdale Metropolitan Borough Council - Environmental Health Department	July 2014	Annual Rolling Update
Bolton Metropolitan Borough Council - Environmental Health Department	July 2014	Not Applicable
Salford City Council - Environmental Health Department	March 2015	Annual Rolling Update
Manchester City Council - Environmental Health Department	September 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Bury Metropolitan Borough Council - Environmental Health Department	February 2015	Variable
Bolton Metropolitan Borough Council - Environmental Health Department	July 2014	Variable
Rochdale Metropolitan Borough Council - Environmental Health Department	July 2014	Variable
Salford City Council - Environmental Health Department	March 2015	Variable
Manchester City Council - Environmental Health Department	September 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	August 2021	
Pollution Incidents to Controlled Waters		
Environment Agency - North West Region	January 2000	
Prosecutions Relating to Authorised Processes		
Environment Agency - North West Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - North West Region	March 2013	
Registered Radioactive Substances		
Environment Agency - North West Region	June 2016	Annually
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - North West Region - South Area	July 2021	Quarterly

Agency & Hydrological	Version	Update Cycle
Water Abstractions Environment Agency - North West Region	July 2021	Quarterly
Water Industry Act Referrals Environment Agency - North West Region	October 2017	Quarterly
Groundwater Vulnerability Map Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Source Protection Zones Environment Agency - Head Office	May 2021	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	September 2021	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	September 2021	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	September 2021	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	September 2021	Quarterly
Flood Defences Environment Agency - Head Office	September 2021	Quarterly
OS Water Network Lines Ordnance Survey	July 2021	Quarterly
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	May 2021	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North West Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North West Region - South Area	October 2021	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North West Region - South Area	July 2021	Quarterly
Local Authority Landfill Coverage		
Bolton Metropolitan Borough Council	February 2003	Not Applicable
Bury Metropolitan Borough Council	February 2003	Not Applicable
Manchester City Council - Planning Department	February 2003	Not Applicable
Rochdale Metropolitan Borough Council - Environmental Health Department	February 2003	Not Applicable
Salford City Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Bolton Metropolitan Borough Council	October 2018	
Bury Metropolitan Borough Council	October 2018	
Manchester City Council - Planning Department	October 2018	
Rochdale Metropolitan Borough Council - Environmental Health Department	October 2018	
Salford City Council - Environmental Health Department	October 2018	
Registered Landfill Sites		
Environment Agency - North West Region - South Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North West Region - South Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - North West Region - South Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Bolton Metropolitan Borough Council - Planning Department	February 2016	Variable
Bury Metropolitan Borough Council	February 2016	Variable
Manchester City Council - Planning Department	February 2016	Variable
Rochdale Metropolitan Borough Council	February 2016	Variable
Salford City Council	June 2016	Variable
Planning Hazardous Substance Consents		
Bolton Metropolitan Borough Council - Planning Department	February 2016	Variable
Bury Metropolitan Borough Council	February 2016	Variable
Manchester City Council - Planning Department	February 2016	Variable
Rochdale Metropolitan Borough Council	February 2016	Variable
Salford City Council	June 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2021	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	October 2021	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2021	Quarterly
Gas Pipelines National Grid	October 2021	Annually
Underground Electrical Cables National Grid	May 2021	Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt		
Bolton Metropolitan Borough Council	October 2020	Quarterly
Bury Metropolitan Borough Council	October 2020	Quarterly
Manchester City Council	October 2020	Quarterly
Rochdale Metropolitan Borough Council	October 2020	Quarterly
Salford City Council	October 2020	Quarterly
Areas of Unadopted Green Belt		
Bolton Metropolitan Borough Council	October 2020	Quarterly
Bury Metropolitan Borough Council	October 2020	Quarterly
Manchester City Council	October 2020	Quarterly
Rochdale Metropolitan Borough Council	October 2020	Quarterly
Salford City Council	October 2020	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	January 2021	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	February 2021	Bi-Annually
Marine Nature Reserves		
Natural England	July 2019	Bi-Annually
National Nature Reserves		
Natural England	January 2021	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	June 2017	Bi-Annually
Ramsar Sites		
Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest		
Natural England	February 2021	Bi-Annually
Special Areas of Conservation		
Natural England	July 2020	Bi-Annually
Special Protection Areas		
Natural England	February 2021	Bi-Annually

Data Suppliers

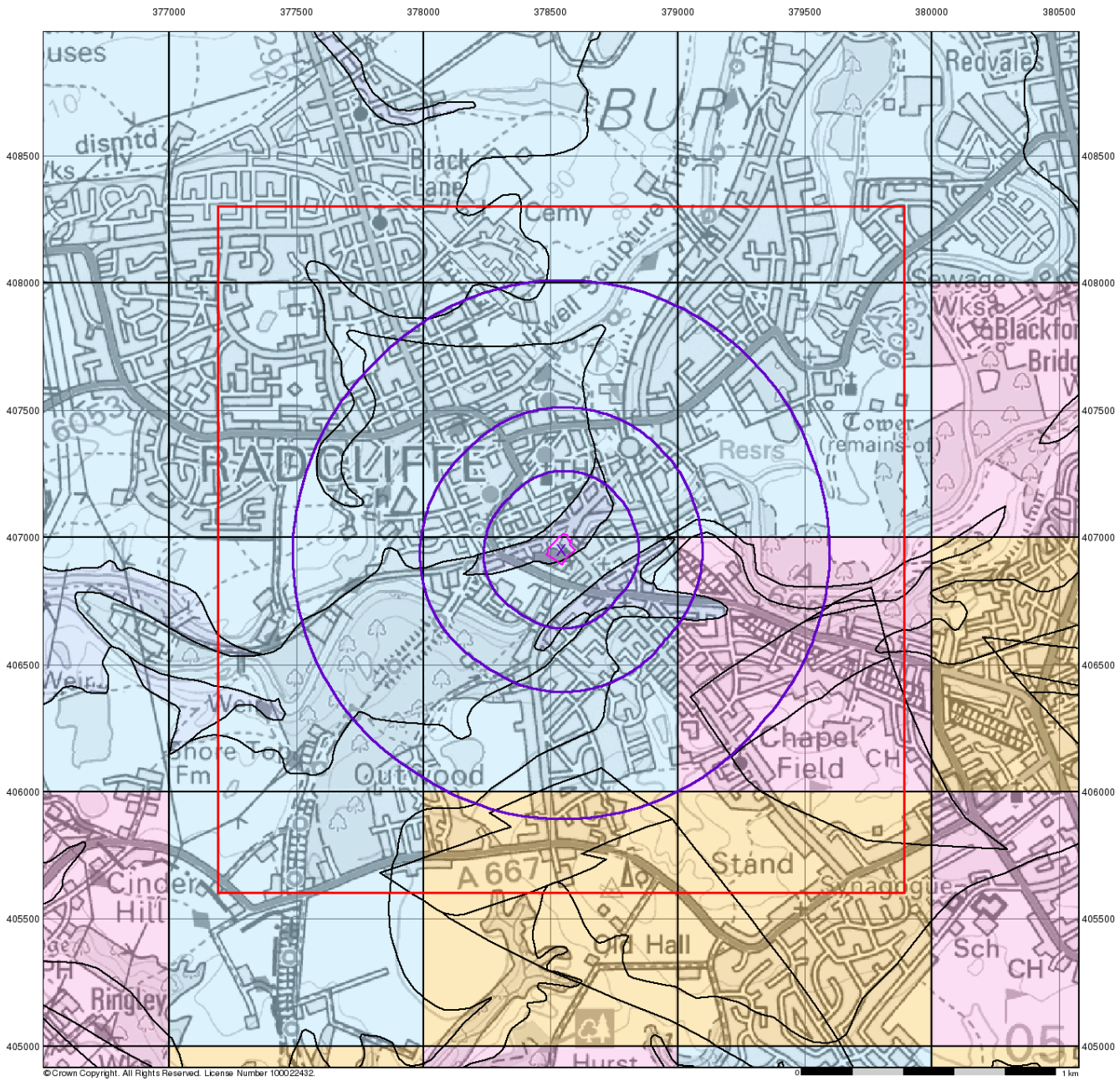
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Bury Metropolitan Borough Council - Environmental Health Department** 3 Knowsley Place, Duke Street, Bury, Lancashire, BL9 0EJ	Telephone: 0161 253 5000 Fax: 0161 253 5563 Website: www.bury.gov.uk
4	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
5	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	**Bury Metropolitan Borough Council** Craig House, Bank Street, Bury, Lancashire, BL9 0DN	Telephone: 0161 253 5000 Fax: 0161 705 5290 Website: www.bury.gov.uk
7	**The Coal Authority - Property Searches** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	**Bolton Metropolitan Borough Council** Town Hall, The Wellsprings, Bolton, Lancashire, BL1 1US	Telephone: 01204 522311 Fax: 01204 392808 Website: www.bolton.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



Groundwater Vulnerability

General

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

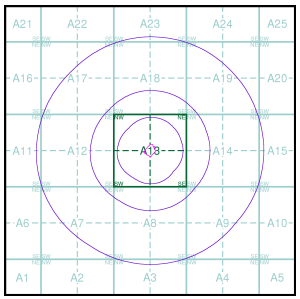
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



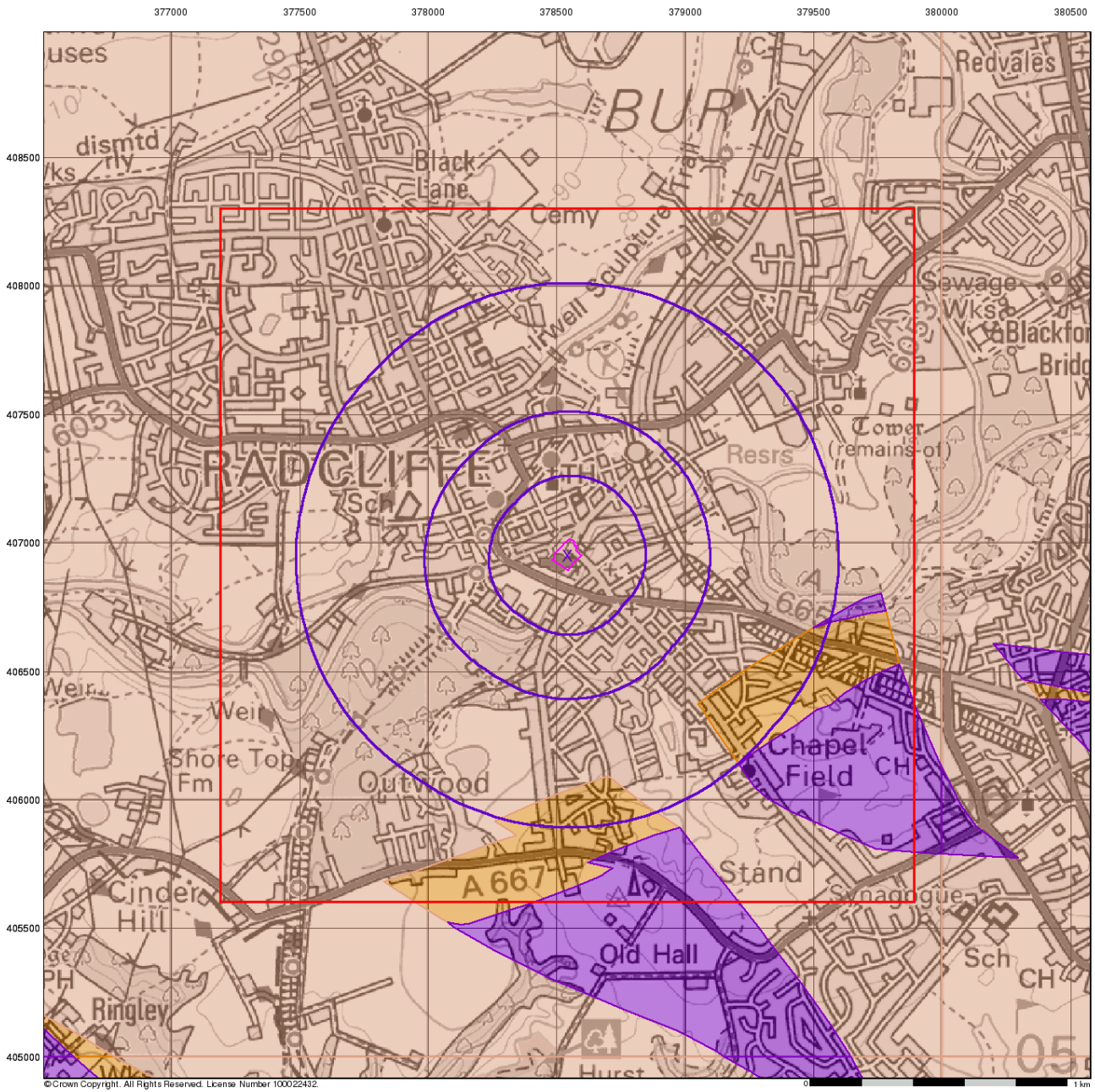
Order Details

Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

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Bedrock Aquifer Designation

General

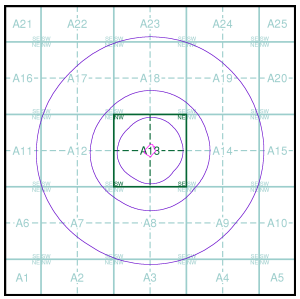
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



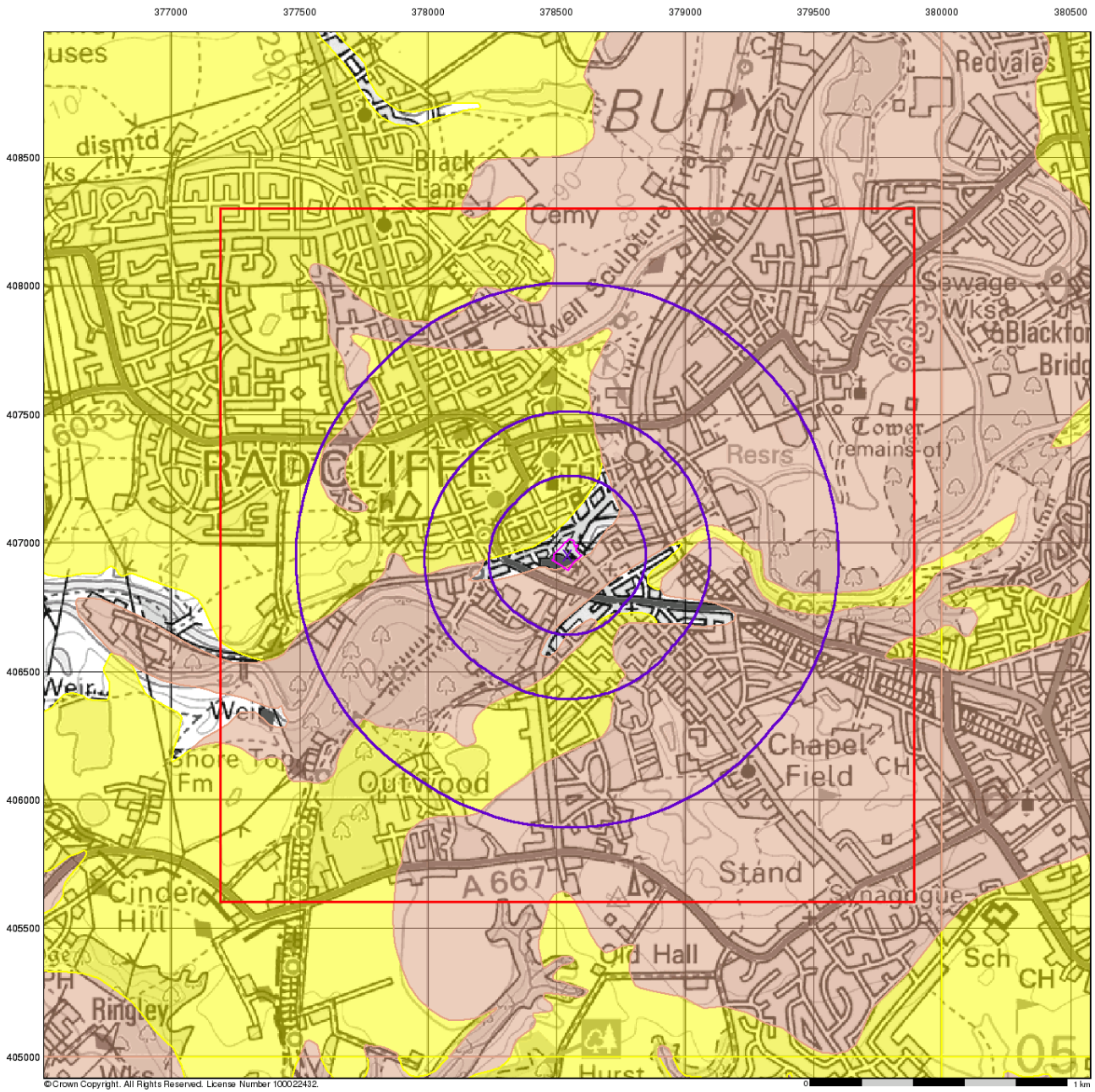
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Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

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Superficial Aquifer Designation

General

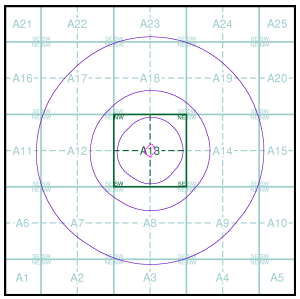
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



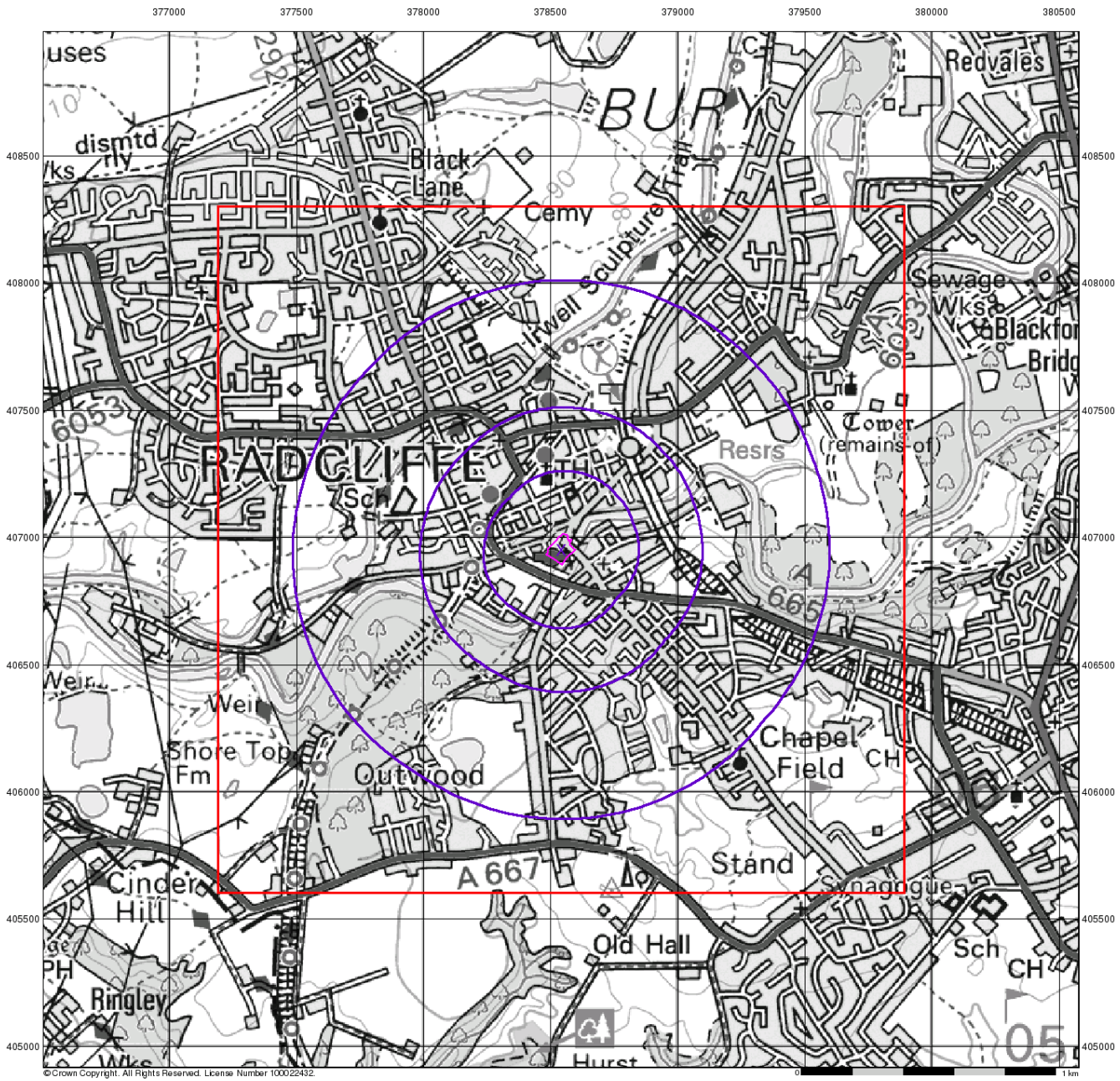
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Site Area (Ha):	0.73
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Source Protection Zones

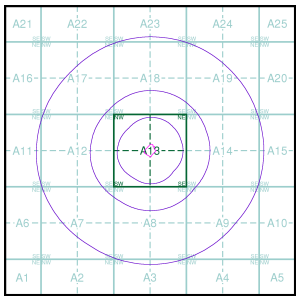
General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



Order Details

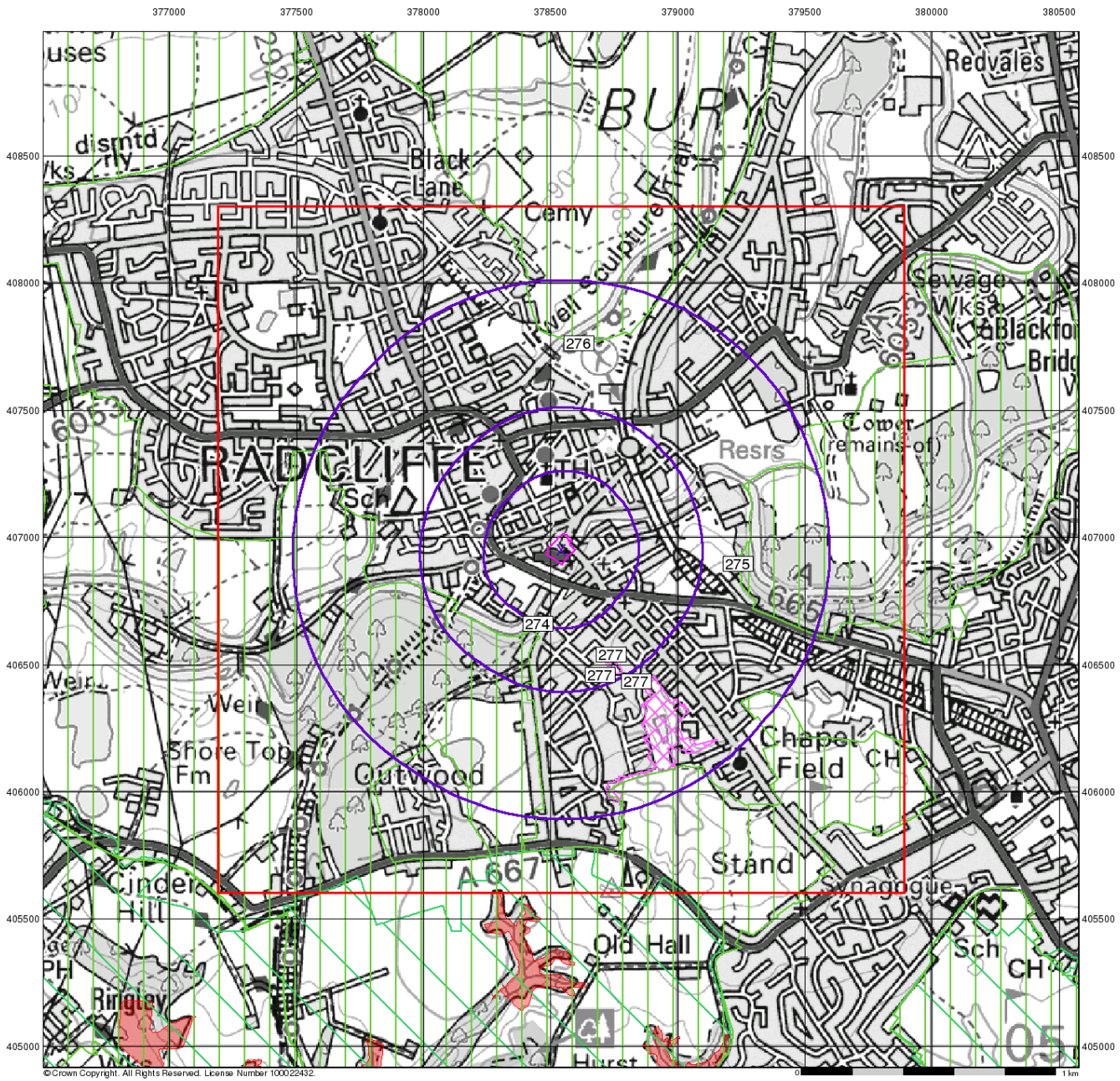
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Customer Ref:	5238
National Grid Reference:	378540, 406950
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Site Area (Ha):	0.73
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Sensitive Land Uses

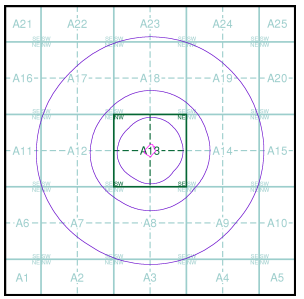
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



Order Details

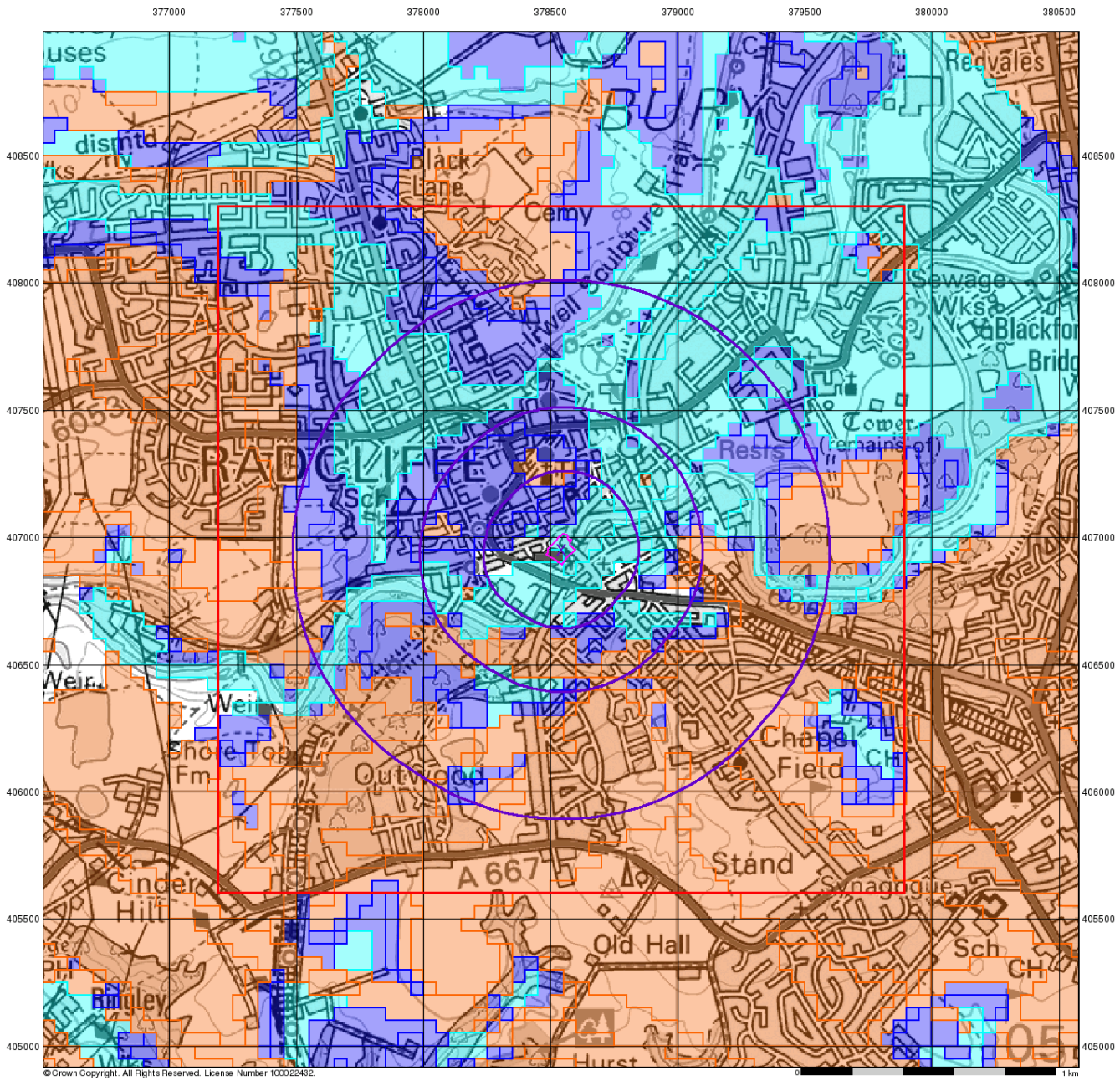
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National Grid Reference:	378540, 406950
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Site Area (Ha):	0.73
Search Buffer (m):	1000

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BGS Flood GFS Data

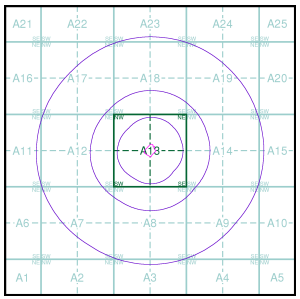
General

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

Agency and Hydrological (Flood)

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

Site Sensitivity Context Map - Slice A



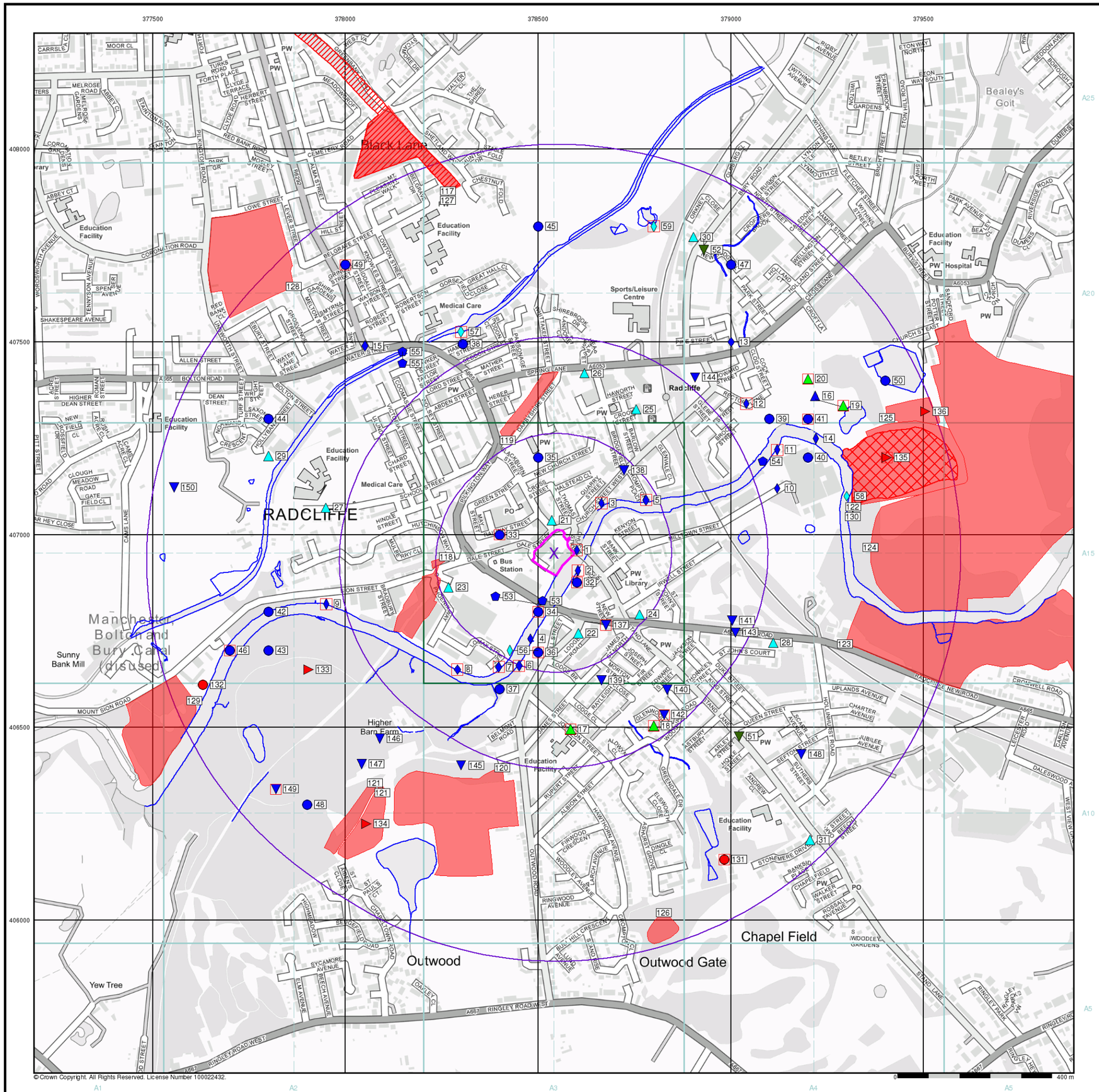
Order Details

Order Number:	287964086_1_1
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National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

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General

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

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

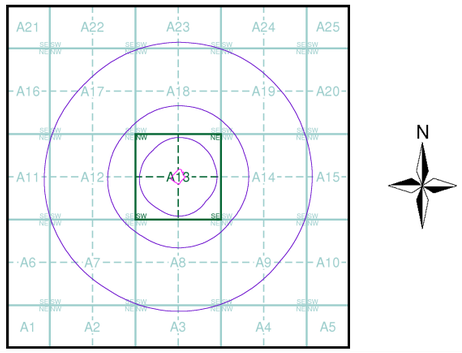
Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Site Sensitivity Map - Slice A



Order Details

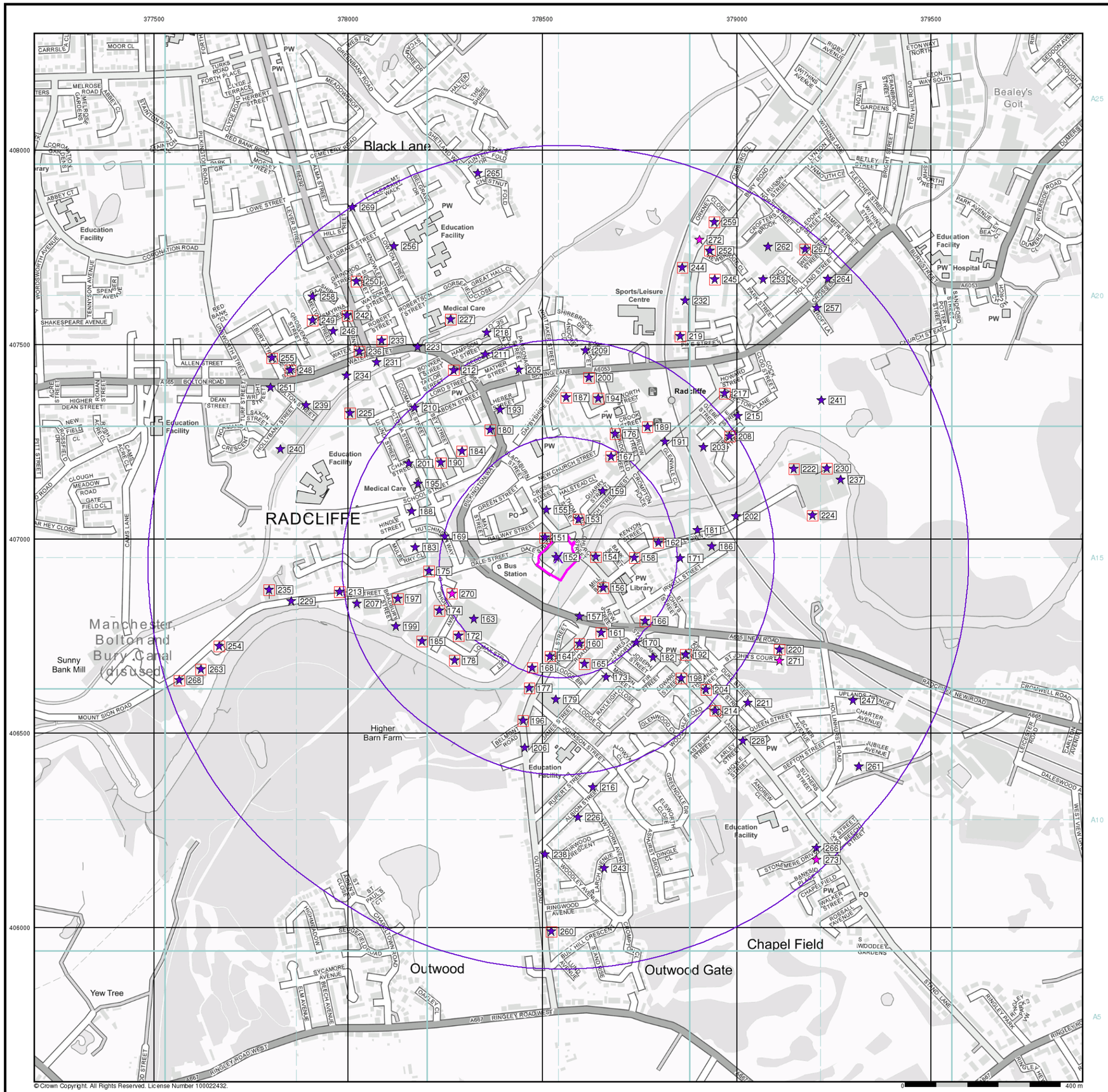
Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

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Industrial Land Use Map

General

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

Slice | Map ID

Industrial Land Use

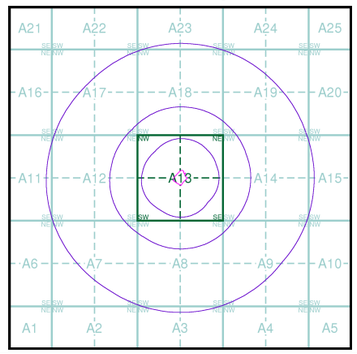
Contemporary Trade Directory Entry

Fuel Station Entry

Gas Pipeline

Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

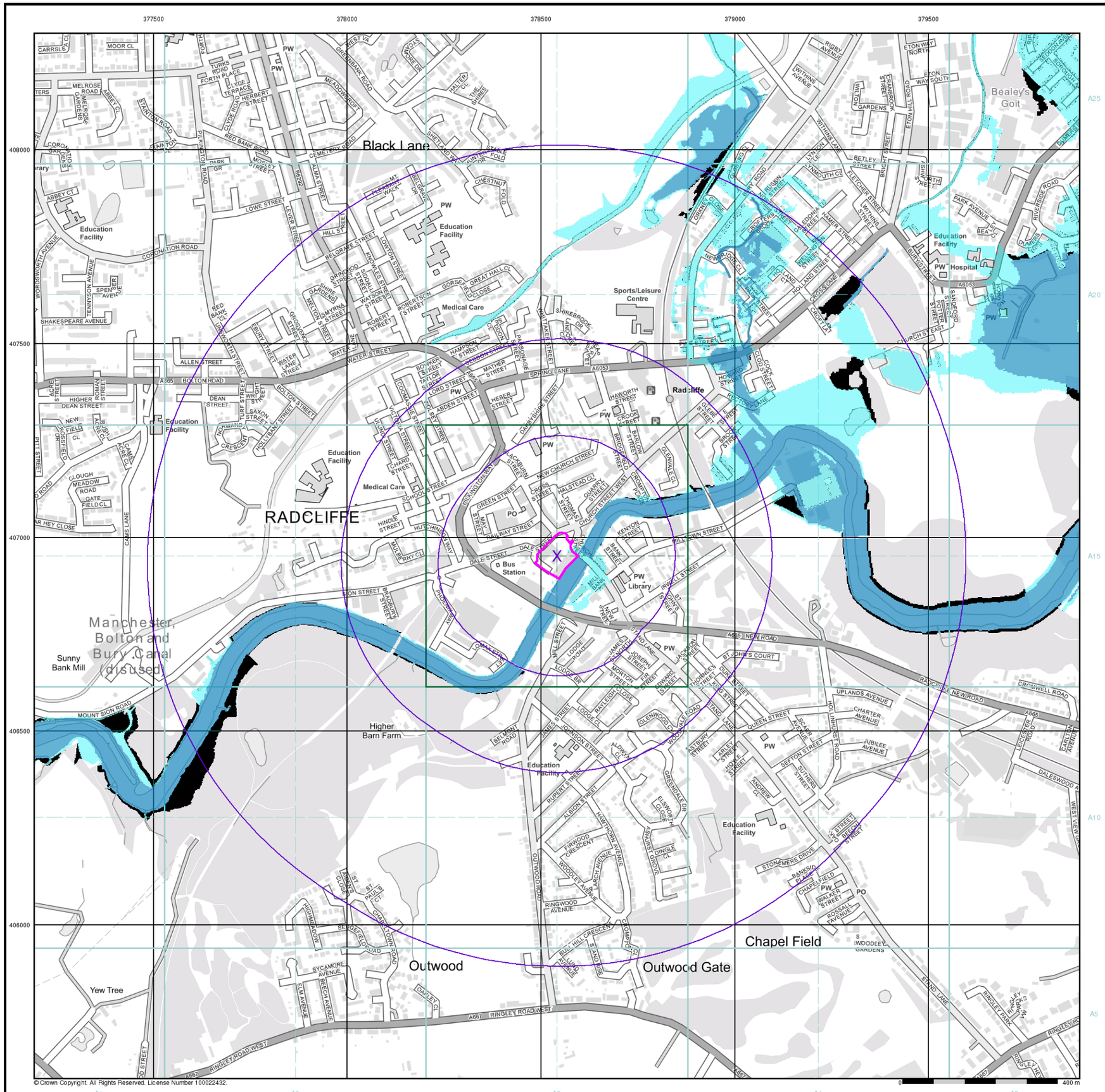
Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

Radcliffe Hub, Radcliffe, MANCHESTER

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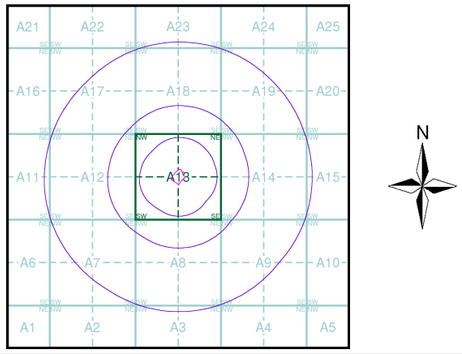
General

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

Agency and Hydrological (Flood)

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

Flood Map - Slice A



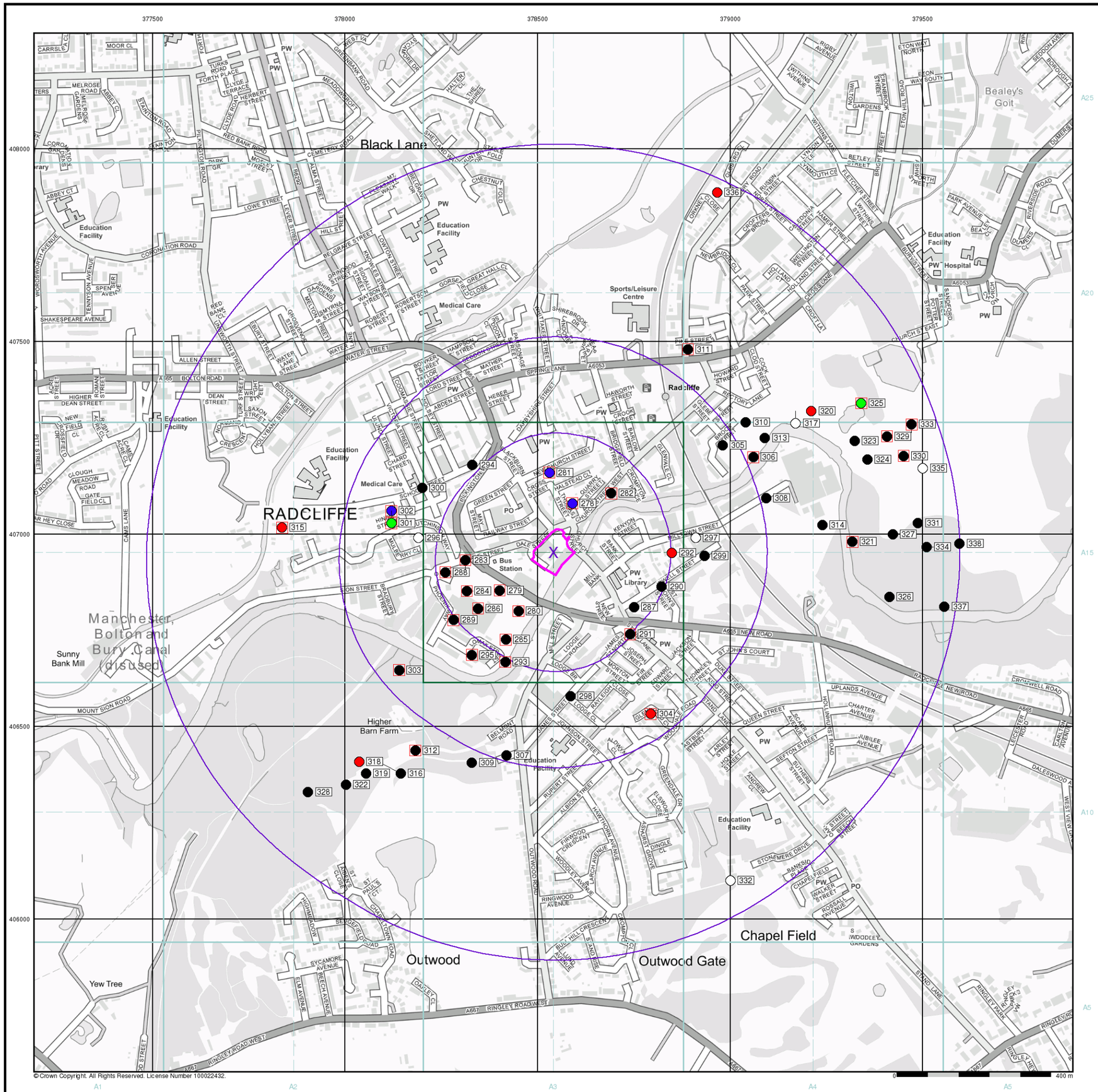
Order Details

Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

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General

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

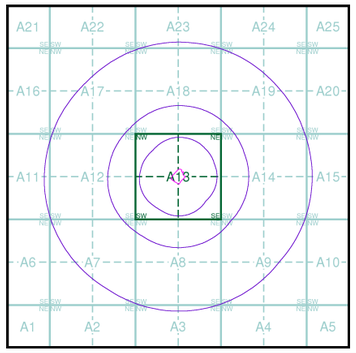
Agency and Hydrological (Boreholes)

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

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

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

Borehole Map - Slice A



Order Details

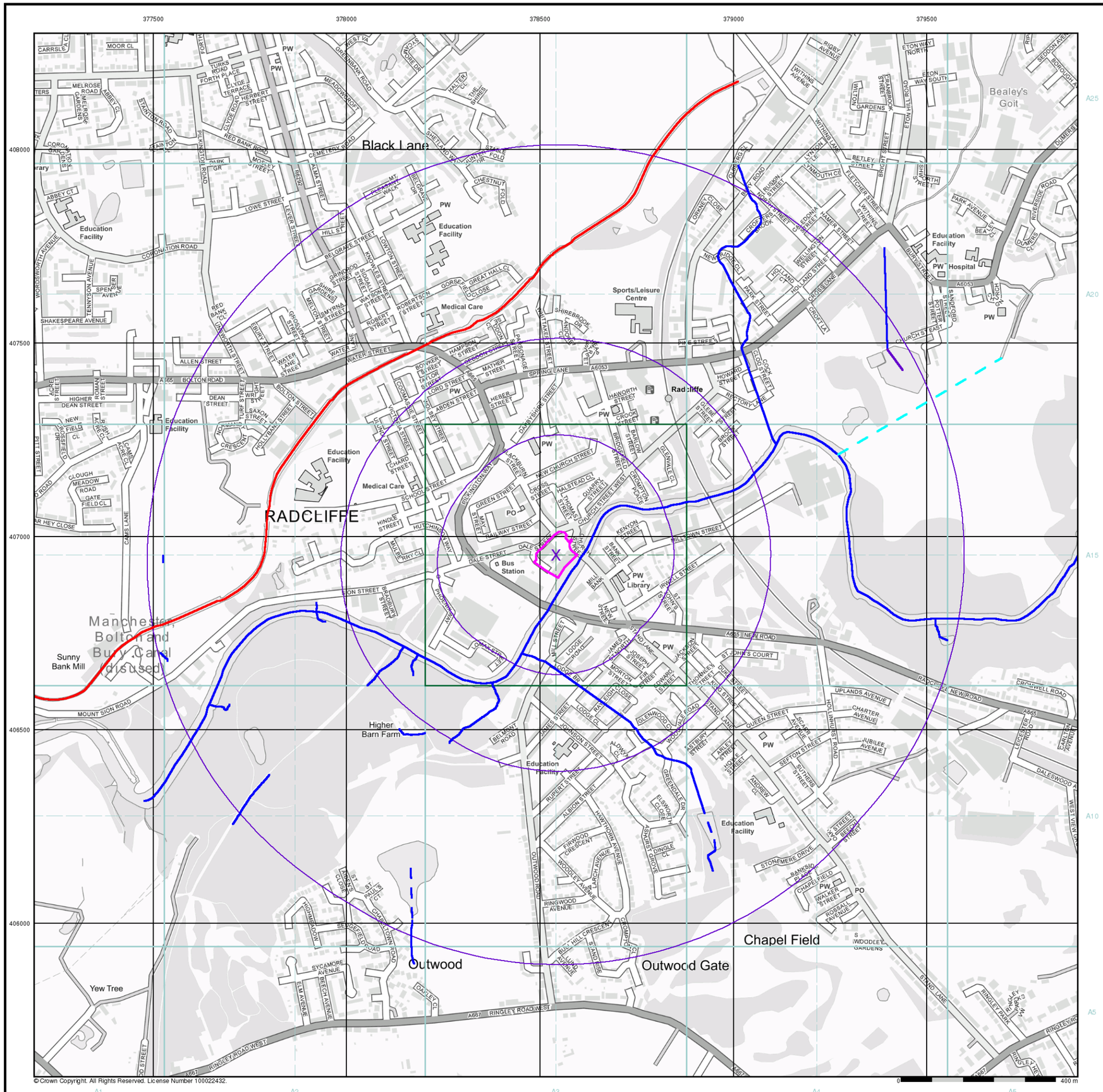
Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

Radcliffe Hub, Radcliffe, MANCHESTER

Landmark INFORMATION GROUP

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





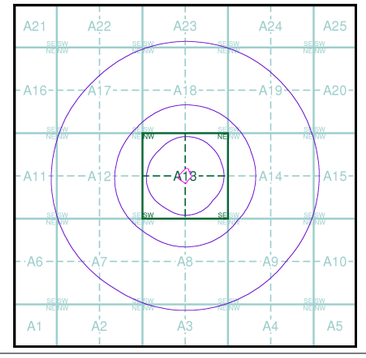
General

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

OS Water Network Data

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

OS Water Network Map - Slice A



Order Details

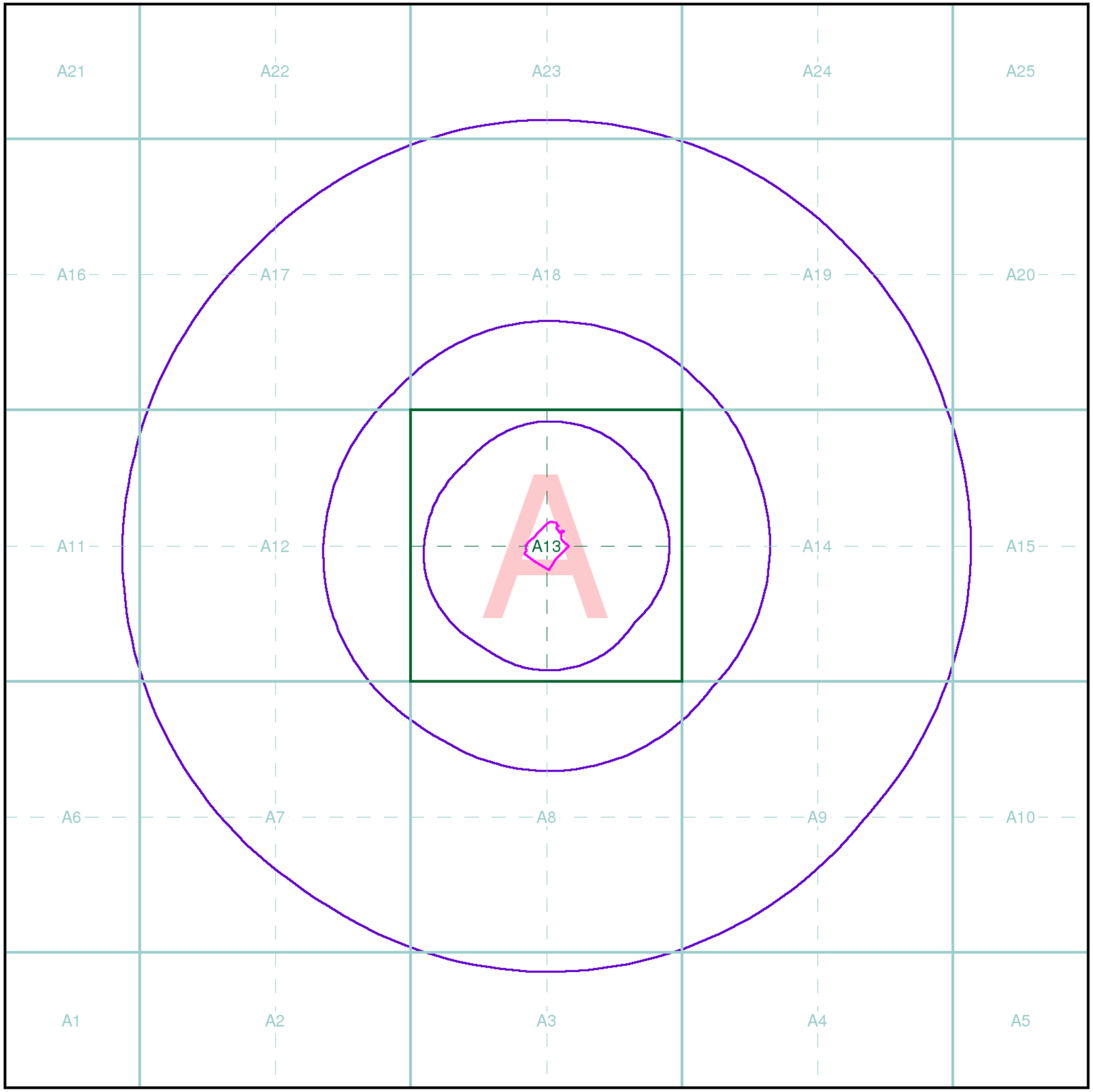
Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Slice:	A
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

Radcliffe Hub, Radcliffe, MANCHESTER

Landmark INFORMATION GROUP

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



Index Map

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

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

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

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

A selection of organisations who provide data within this report:

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Dr B Rice-Birchall, iD GeoEnvironmental Ltd, Caledonian House, Tatton Street, Knutsford, Cheshire, WA16 6AG

Order Details

Order Number:	287964086_1_1
Customer Ref:	5238
National Grid Reference:	378540, 406950
Site Area (Ha):	0.73
Search Buffer (m):	1000

Site Details

Radcliffe Hub, Radcliffe, MANCHESTER

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/515

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

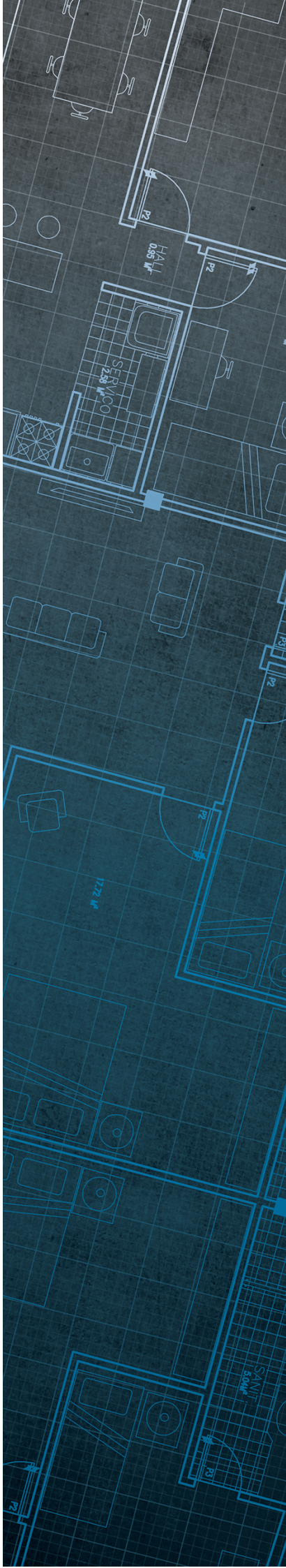
The Coal Authority

Consultants

Coal Mining Report

Radcliffe Hub
Radcliffe
Bury
M26 1NN

Date of enquiry:	**22 November 2021**
Date enquiry received:	**22 November 2021**
Issue date:	**22 November 2021**
Our reference:	**51002716388001**
Your reference:	**5238**



Consultants

Coal Mining Report

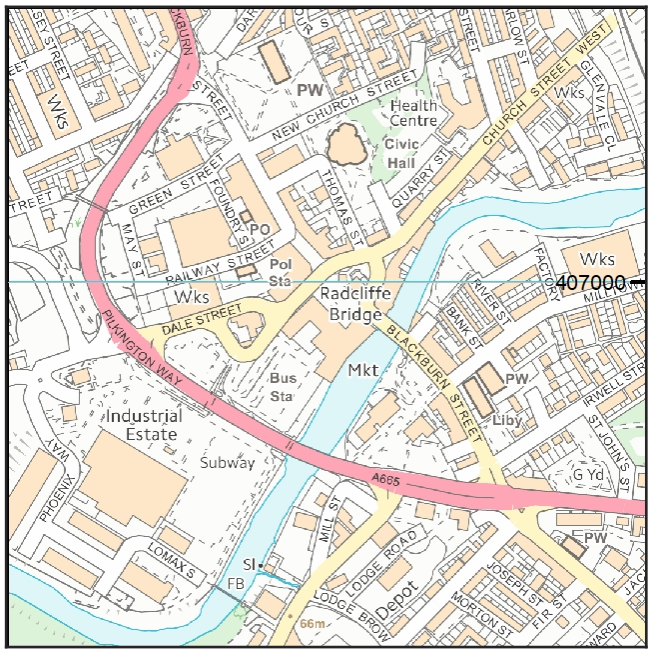
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

ID GEOENVIRONMENTAL LIMITED

Enquiry address

Radcliffe Hub
Radcliffe
Bury
M26 1NN



Approximate position of property

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+44 (0)1623 637 000 (International)

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Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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/company/the-coal-authority
/thecoalauthority
/thecoalauthority

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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	ROGER	Coal	3YN1	103	South-East	10.0	South-East	200	1900
unnamed	ROGER	Coal	3Z3S	124	Beneath Property	9.5	South-East	200	1900
unnamed	RAMS	Coal	3YQ3	137	Beneath Property	6.9	South	180	1900
unnamed	RAMS	Coal	3YPV	142	South-East	10.0	South-East	180	1900
unnamed	WIGAN FIVE FEET	Coal	3YQX	326	North-West	10.0	South-East	120	1883
unnamed	DOE	Coal	3Z4X	329	West	15.2	South-East	180	1884
unnamed	TRENCHERB ONE	Coal	3YZ7	402	West	11.2	South	110	1888
unnamed	CANNEL	Coal	3YPA	468	West	9.3	South	90	1888

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

3428	1209	NW983
16820	3428A	NW1022
1249		

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

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Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property recorded.

Opencast mines

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.

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

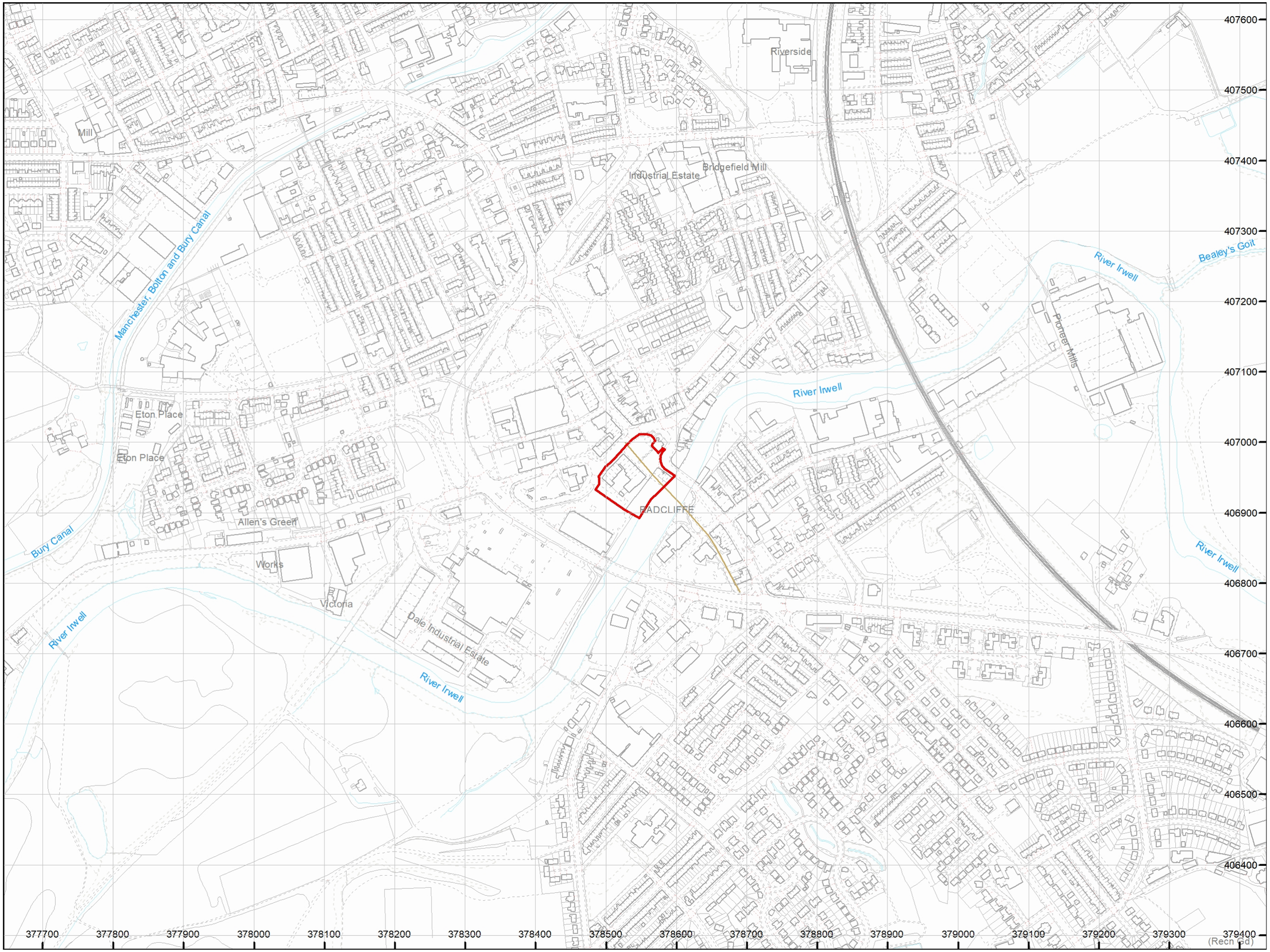
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The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Geological faults



How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

GeoReports

British Geological Survey

Michael Jones
ID Geoenvironmental

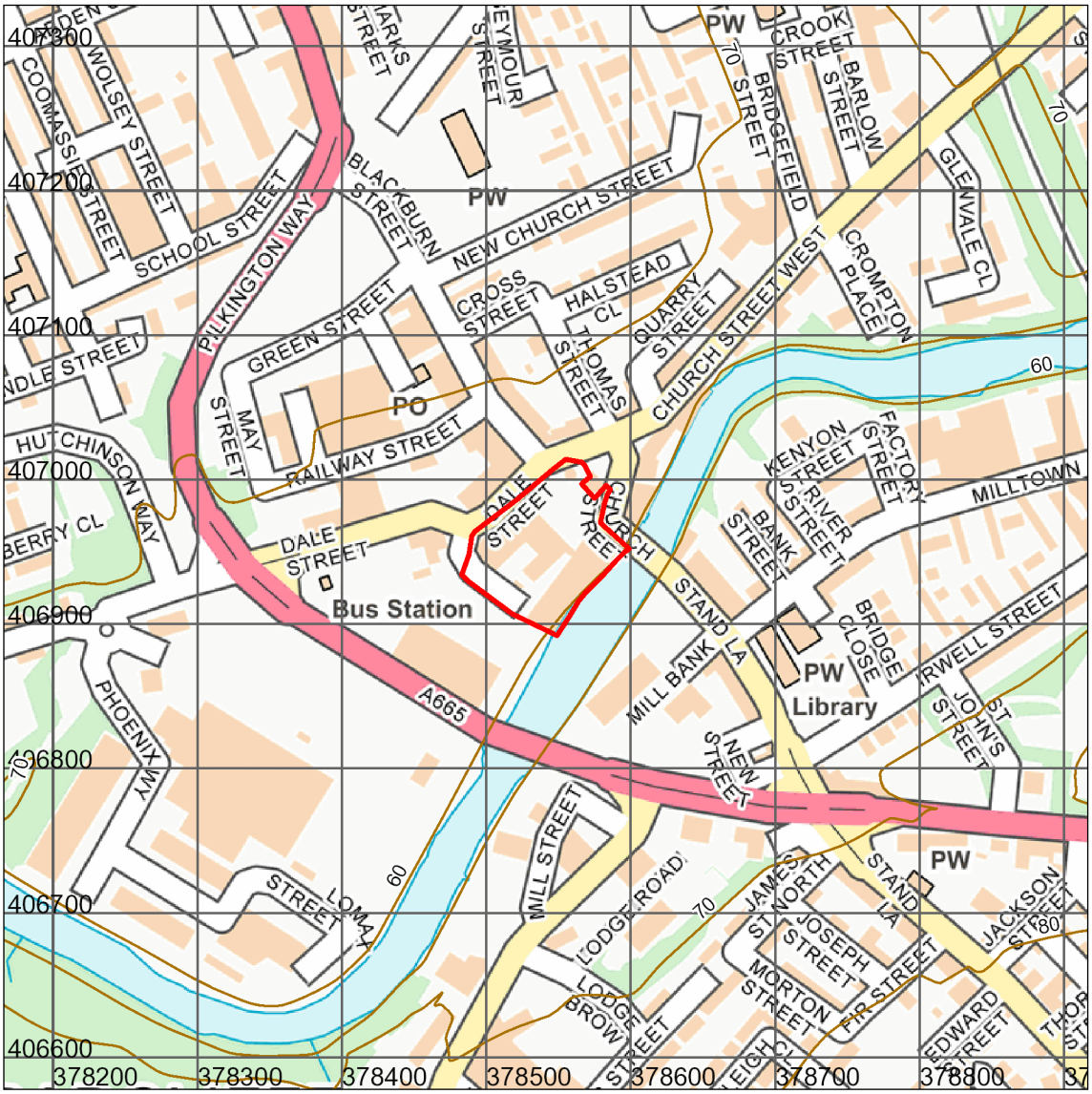
Radon Report

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: ***BGS_327306/36126***

Client reference: 5238 -Radcliffe

Search location



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Search location indicated in red

This report describes a site located at National Grid Reference 378541, 406953. Note that for sites of irregular shape, this point may lie outside the site boundary. Where the client has submitted a site plan the assessment will be based on the area given.

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Radon Report: UK

When extensions are made to existing buildings in high radon areas, or new buildings are constructed in these areas, the Building Regulations for England, Wales, Scotland and Northern Ireland require that protective measures are taken against radon entering the building.

This report provides information on whether radon protective measures are required. Depending on the probability of buildings having high radon levels, the Regulations may require either:

1. No protective measures
2. Basic protective measures
3. Full protective measures

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2015 edition), which also provides guidance on what to do if the* result *indicates that protective measures are required.*

Is the property in an area where radon protective measures are required for new buildings or extensions to existing ones as described in publication BR211 (2015 edition) Radon: Guidance on protective measures for new buildings?

NO RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.

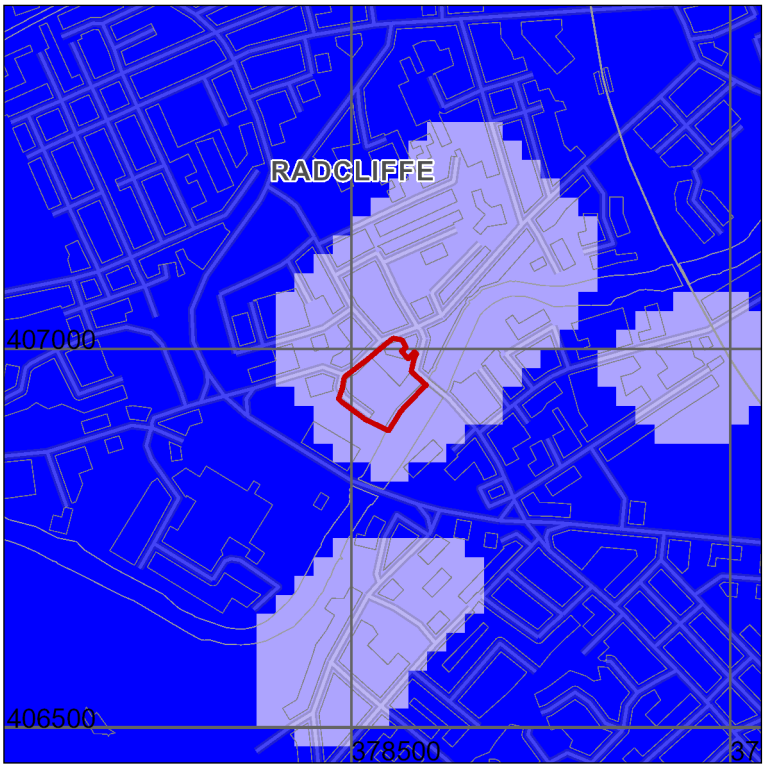
More details of the protective measures required are available in *BR211 Radon: Guidance on protective measures for new buildings (2015 Edition)*. Additional information and guidance is available from the Building Research Establishment website (http://www.bre.co.uk/radon/).

Whether or not the radon level in a building is above or below the radon Action Level can only be established by having the building tested. The UKHSA provides a radon testing service which can be accessed at www.ukradon.org or by telephone (01235 822622).

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.

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Radon Affected Area



	% Homes estimated to be at or above the action level
	0-1%
	1-3%
	3-5%
	5-10%
	10-30%
	30-100%

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Scale: 1:10 000 (1cm = 100 m)
Search area indicated in red

Is the property in a radon Affected Area as defined by the UK Health Security Agency (UKHSA) and if so what percentage of homes are estimated to be above the Action Level? YES

Additional Information

THE PROPERTY IS IN A RADON AFFECTED AREAS WHERE 1 TO 3% OF HOMES ARE ESTIMATED TO BE AT OR ABOVE THE ACTION LEVEL.

The UKHSA recommends a radon 'Action Level' of 200 Becquerels per cubic metre of air (Bq m^{-3}) for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to exceed the Action Level the area should be regarded as a radon Affected Area.

This report informs you whether the property is in a radon Affected Area and the percentage of homes that are estimated to be at or above the radon Action Level at this location. Being in an Affected Area does not necessarily mean there is a radon problem in the property; the only way to find out whether the radon level is above or below the Action Level is to carry out a radon measurement.

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The UKHSA advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels above the Action Level (200 Bq m^{-3}) should be remediated. Householders with levels between the Target Level (100 Bq m^{-3}) and Action Level should seriously consider reducing their radon level, especially if they are at greater risk, such as if they are current or ex smokers. Whether or not a home is in fact above or below the Action Level or Target Level can only be established by having the building tested. The UKHSA provides a validated radon testing service which can be accessed at www.ukradon.org.

The information in this report provides an answer to one of the standard legal enquiries on house purchase in England and Wales, known as Law Society CON29 Enquiries of the Local Authority (2016); 3.14 Radon Gas: Do records indicate that the property is in a “Radon Affected Area” as identified by the UKHSA. The data can also be used to advise house buyers and sellers in Scotland and Northern Ireland.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and if the results of re-testing confirmed the effectiveness of the measures.

Further information on radon is available from the UKHSA at www.ukradon.org.

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What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.
Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level exceeds the Action Level, measures should be taken to reduce the concentration.

Radon in workplaces

The Ionising Radiation Regulations, 1999, require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293)**: Radon in the workplace.** BRE publications may be obtained from the BRE Bookshop, Tel: 01923 664262, email: bookshop@bre.co.ukwebsite: www.brebookshop.com

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Research Avenue South
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Important notes about this Report

- The data, information and related records supplied in this Report by BGS can only be indicative and should not be taken as a substitute for specialist interpretations, professional advice and/or detailed site investigations. You must seek professional advice before making technical interpretations on the basis of the materials provided.
- Geological observations and interpretations are made according to the prevailing understanding of the subject at the time. The quality of such observations and interpretations may be affected by the availability of new data, by subsequent advances in knowledge, improved methods of interpretation, and better access to sampling locations.
- Raw data may have been transcribed from analogue to digital format, or may have been acquired by means of automated measuring techniques. Although such processes are subjected to quality control to ensure reliability where possible, some raw data may have been processed without human intervention and may in consequence contain undetected errors.
- Detail, which is clearly defined and accurately depicted on large-scale maps, may be lost when small-scale maps are derived from them.
- Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
- The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.
- Data may be compiled from the disparate sources of information at BGS's disposal, including material donated to BGS by third parties, and may not originally have been subject to any verification or other quality control process.
- Data, information and related records, which have been donated to BGS, have been produced for a specific purpose, and that may affect the type and completeness of the data recorded and any interpretation. The nature and purpose of data collection, and the age of the resultant material may render it unsuitable for certain applications/uses. You must verify the suitability of the material for your intended usage.
- If a report or other output is produced for you on the basis of data you have provided to BGS, or your own data input into a BGS system, please do not rely on it as a source of information about other areas or geological features, as the report may omit important details.
- The topography shown on any map extracts is based on the latest OS mapping and is not necessarily the same as that used in the original compilation of the BGS geological map, and to which the geological linework available at that time was fitted.
- Note that for some sites, the latest available records may be historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

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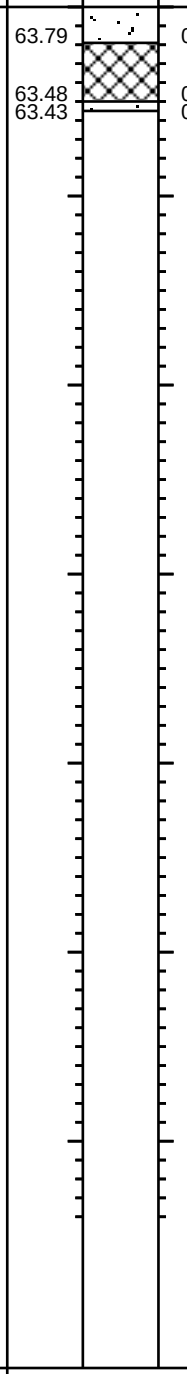
Report issued by
BGS Enquiry Service

Appendix D

iD GeoEnvironmental Limited

	Project Title: Radcliffe Hub		WS01
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 1
	GL (mAOD): 63.98	N Coord: 406933.477	E Coord: 378522.854
Date: 19/01/2022	Method: Window Sampler	Driller: Earth Engineering	Logged By: MJ

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
			63.79		0.19	CONCRETE hardstanding		
			63.48		0.50	MADE GROUND: Grey to black gravelly sand with brick cobble		
			63.43		0.55	MADE GROUND: Sandstone slab		
						End Of Borehole At 0.55 m		



KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Hand pit unable to progress deeper than 0.5m due to obstruction

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

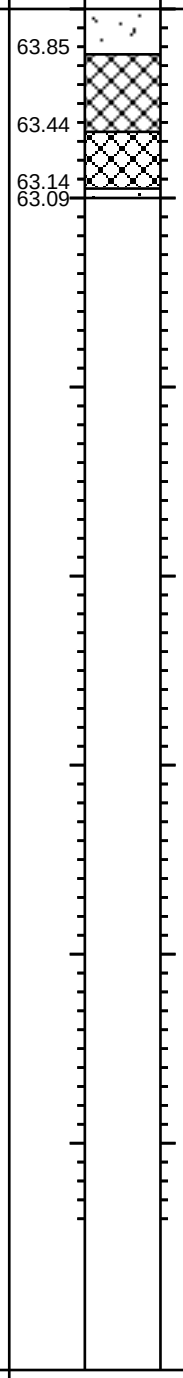
Chiselling

From	To	Hours

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iD GeoEnvironmental Limited	Project Title: Radcliffe Hub		WS01A
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 1
	GL (mAOD): 64.09	N Coord: 406929.481	E Coord: 378517.994
Date: 19/01/2022	Method: Window Sampler	Driller: Earth Engineering	Logged By: MJ

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
			63.85		0.24	CONCRETE hardstanding		
			63.44		0.65	MADE GROUND: Grey to black gravelly sand with much ash and clinker and brick cobble		
			63.14		0.95	MADE GROUND: Brown sandy gravelly clay with occasional brick cobble.		
			63.09		1.00	MADE GROUND: Obstruction End Of Borehole At 1.00 m		



KEY

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N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Hand pit unable to progress deeper than 1.0m due to obstruction

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub		**WS01B**
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 2
	GL (mAOD): 63.97	N Coord: 406934.959	E Coord: 378521.486
Date: 19/01/2022	Method: Window Sampler	Driller: Earth Engineering	Logged By: MJ

Depth (m)	Type	Test Result	Level	Depth (m)	Description
			63.80	0.17	CONCRETE hardstanding
0.40	J				MADE GROUND: Brown very gravelly sand with many brick cobbles.
0.40	T		63.47	0.50	
0.40	V				MADE GROUND: Grey brown sandy gravelly clay with brick cobble. Gravel is of sandstone, clinker and mudstone.
			63.07	0.90	
1.20 - 1.65	SPT	N=4			Light brown mottled grey sandy CLAY with occasional gravel.
2.00 - 2.45	SPT	N=4	61.97	2.00	
					Yellow brown medium to coarse grained SAND with occasional gravel from 3.0m.
3.00 - 3.45	SPT	N=9			
3.00	T				
4.00 - 4.45	SPT	N=33			
			59.77	4.20	
4.50	T				Dark grey to black organic MUDSTONE.
5.00 - 5.45	SPT	N=6	58.97	5.00	
					Grey MUDSTONE.
6.00	SPT	N=12			
					Borehole Continues

Water: ▼

Standpipe: Concrete; Gravel; Slotted Pipe; Gravel; Bentonite; Plain Pipe

KEY

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N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

Hand pit excavated to 1.2m bgl before commencement of drilling

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed
19/01/2022	4				

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited

	Project Title: Radcliffe Hub		WS01B
	Project Number: 5238	Client: Bury Council	Sheet 2 Of 2
	GL (mAOD): 63.97	N Coord: 406934.959	E Coord: 378521.486
Date: 19/01/2022	Method: Window Sampler	Driller: Earth Engineering	Logged By: MJ

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
6.50 - 6.75	D	N=50	57.27		6.70	Grey MUDSTONE.		
						End Of Borehole At 6.70 m		

KEY

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N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

Hand pit excavated to 1.2m bgl before commencement of drilling

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed
19/01/2022	4				

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub		**WS02**
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 1
	GL (mAOD): 64.45	N Coord: 406944.129	E Coord: 378514.152
Date: 19/01/2022	Method: Window Sampler	Driller: Earth Engineering	Logged By: MJ

Depth (m)	Type	Test Result	Level	Depth (m)	Description
			64.25	0.20	CONCRETE hardstanding
0.40	J				MADE GROUND: Brown clayey gravelly sand with brick cobbles.
0.40	T				
			63.55	0.90	
1.00	J				MADE GROUND: Grey brown sandy gravelly clay with brick cobble. Gravel is of clinker and mudstone.
1.00	T				
1.20 - 1.65	SPT	N=16			
1.50 - 2.00	B		62.95	1.50	
1.70	T				Light brown mottled grey sandy CLAY with occasional gravel.
2.00 - 2.45	SPT	N=5			
			62.05	2.40	
2.50 - 3.50	B				Yellow brown medium to coarse grained SAND with occasional gravel from 3.0m.
3.00 - 3.45	SPT	N=10			
3.00	T				
3.80	T				
4.00 - 4.45	SPT	N=17			
4.50	T				
5.00 - 5.45	SPT	N=50			
			59.25	5.20	Grey MUDSTONE recovered as clayey gravel
			58.65	5.80	End Of Borehole At 5.80 m

Water: ▼

Standpipe: Gravel; Bentonite; Slotted Pipe; Gravel

KEY

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S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

Hand pit excavated to 1.2m bgl before commencement of drilling

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed
19/01/2022	4				

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub		WS03
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 1
	GL (mAOD): 64.34	N Coord: 406950.955	E Coord: 378525.631
Date: 19/01/2022	Method: Window Sampler	Driller: Earth Engineering	Logged By: MJ

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
			64.16		0.18	CONCRETE HARDSTANDING		
						MADE GROUND: Black and red gravelly cobbly sand with many whole and broken brick.		
			63.50		0.84			
			63.39		0.95	MADE GROUND: Ceramic drain. Top of drain broken. Drain inspected and stayed dry for duration of the remaining site works (4 hrs) and not considered to be live.		
						End Of Borehole At 0.95 m		

KEY

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V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Hand pit terminated at 0.95m due to drain

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

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iD GeoEnvironmental Limited	Project Title: Radcliffe Hub		**WS03A**
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 1
	GL (mAOD): 64.36	N Coord: 406950.021	E Coord: 378524.624
Date: 19/01/2022	Method: Window Sampler	Driller: Earth Engineering	Logged By: MJ

Depth (m)	Type	Test Result	Level	Depth (m)	Description
			64.17	0.19	CONCRETE hardstanding
0.50	J				MADE GROUND: Red brown gravelly sand with brick cobbles.
0.50	T		63.56	0.80	
1.20 - 1.65	SPT	N=2			MADE GROUND: Grey brown sandy gravelly clay with brick cobble. Gravel is of clinker, slate and mudstone. Piece of timber encountered.
			62.96	1.40	
2.00 - 2.45	SPT	N=7			Light brown mottled grey sandy CLAY with occasional gravel.
2.20	T				
			61.66	2.70	
3.00 - 3.45	SPT	N=6			Yellow brown medium to coarse grained SAND with occasional gravel from 3.0m.
4.00 - 4.45	SPT	N=4			
			59.46	4.90	
5.00 - 5.45	SPT	N=50	59.26	5.10	Grey MUDSTONE recovered as clayey gravel
					End Of Borehole At 5.10 m

Water: ▼

Standpipe: Gravel to 0.19m; Plain pipe to 0.80m; Slotted pipe to 5.10m

KEY

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N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

Hand pit excavated to 1.2m bgl before commencement of drilling

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed
19/01/2022	4.1				

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub		**WS04**
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 1
	GL (mAOD): 63.63	N Coord: 406942.415	E Coord: 378551.236
Date: 15/05/2022	Method: Comacchio Geo 205	Driller: Dynamic Sampling UK	Logged By: BRB

Depth (m)	Type	Test Result	Level	Depth (m)	Description	Water	Standpipe
			63.53	0.10	MADE GROUND: Concrete paving slab overlying grey coarse sand bedding.		
			63.43	0.20	MADE GROUND: Concrete Slab (100mm).		
			62.83	0.80	MADE GROUND: Grey limestone sandy gravel (similar to MOT type 1 aggregate).		
0.90 - 1.00	ES	N=6			MADE GROUND: Red grey mottled angular to sub-rounded gravel and cobbles of limestone aggregate, brick and sandstone.		
1.60 - 2.00	D		62.03	1.60			
1.60 - 2.00	ES	N=15			Loose becoming medium dense brown sandy GRAVEL. Gravel is of rounded to sub-rounded medium to coarse sandstone and quartzite with occasional fine angular gravel of coal.		
					2.00 - 2.45 CPT no recovery		
		pp 50/90mm			2.90 - 3.50 Cobbles of orange brown sandstone		
					3.00 - 3.45 CPT no recovery		
			60.13	3.50			
			60.03	3.60	BEDROCK		
					3.50 CPT no recovery		
					End Of Borehole At 3.60 m		

KEY

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N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.5m to ensure services absent.

Scale: 1:40

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water

Chiselling

From	To	Hours

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub	**BH05**
	Project Number: 5238 / Client: Bury Council	Sheet 1 Of 2
	GL (mAOD): 64.10 / N Coord: 406968.911	E Coord: 378558.913
Date: 15/05/2022-18/05/2022	Method: Comacchio Geo 205 / Driller: Dynamic Sampling UK	Logged By: MJ

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Depth (m)	Description
0.70 D 0.70 ES						63.50	0.60	MADE GROUND: Paver over compact grey limestone sandy gravel (similar to MOT Type 1 aggregate).
						63.10	1.00	Firm brown sandy gravelly CLAY.
2.00 D					N=4	62.10	2.00	
						61.90	2.20	Grey brown medium to coarse slightly gravelly SAND.
3.00 D					N=50	61.10	3.00	
3.00-4.50	52%	30%	30%			60.10	4.00	Thinly laminated with close spacing (<5mm) light grey sandy MUDSTONE. Laminations have a shallow dip angle (approx 3-5 degrees). Natural fractures are typically rough with an undulating surface, some have iron staining.
4.50-5.20	99%	66%	47%	2.9		59.40	4.70	
						59.10	5.00	Thinly laminated with close spacing (<5mm) grey MUDSTONE. Laminations have a shallow dip angle (approx 3-5 degrees). Natural fractures are typically rough with an undulating surface. Weathering around fractures noted to up to 5mm. Fractures are occasionally infilled with clay.
5.20-6.00	50%	14%	14%					5.20 - 7.00 Mudstone is highly weathered with bands of clay present.
6.00-7.00	48%	7%	0%			58.10	6.00	
7.00-8.50	60%	44%	33%			57.10	7.00	
						56.10	8.00	Borehole Continues

Water / Standpipe

KEY

D - Disturbed Sample
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C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.5m

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths

Date	Casing	Water

Flushing Medium

From	To	Type
3	13.5	Water

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub	**BH05**
	Project Number: 5238 / Client: Bury Council	Sheet 2 Of 2
	GL (mAOD): 64.10 / N Coord: 406968.911	E Coord: 378558.913
Date: 15/05/2022-18/05/2022	Method: Comacchio Geo 205 / Driller: Dynamic Sampling UK	Logged By: MJ

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Depth (m)	Description	Water	Standpipe
						55.10	9.00	Thinly laminated with close spacing (<5mm) grey MUDSTONE. Laminations have a shallow dip angle (approx 3-5 degrees). Natural fractures are typically rough with an undulating surface. Weathering around fractures noted to up to 5mm. Fractures are occasionally infilled with clay.		
8.50-10.00	87%	56%	43%			54.10	10.00			
10.00-11.50	100%	73%	49%	4.7		53.60	10.50	Thinly laminated with close spacing (<5mm) dark grey MUDSTONE. Laminations have a shallow dip angle (approx 3-5 degrees). Natural fractures are typically rough with an undulating surface. Weathering around fractures noted to up to 5mm.		
11.50-13.00	42%	38%	10%			53.10	11.00			
13.00-13.50	92%	90%	54%	10		52.10	12.00	12.50 - 12.70 Band of highly weathered Mudstone (clay), depth approximated due to poor recovery		
						51.10	13.00			
						50.60	13.50	End Of Borehole At 13.50 m		
						50.10	14.00			
						49.10	15.00			
						48.10	16.00			

KEY

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N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.5m

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths

Date	Casing	Water

Flushing Medium

From	To	Type
3	13.5	Water

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub	**BH06**
	Project Number: 5238 / Client: Bury Council	Sheet 1 Of 2
	GL (mAOD): 65.62 / N Coord: 406992.541	E Coord: 378539.941
Date: 18/05/2022-20/05/2022	Method: Comacchio Geo 205 / Driller: Dynamic Sampling UK	Logged By: MJ

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Depth (m)	Description
0.70 D 0.70 ES						65.02	0.60	MADE GROUND: Paver over compact grey limestone sandy gravel (similar to MOT Type 1 aggregate).
						64.62	1.00	Firm brown sandy gravelly CLAY.
2.00 D					N=31	63.62	2.00	
						63.42	2.20	Grey brown medium to coarse slightly gravelly SAND.
					N=45			
3.00 D						62.62	3.00	
						62.42	3.20	
					N=50	62.12	3.50	Thinly laminated with close spacing (<5mm) grey MUDSTONE. Laminations have a shallow dip angle (approx 3-5 degrees). Natural fractures are typically rough with an undulating surface.
3.50-5.00	47%	25%	10%			61.62	4.00	
5.00-6.50	80%	21%	9%			60.62	5.00	Thinly laminated with close spacing (<5mm) grey and dark grey MUDSTONE. Natural fractures are typically rough with an undulating surface. Weathering around fractures noted to up to 5mm. 5.50 - 6.00 Possible fossiliferous band of dark grey Mudstone
6.50-7.50	75%	56%	10%			59.62	6.00	
						58.62	7.00	
						57.62	8.00	Borehole Continues

Water: Standpipe

KEY

D - Disturbed Sample
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U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.5m

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths / **Flushing Medium**

Date	Casing	Water	From	To	Type
25/05/2022			3.5	13.5	Water
25/05/2022					

Printed By GeoLogs (www.GeoLogs.com)

iD GeoEnvironmental Limited	Project Title: Radcliffe Hub	**BH06**
	Project Number: 5238 / Client: Bury Council	Sheet 2 Of 2
	GL (mAOD): 65.62 / N Coord: 406992.541	E Coord: 378539.941
Date: 18/05/2022-20/05/2022	Method: Comacchio Geo 205 / Driller: Dynamic Sampling UK	Logged By: MJ

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Depth (m)	Description	Water	Standpipe
7.50-9.00	69%	34%	0%			56.62	9.00	Thinly laminated with close spacing (<5mm) grey and dark grey MUDSTONE. Natural fractures are typically rough with an undulating surface. Weathering around fractures noted to up to 5mm.		
9.00-10.50	63%	51%	36%			55.62	10.00	9.50 - 10.50 Mudstone is highly weathered and clayey		
10.50-12.00	83%	68%	46%			54.62	11.00			
12.00-13.50	30%	18%	15%			53.62	12.00	Thinly laminated with close spacing (<5mm) dark grey MUDSTONE. Natural fractures are typically rough with an undulating surface.		
						52.62	13.00			
						52.42	13.20			
						52.32	13.30	Black COAL		
						52.12	13.50	Thinly laminated with close spacing (<5mm) grey MUDSTONE.		
						51.62	14.00	End Of Borehole At 13.50 m		
						50.62	15.00			
						49.62	16.00			

KEY

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C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.5m

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths / Flushing Medium

Date	Casing	Water	From	To	Type
25/05/2022			3.5	13.5	Water
25/05/2022					

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iD GeoEnvironmental Limited	Project Title: Radcliffe Hub		**BH07**
	Project Number: 5238	Client: Bury Council	Sheet 1 Of 3
	GL (mAOD): 64.13	N Coord: 406939.302	E Coord: 378517.82
Date: 04/07/2022-06/07/2022	Method: Comacchio Geo 205	Driller: Dynamic Sampling UK	Logged By: MJ

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Depth (m)	Description
						63.93	0.20	MADE GROUND: Concrete Hardstanding
0.70 D 0.70 ES						63.53	0.60	MADE GROUND: Brown gravelly sand with brick cobble.
						63.13	1.00	MADE GROUND: Brown gravelly sand with cobbles becoming clayey from 1.4m.
						62.33	1.80	
2.00 D					N=5	62.13	2.00	Grey brown with black patches becoming orange brown very sandy slightly gravelly CLAY.
						61.63	2.50	Orange brown clayey SAND.
3.00 D					N=8	61.13	3.00	
						60.83	3.30	Grey medium to coarse grained SAND.
					N=50	60.13	4.00	Orange brown very gravelly coarse grained SAND with occasional cobble.
						59.83	4.30	Brown clayey SAND & GRAVEL.
					N=50			Dark grey organic MUDSTONE. Rotary coring commenced at 4.5m, dark grey flush observed to 4.8m, no core recovered in drill run (4.5m-6.0m) depth at which strata finishes inferred from colour of water flush returned to surface.
						59.33	4.80	
4.00-6.00	0	0	0			59.13	5.00	
						58.13	6.00	Thinly laminated with close spacing (<5mm) light grey MUDSTONE. 6.15 - 6.40 Mudstone weathered to a clay
6.00-7.50	87%	70%	67%	2		57.13	7.00	
						56.13	8.00	7.50 - 9.00 Mudstone highly fractured - poor core recovery
								Borehole Continues

Water

Standpipe

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.3m

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths

Date	Casing	Water

Flushing Medium

From	To	Type
4.5	18	Water

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iD GeoEnvironmental Limited

Project Title: Radcliffe Hub		BH07
Project Number: 5238	Client: Bury Council	Sheet 2 Of 3
GL (mAOD): 64.13	N Coord: 406939.302	E Coord: 378517.82
Date: 04/07/2022-06/07/2022	Method: Comacchio Geo 205	Driller: Dynamic Sampling UK
		Logged By: MJ

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Depth (m)	Description
7.50-9.00	73%	37%	17%					Thinly laminated with close spacing (<5mm) light grey MUDSTONE.
9.00-10.50	91%	71%	57%	3.3		55.13	9.00	
10.50-12.00	83%	63%	38%	3.3		54.13	10.00	Thinly laminated with close spacing (<5mm) grey MUDSTONE. 10.30 - 10.50 Mudstone weathered to a clay
12.00-13.50	40%	26%	23%			53.13	11.00	
13.50-15.00	90%	65%	41%	4.7		52.13	12.00	12.00 - 13.50 Mudstone highly fractured - poor core recovery
15.00-16.50	83%	77%	53%	3.3		51.13	13.00	
						50.13	14.00	Thinly laminated with close spacing (<5mm) dark grey MUDSTONE.
						49.13	15.00	
						48.13	16.00	Borehole Continues

Water

Standpipe

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.3m

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths

Date	Casing	Water

Flushing Medium

From	To	Type
4.5	18	Water

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iD GeoEnvironmental Limited

Project Title: Radcliffe Hub		BH07
Project Number: 5238	Client: Bury Council	Sheet 3 Of 3
GL (mAOD): 64.13	N Coord: 406939.302	E Coord: 378517.82
Date: 04/07/2022-06/07/2022	Method: Comacchio Geo 205	Driller: Dynamic Sampling UK
		Logged By: MJ

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
									Thinly laminated with close spacing (<5mm) dark grey MUDSTONE.		
16.50-18.00	100%	90%	58%	3.3		47.13		17.00			
						46.13		18.00	End Of Borehole At 18.00 m		
						45.13		19.00			
						44.13		20.00			
						43.13		21.00			
						42.13		22.00			
						41.13		23.00			
						40.13		24.00			

KEY

D - Disturbed Sample
B - Bulk Sample
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W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
▽ - Groundwater Strike
▼ - Groundwater Level

AGS

REMARKS

No Groundwater Encountered
Location CAT scanned before drilling. Vacuum excavation used to 1.3m

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths

Date	Casing	Water

Flushing Medium

From	To	Type
4.5	18	Water

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Appendix E

Hole ID	Depth (m)	Material	Table 1: Inorganics - Concentrations in mg/kg unless otherwise stated. Critical Concentrations (GAC) are shown below											
			pH	As	Cd	Cr (III)	Cu	Pb	Hg	Ni	Se	Zn	SO_4 (g/l)	Asbestos	Calorific Value (MJ/kg)
S4UL Commerical Land				640	190	8600	68000	2330	1100	980	12000	730000			
WS01B	0.40	MADE GROUND	8.6	5.0	0.9	13	53	35	<0.17	18	<1	46	0.03	NAD	-
WS01B	3.00	GLACIOFLUVIAL DEPOSITS	7.8	-	-	-	-	-	-	-	-	-	<0.01	-	-
WS01B	4.50	MUDSTONE	7.6	-	-	-	-	-	-	-	-	-	0.01	-	-
WS02	0.40	MADE GROUND	8.3	13	1.0	16	89	84	<0.17	20	<1	109	0.04	NAD	-
WS02	1.00	MADE GROUND	8.1	12	1.8	17	51	75	<0.17	25	<1	112	0.03	NAD	-
WS02	1.70	GLACIOFLUVIAL DEPOSITS	7.7	-	-	-	-	-	-	-	-	-	0.02	-	-
WS02	3.80	GLACIOFLUVIAL DEPOSITS	7.9	-	-	-	-	-	-	-	-	-	<0.01	-	-
WS03A	0.50	MADE GROUND	8.4	22	2.0	32	212	227	<0.17	39	<1	103	0.03	NAD	-
WS03A	2.20	GLACIOFLUVIAL DEPOSITS	7.9	-	-	-	-	-	-	-	-	-	0.01	-	-
WS04	0.80	MADE GROUND	9.8	12	0.6	43	40	59	1.5	41	<1	99	0.04	NAD	-
BH05	0.70	MADE GROUND	8.0	2.0	<0.5	12	7.0	16	<0.17	8.0	<1	34	<0.01	NAD	-
BH05	4.40	MUDSTONE	8.4	-	-	-	-	-	-	-	-	-	0.07	-	-
BH05	8.40	MUDSTONE	9.0	-	-	-	-	-	-	-	-	-	<0.01	-	-
BH05	13.40	MUDSTONE	8.8	-	-	-	-	-	-	-	-	-	0.02	-	-
BH06	1.40	MADE GROUND	8.7	5.0	<0.5	21	17	15	0.3	21	<1	45	<0.01	NAD	-
BH06	2.20	GLACIOFLUVIAL DEPOSITS	8.3	2.0	0.6	23	15	15	<0.17	35	<1	88	-	-	-
BH06	3.50	MUDSTONE	8.5	<1	<0.5	21	35	15	<0.17	39	<1	85	-	-	-
BH06	4.50	MUDSTONE	8.7	-	-	-	-	-	-	-	-	-	0.08	-	-
BH06	8.80	MUDSTONE	9.0	-	-	-	-	-	-	-	-	-	0.02	-	8.6
BH06	11.50	MUDSTONE	-	-	-	-	-	-	-	-	-	-	-	-	11
BH06	13.30	COAL	8.1	-	-	-	-	-	-	-	-	-	0.17	-	9.2
BH07	2.80	GLACIOFLUVIAL DEPOSITS	8.0										0.05	-	-
BH07	6.50	MUDSTONE	8.8	-	-	-	-	-	-	-	-	-	0.01	-	2.1
BH07	9.50	MUDSTONE	9.0	-	-	-	-	-	-	-	-	-	<0.01	-	2.9
BH07	12.5	MUDSTONE	9.1	-	-	-	-	-	-	-	-	-	<0.01	-	2.0
BH07	15.5	MUDSTONE	9.1	-	-	-	-	-	-	-	-	-	0.01	-	1.8

Key		Source of Critical Concentration
BOLD	Determinand in excess of critical concentration	For source of Generic Assessment Criteria refer to Generic Notes 4 "Contamination Assessment"
-	Determinand not tested for	
<	Determinand concentration is below indicated “method” level of detection	
NAD	Abestos not detected	

Hole ID	Depth (m)	Material	Table 2: Speciated Polycyclic Aromatic Hydrocarbons - Concentrations in mg/kg unless otherwise stated. Critical Concentrations (GAC) are shown below																	
			TOC	SOM	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(ah)anthracene	Fluoranthene	Fluorene	Indeno(123-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
S4UL Commercial Land (1% SOM)			%	%	84000	83000	520000	170	35	44	3900	1200	350	3.5	23000	63000	500	190	22000	54000
WS01B	0.40	MADE GROUND	5.4	9.3	0.0	0.0	0.1	0.3	0.4	0.4	0.2	0.1	0.4	0.0	0.6	0.0	0.2	<0.03	0.3	0.6
WS02	0.40	MADE GROUND	2.6	4.4	0.1	<0.01	0.1	0.3	0.3	0.4	0.2	0.1	0.3	<0.04	0.7	0.0	0.2	<0.03	0.5	0.6
WS02	1.00	MADE GROUND	3.6	6.2	<0.01	<0.01	<0.02	<0.04	<0.04	<0.05	<0.05	<0.07	<0.06	<0.04	<0.08	<0.01	<0.03	<0.03	<0.03	<0.07
WS03A	0.50	MADE GROUND	2.1	3.6	0.1	<0.01	0.2	0.5	0.5	0.5	0.2	0.2	0.5	0.1	1.1	0.0	0.3	<0.03	0.5	1.0
WS04	0.80	MADE GROUND	2.9	4.9	<0.01	<0.01	<0.02	<0.04	<0.04	<0.05	<0.05	<0.07	<0.06	<0.04	<0.08	<0.01	<0.03	<0.03	<0.03	<0.07
BH05	0.70	MADE GROUND	0.9	1.6	<0.01	<0.01	<0.02	<0.04	<0.04	<0.05	<0.05	<0.07	<0.06	<0.04	<0.08	<0.01	<0.03	<0.03	<0.03	<0.07
BH06	1.40	MADE GROUND	0.3	0.5	<0.01	<0.01	<0.02	<0.04	<0.04	<0.05	<0.05	<0.07	<0.06	<0.04	<0.08	<0.01	<0.03	<0.03	<0.03	<0.07
BH06	2.20	GLACIOFLUVIAL DEPOSITS	0.3	0.5	<0.01	<0.01	<0.02	<0.04	<0.04	<0.05	<0.05	<0.07	<0.06	<0.04	<0.08	<0.01	<0.03	<0.03	<0.03	<0.07
BH06	3.50	MUDSTONE	0.6	1.0	<0.01	<0.01	<0.02	<0.04	<0.04	<0.05	<0.05	<0.07	<0.06	<0.04	<0.08	<0.01	<0.03	<0.03	<0.03	<0.07

Key		Source of Critical Concentration
BOLD	Determinand in excess of critical concentration	For source of Generic Assessment Criteria refer to Generic Notes 4 "Contamination Assessment"
-	Determinand not tested for	
<	Determinand concentration is below indicated “method” level of detection	

Hole ID	Depth (m)	Material	Table 3: Speciated Total Petroleum Hydrocarbons - Concentrations in mg/kg unless otherwise stated. Critical Concentrations (GAC) are shown below																			
					BTEX				Aliphatic TPH Bandings							Aromatic TPH Bandings						
			TOC	SOM	Benzene	Toluene	Ethyl Benzene	Xylenes	C_5-C_6	C_6-C_8	C_8-C_{10}	C_{10}-C_{12}	C_{12}-C_{16}	C_{16}-C_{21}	C_{21}-C_{35}	EC_5-EC_7	EC_7-EC_8	EC_8-EC_{10}	EC_{10}-EC_{12}	EC_{12}-EC_{16}	EC_{16}-EC_{21}	EC_{21}-EC_{35}
S4UL Commerial (1% SOM)			%	%	27	56000	5700	5900	3200	7800	2000	9700	59000	1600000	1600000	26000	56000	3500	16000	36000	28000	28000
BH06	1.40	MADE GROUND	0.28	0.5	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<1	<1	1	2	9	<0.01	<0.01	1	<1	1	1	3
BH06	2.20	GLACIOFLUVIAL DEPOSITS	0.3	0.5	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<1	<1	3	6	66	<0.01	<0.01	<1	<1	2	3	6
BH06	3.50	MUDSTONE	0.57	1.0	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<1	<1	<1	<1	2	<0.01	<0.01	<1	<1	2	2	3

Key		Source of Critical Concentration
BOLD	Parameter tested and found to be in excess of critical concentration	For source of Generic Assessment Criteria refer to Generic Notes 4 "Contamination Assessment'
-	Determinand not tested for	
<	Determinand concentration is below indicated “method” level of detection	

Hole ID	Water Body	Table 4 Groundwater Inorganic Assessment Concentrations in µg/l unless otherwise stated. Critical Concentrations are shown below										
		pH	**As**	**Cd**	**Cr (III)**	**Cu**	**Pb**	**Hg**	**Ni**	**Se**	**Zn**	**SO_4**
			7.5^	-	-	1500^	7.5^	-	15^	-	-	mg/l
WS03A	GLACIOFLUVIAL DEPOSITS	6.81	1	<0.2	3	9	<1	<0.1	2	<1	15	16
BH07	PENNINE MIDDLE COAL MEASURES	7.38	<1	<0.2	6	<4	<1	<0.1	5	<1	54	67

Key		**Source of Critical Concentration**	
BOLD	Determinand in excess of critical concentration	∞	Annual Average EQS for Priority Substances & other Pollutants - Inland Surface Waters, Table 1, Schedule 3, Part 3 – Water Framework Directive (England and Wales) Directions 2015
-	Determinand not tested for	#	Threshold Values for Groundwater - Table 1, Schedule 5, Groundwater Impacts on: Surface Waters, Water Framework Directive (England and Wales) Directions 2015
<	Determinand concentration is below indicated “method” level of detection	$	Threshold Values for Groundwater - Table 1, Schedule 5, GW Drinking Water Protected Areas, Water Framework Directive (England and Wales) Directions 2015
*	EQS for Specific Pollutants - Table 1, Schedule 3, Part 2, Water Framework Directive (England and Wales) Directions 2015	^	Threshold Values for Groundwater - Table 1, Schedule 5, General Quality of GW Body, Water Framework Directive (England and Wales) Directions 2015

Hole ID	Water Body	Table 5: Groundwater Organic Assessment Concentrations in µg/l unless otherwise stated. Critical Concentrations are shown below												
		Benzene	Toluene	Ethylbenzene	Xylene	Phenols	Dissolved TPH	PAH	Benzo(a)pyrene	Anthracene	Flouranthene	Benzo(b,k)flouranthene	Benzo(g,h,i)perylene & Indeno(1,2,3-cd)pyrene	Naphthalene
		0.75^	-	-	-	-	-	-	-	-	0.075^	-	-	0.075^
WS03A	GLACIOFLUVIAL DEPOSITS	-	-	-	-	-	-	<0.01	<0.01	<0.01	**<0.01**	<0.01	<0.01	**<0.01**

Key		Source of Critical Concentration	
BOLD	Determinand in excess of critical concentration	∞	Annual Average EQS for Priority Substances & other Pollutants - Inland Surface Waters, Table 1, Schedule 3, Part 3 – Water Framework Directive (England and Wales) Directions 2015
-	Determinand not tested for	#	Threshold Values for Groundwater - Table 1, Schedule 5, Groundwater Impacts on: Surface Waters, Water Framework Directive (England and Wales) Directions 2015
<	Determinand concentration is below indicated "method" level of detection	#	Threshold Values for Groundwater - Table 1, Schedule 5, GW Drinking Water Protected Areas, Water Framework Directive (England and Wales) Directions 2015
*	EQS for Specific Pollutants - Table 1, Schedule 3, Part 2, Water Framework Directive (England and Wales) Directions 2016	^	Threshold Values for Groundwater - Table 1, Schedule 5, General Quality of GW Body, Water Framework Directive (England and Wales) Directions 2015

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Mottram Road, Hyde, Cheshire, SK14 3AR

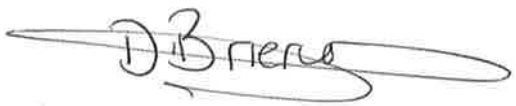
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/00678
Issue Number: 1 **Date:** 01 February, 2022

Client: iD GeoEnvironmental Ltd (Knutsford)
Caledonian House
Tatton Street
Knutsford
WA16 6AG

Project Manager: Michael Jones
Project Name: Radcliffe Hub
Project Ref: 5238
Order No: N/A
Date Samples Received: 25/01/22
Date Instructions Received: 26/01/22
Date Analysis Completed: 01/02/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 22/00678

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/00678/1	22/00678/2	22/00678/3	22/00678/4	22/00678/5	22/00678/6	22/00678/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01B	WS01B	WS01B	WS02	WS02	WS02	WS02			
Depth to Top	0.40	3.00	4.50	0.40	1.00	1.70	3.80			
Depth To Bottom										
Date Sampled	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22			
Sample Type	Soil	Soil	Solid	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AB	4AB	7	4AB	6A	5A	4A			
% Stones >10mm$_A$	12.6	42.7	<0.1	40.1	7.3	<0.1	6.0	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.61	7.76	7.56	8.25	8.11	7.73	7.88	pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.03	<0.01	0.01	0.04	0.03	0.02	<0.01	g/l	0.01	A-T-026s
Total Organic Carbon$_D$$^{M\#}$	5.42	-	-	2.55	3.58	-	-	% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	5	-	-	13	12	-	-	mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	0.9	-	-	1.0	1.8	-	-	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	53	-	-	89	51	-	-	mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	13	-	-	16	17	-	-	mg/kg	1	A-T-024s
Lead$_D$$^{M\#}$	35	-	-	84	75	-	-	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	-	-	<0.17	<0.17	-	-	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	18	-	-	20	25	-	-	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	-	-	<1	<1	-	-	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	46	-	-	109	112	-	-	mg/kg	5	A-T-024s

Envirolab Job Number: 22/00678

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/00678/1	22/00678/2	22/00678/3	22/00678/4	22/00678/5	22/00678/6	22/00678/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01B	WS01B	WS01B	WS02	WS02	WS02	WS02			
Depth to Top	0.40	3.00	4.50	0.40	1.00	1.70	3.80			
Depth To Bottom										
Date Sampled	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22			
Sample Type	Soil	Soil	Solid	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AB	4AB	7	4AB	6A	5A	4A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	-	-	NAD	NAD	-	-			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	-	-	N/A	N/A	-	-			A-T-045

Envirolab Job Number: 22/00678

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/00678/1	22/00678/2	22/00678/3	22/00678/4	22/00678/5	22/00678/6	22/00678/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01B	WS01B	WS01B	WS02	WS02	WS02	WS02			
Depth to Top	0.40	3.00	4.50	0.40	1.00	1.70	3.80			
Depth To Bottom										
Date Sampled	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22			
Sample Type	Soil	Soil	Solid	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AB	4AB	7	4AB	6A	5A	4A			
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.03	-	-	0.08	<0.01	-	-	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.01	-	-	<0.01	<0.01	-	-	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.06	-	-	0.09	<0.02	-	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.34	-	-	0.29	<0.04	-	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.37	-	-	0.29	<0.04	-	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.43	-	-	0.35	<0.05	-	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.18	-	-	0.15	<0.05	-	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.13	-	-	0.13	<0.07	-	-	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.36	-	-	0.31	<0.06	-	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.04	-	-	<0.04	<0.04	-	-	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.61	-	-	0.70	<0.08	-	-	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.02	-	-	0.04	<0.01	-	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.24	-	-	0.20	<0.03	-	-	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	-	-	<0.03	<0.03	-	-	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.27	-	-	0.45	<0.03	-	-	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.61	-	-	0.62	<0.07	-	-	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	3.70	-	-	3.70	<0.08	-	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/00678

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/00678/1	22/00678/2	22/00678/3	22/00678/4	22/00678/5	22/00678/6	22/00678/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS01B	WS01B	WS01B	WS02	WS02	WS02	WS02			
Depth to Top	0.40	3.00	4.50	0.40	1.00	1.70	3.80			
Depth To Bottom										
Date Sampled	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22	19-Jan-22			
Sample Type	Soil	Soil	Solid	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AB	4AB	7	4AB	6A	5A	4A			
Speciated PCB-WHO12										
PCB BZ 81$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 105$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 114$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 118$_A^{M\#}$	<0.007	-	-	-	-	-	-	mg/kg	0.007	A-T-004s
PCB BZ 123$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 126$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 156$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 157$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 167$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 169$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 189$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
PCB BZ 77$_A$	<0.005	-	-	-	-	-	-	mg/kg	0.005	A-T-004s
Total Speciated PCB-WHO12$_A$	<0.007	-	-	-	-	-	-	mg/kg	0.005	A-T-004s

Envirolab Job Number: 22/00678

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/00678/8	22/00678/9						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS03A	WS03A								
Depth to Top	0.50	2.20								
Depth To Bottom										
Date Sampled	19-Jan-22	19-Jan-22								
Sample Type	Soil	Soil								
Sample Matrix Code	4AB	3A								
% Stones >10mm$_A$	16.7	<0.1						% w/w	0.1	A-T-044
pH$_D$ M#	8.43	7.86						pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$ M#	0.03	0.01						g/l	0.01	A-T-026s
Total Organic Carbon$_D$ M#	2.07	-						% w/w	0.03	A-T-032s
Arsenic$_D$ M#	22	-						mg/kg	1	A-T-024s
Cadmium$_D$ M#	2.0	-						mg/kg	0.5	A-T-024s
Copper$_D$ M#	212	-						mg/kg	1	A-T-024s
Chromium$_D$ M#	32	-						mg/kg	1	A-T-024s
Lead$_D$ M#	227	-						mg/kg	1	A-T-024s
Mercury$_D$	<0.17	-						mg/kg	0.17	A-T-024s
Nickel$_D$ M#	39	-						mg/kg	1	A-T-024s
Selenium$_D$ M#	<1	-						mg/kg	1	A-T-024s
Zinc$_D$ M#	103	-						mg/kg	5	A-T-024s

Envirolab Job Number: 22/00678

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/00678/8	22/00678/9						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS03A	WS03A								
Depth to Top	0.50	2.20								
Depth To Bottom										
Date Sampled	19-Jan-22	19-Jan-22								
Sample Type	Soil	Soil								
Sample Matrix Code	4AB	3A								
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	-								A-T-045
Asbestos Matrix (visual)$_{D}$	-	-								A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	-								A-T-045

Envirolab Job Number: 22/00678

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/00678/8	22/00678/9						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS03A	WS03A								
Depth to Top	0.50	2.20								
Depth To Bottom										
Date Sampled	19-Jan-22	19-Jan-22								
Sample Type	Soil	Soil								
Sample Matrix Code	4AB	3A								
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.07	-						mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	-						mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.15	-						mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.45	-						mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.46	-						mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.54	-						mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.22	-						mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.19	-						mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.48	-						mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	0.05	-						mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	1.10	-						mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.04	-						mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.28	-						mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	-						mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.51	-						mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	1.01	-						mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	5.55	-						mg/kg	0.01	A-T-019s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
TPH CWG *C1 indicates results with humics mathematically subtracted through instrument calculation
TPH CWG *C2 indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG with Clean Up $_{C1}$

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: iD GeoEnvironmental Ltd (Knutsford), Caledonian House, Tatton Street, Knutsford, WA16 6AG

Project: Radcliffe Hub

Clients Project No: 5238

Project No: 22/00678

Date Received: 26/01/2022 (am)

Cool Box Temperatures (°C): 7.0

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/00678/1	22/00678/2	22/00678/3	22/00678/4	22/00678/5	22/00678/6	22/00678/7	22/00678/8	22/00678/9
Client Sample No									
Client Sample ID/Depth	WS01B 0.40m	WS01B 3.00m	WS01B 4.50m	WS02 0.40m	WS02 1.00m	WS02 1.70m	WS02 3.80m	WS03A 0.50m	WS03A 2.20m
Date Sampled	19/01/22	19/01/22	19/01/22	19/01/22	19/01/22	19/01/22	19/01/22	19/01/22	19/01/22
A-T-004s	01/02/2022								
A-T-019s	01/02/2022			01/02/2022	01/02/2022			01/02/2022	
A-T-024s	01/02/2022			01/02/2022	01/02/2022			01/02/2022	
A-T-026s	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022
A-T-031s	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022	31/01/2022
A-T-032s	31/01/2022			31/01/2022	31/01/2022			31/01/2022	
A-T-044	01/02/2022	01/02/2022	01/02/2022	01/02/2022	01/02/2022	01/02/2022	01/02/2022	01/02/2022	01/02/2022
A-T-045	27/01/2022			27/01/2022	27/01/2022			27/01/2022	

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	22/05381
Issue Number:	1
Date:	13-Jun-22

Client:
iD GeoEnvironmental Ltd (Knutsford)
Caledonian House
Tatton Street
Knutsford
WA16 6AG

Project Manager:	Michael Jones
Project Name:	Radcliffe
Project Ref:	5238
Order No:	N/A
Date Samples Received:	23-May-22
Date Instructions Received:	31-May-22
Date Analysis Completed:	13-Jun-22

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

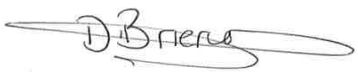
IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

HWOL TPH Code: EH_CU_1D_AL: Extractable hydrocarbons - i.e. everything extracted by the solvent(s), Clean-up - e.g. by florisil, silica gel, GC - Single coil gas chromatography, Aliphatics only

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	22/05381/7						
Client Sample Number								Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				BH06						
Depth to Top				1.4						
Depth to Bottom				1.70						
Date Sampled				18/05/2022						
Sample Type				Soil						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	N	N	**8.69**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.07**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**2.1**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**0.28**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**<0.08**				100	-	-
Mineral Oil (mg/kg)$_{A\ EH\_CU\_1D\_AL}$	A-T-007	N	N	**15**				500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	2	25
Barium	A-T-025	N	N	0.037	0.013	0.075	**0.160**	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	0.001	0.001	0.002	**0.010**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.005	0.006	0.010	**0.060**	4	50	200
Chloride	A-T-026	N	N	<1.00	2	<2	**<10**	800	15000	25000
Fluoride	A-T-026	N	N	0.5	0.2	1.0	**3.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	9	2	19	**32**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	111	22	226	**323**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	36.8	77.00	75	**727**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	7.8	7.3					
Conductivity (µS/cm)	A-T-037	N	N	222	44					
Mass Sample (kg)				0.181						
Dry Matter (%)	A-T-044	N	N	96.5						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.200						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.400						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	22/05381/8						
Client Sample Number										
Client Sample ID				BH06						
Depth to Top				2.2						
Depth to Bottom				2.50				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Date Sampled				18/05/2022						
Sample Type				Soil						
Sample Matrix Code				4A						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	N	N	**8.29**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.05**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.05**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**2.3**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**0.3**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**<0.08**				100	-	-
Mineral Oil (mg/kg)$_{A\ EH\_CU\_1D\_AL}$	A-T-007	N	N	**161**				500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	2	25
Barium	A-T-025	N	N	0.014	0.009	0.029	**0.100**	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	0.003	0.001	0.006	**0.010**	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.006	0.001	0.012	**0.020**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	<0.001	0.002	<0.002	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	0.001	0.001	0.002	**0.010**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.003	0.004	0.006	**0.040**	4	50	200
Chloride	A-T-026	N	N	<1.00	2	<2	**<10**	800	15000	25000
Fluoride	A-T-026	N	N	0.4	<0.10	0.7	**<1**	10	150	500
Sulphate as SO_4	A-T-026	N	N	3	2	5	**19**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	70	22	143	**276**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.01	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	29.7	<20.0	61	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	7.8	7.6					
Conductivity (µS/cm)	A-T-037	N	N	141	45					
Mass Sample (kg)				0.182						
Dry Matter (%)	A-T-044	N	N	96.3						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.200						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.400						

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	22/05381/9						
Client Sample Number								Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				BH06						
Depth to Top				3.5						
Depth to Bottom										
Date Sampled				18/05/2022						
Sample Type				Soil						
Sample Matrix Code				3						
Solid Waste Analysis										
pH (pH Units)$_D$	A-T-031	N	N	**8.49**				-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**				-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**5.1**				-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**0.57**				3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**<0.08**				100	-	-
Mineral Oil (mg/kg)$_{A\ EH\_CU\_1D\_AL}$	A-T-007	N	N	**<10**				500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**				1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**				6	-	-
Eluate Analysis				**2:1**	**8:1**	**2:1**	**Cumulative 10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
				mg/l		**mg/kg**				
Arsenic	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	2	25
Barium	A-T-025	N	N	0.125	0.072	0.255	**0.780**	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	30
Nickel	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.4	10	40
Lead	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	0.002	0.001	0.004	**0.010**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	<0.001	<0.002	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.005	0.005	0.010	**0.050**	4	50	200
Chloride	A-T-026	N	N	1	<1.00	2	**<10**	800	15000	25000
Fluoride	A-T-026	N	N	<0.10	<0.10	<0.2	**<1**	10	150	500
Sulphate as SO_4	A-T-026	N	N	17	3	36	**45**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	230	96	470	**1117**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	0.03	<0.02	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	23.20	<40	**<200**	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	7.8	7.9					
Conductivity (µS/cm)	A-T-037	N	N	461	193					
Mass Sample (kg)				0.182						
Dry Matter (%)	A-T-044	N	N	96						
Stage 1										
Volume Leachant, L_2 (l)	A-T-046			0.350						
Filtered Eluate Volume, VE_1 (l)	A-T-046			0.200						
Stage 2										
Volume Leachant, L_8 (l)	A-T-046			1.400						

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Mottram Road, Hyde, Cheshire, SK14 3AR

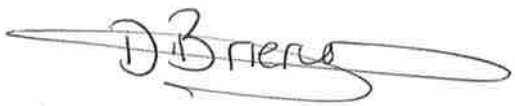
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/05381
Issue Number: 1 **Date:** 14 June, 2022

Client: iD GeoEnvironmental Ltd (Knutsford)
Caledonian House
Tatton Street
Knutsford
WA16 6AG

Project Manager: Michael Jones
Project Name: Radcliffe
Project Ref: 5238
Order No: N/A
Date Samples Received: 23/05/22
Date Instructions Received: 31/05/22
Date Analysis Completed: 14/06/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 22/05381

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/05381/1	22/05381/3	22/05381/4	22/05381/5	22/05381/6	22/05381/7	22/05381/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS04	BH05	BH05	BH05	BH05	BH06	BH06			
Depth to Top	0.80	0.70	4.40	8.40	13.40	1.40	2.20			
Depth To Bottom						1.70	2.50			
Date Sampled	16-May-22	16-May-22	20-May-22	20-May-22	20-May-22	18-May-22	18-May-22			
Sample Type	Soil	Soil	Soil	Solid	Solid	Soil	Soil			
Sample Matrix Code	6A	5A	6A	7	7	4A	4A			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH$_D^{M\#}$	9.80	7.98	8.36	9.02	8.81	8.69	8.29	pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D^{M\#}$	0.04	<0.01	0.07	<0.01	0.02	<0.01	-	g/l	0.01	A-T-026s
Sulphate (acid soluble)$_D^{M\#}$	-	-	210	<200	<200	-	-	mg/kg	200	A-T-028s
Sulphur (total)$_D$	-	-	1150	570	730	-	-	mg/kg	50	A-T-024s
Sulphide$_A$	-	-	360	390	360	-	-	mg/kg	5	A-T-043-s
Total Organic Carbon$_D^{M\#}$	2.85	0.90	-	-	-	0.28	0.30	% w/w	0.03	A-T-032s
Arsenic$_D^{M\#}$	12	2	-	-	-	5	2	mg/kg	1	A-T-024s
Cadmium$_D^{M\#}$	0.6	<0.5	-	-	-	<0.5	0.6	mg/kg	0.5	A-T-024s
Copper$_D^{M\#}$	40	7	-	-	-	17	15	mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	43	12	-	-	-	21	23	mg/kg	1	A-T-024s
Lead$_D^{M\#}$	59	16	-	-	-	15	15	mg/kg	1	A-T-024s
Mercury$_D$	1.45	<0.17	-	-	-	0.28	<0.17	mg/kg	0.17	A-T-024s
Nickel$_D^{M\#}$	41	8	-	-	-	21	35	mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	<1	<1	-	-	-	<1	<1	mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	99	34	-	-	-	45	88	mg/kg	5	A-T-024s

Envirolab Job Number: 22/05381

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/05381/1	22/05381/3	22/05381/4	22/05381/5	22/05381/6	22/05381/7	22/05381/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS04	BH05	BH05	BH05	BH05	BH06	BH06			
Depth to Top	0.80	0.70	4.40	8.40	13.40	1.40	2.20			
Depth To Bottom						1.70	2.50			
Date Sampled	16-May-22	16-May-22	20-May-22	20-May-22	20-May-22	18-May-22	18-May-22			
Sample Type	Soil	Soil	Soil	Solid	Solid	Soil	Soil			
Sample Matrix Code	6A	5A	6A	7	7	4A	4A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	-	-	-	NAD	-			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	-	-	-	N/A	-			A-T-045

Envirolab Job Number: 22/05381

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/05381/1	22/05381/3	22/05381/4	22/05381/5	22/05381/6	22/05381/7	22/05381/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS04	BH05	BH05	BH05	BH05	BH06	BH06			
Depth to Top	0.80	0.70	4.40	8.40	13.40	1.40	2.20			
Depth To Bottom						1.70	2.50			
Date Sampled	16-May-22	16-May-22	20-May-22	20-May-22	20-May-22	18-May-22	18-May-22			
Sample Type	Soil	Soil	Soil	Solid	Solid	Soil	Soil			
Sample Matrix Code	6A	5A	6A	7	7	4A	4A			
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	-	-	-	<0.02	<0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	<0.04	-	-	-	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	<0.04	-	-	-	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	<0.05	-	-	-	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	-	-	-	<0.05	<0.05	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	-	-	-	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.06	<0.06	-	-	-	<0.06	<0.06	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	-	-	-	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	<0.08	-	-	-	<0.08	<0.08	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	<0.03	-	-	-	<0.03	<0.03	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	<0.03	-	-	-	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	<0.03	-	-	-	<0.03	<0.03	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.07	<0.07	-	-	-	<0.07	<0.07	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	<0.08	-	-	-	<0.08	<0.08	mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/05381

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/05381/1	22/05381/3	22/05381/4	22/05381/5	22/05381/6	22/05381/7	22/05381/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS04	BH05	BH05	BH05	BH05	BH06	BH06			
Depth to Top	0.80	0.70	4.40	8.40	13.40	1.40	2.20			
Depth To Bottom						1.70	2.50			
Date Sampled	16-May-22	16-May-22	20-May-22	20-May-22	20-May-22	18-May-22	18-May-22			
Sample Type	Soil	Soil	Soil	Solid	Solid	Soil	Soil			
Sample Matrix Code	6A	5A	6A	7	7	4A	4A			
TPH CWG with Clean Up *C1										
Ali >C5-C6$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	-	-	-	-	-	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	-	-	-	-	-	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	-	-	-	-	-	1	3	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	-	-	-	-	-	2	6	mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	-	-	-	-	-	9	66	mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	-	-	-	12	76	mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	-	-	-	-	-	1	<1	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	-	-	-	-	-	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	-	-	-	-	1	2	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	-	-	-	-	-	1	3	mg/kg	1	A-T-055s
Aro >C21-C35$_A$	-	-	-	-	-	3	6	mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	-	-	-	6	12	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	-	-	-	-	-	19	87	mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	-	-	-	-	-	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 22/05381

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/05381/9	22/05381/10	22/05381/11	22/05381/12	22/05381/13			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH06	BH06	BH06	BH06	BH06					
Depth to Top	3.50	4.50	8.80	11.50	13.30					
Depth To Bottom										
Date Sampled	18-May-22	20-May-22	20-May-22	20-May-22	20-May-22					
Sample Type	Soil	Soil	Solid	Soil	Solid					
Sample Matrix Code	3	3	7		7					
% Stones >10mm$_A$	<0.1	<0.1	<0.1	-	<0.1			% w/w	0.1	A-T-044
pH$_D^{M\#}$	8.49	8.70	9.02	-	8.08			pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D^{M\#}$	-	0.08	0.02	-	0.17			g/l	0.01	A-T-026s
Sulphate (acid soluble)$_D^{M\#}$	-	<200	<200	-	420			mg/kg	200	A-T-028s
Sulphur (total)$_D$	-	268	753	-	40900			mg/kg	50	A-T-024s
Sulphide$_A$	-	350	350	-	400			mg/kg	5	A-T-043-s
Total Organic Carbon$_D^{M\#}$	0.57	-	-	-	-			% w/w	0.03	A-T-032s
Calorific Value$_A$	-	-	8.6	11.0	9.2			MJ/kg	0.1	Subcon Chemtest
Arsenic$_D^{M\#}$	<1	-	-	-	-			mg/kg	1	A-T-024s
Cadmium$_D^{M\#}$	<0.5	-	-	-	-			mg/kg	0.5	A-T-024s
Copper$_D^{M\#}$	35	-	-	-	-			mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	21	-	-	-	-			mg/kg	1	A-T-024s
Lead$_D^{M\#}$	15	-	-	-	-			mg/kg	1	A-T-024s
Mercury$_D$	<0.17	-	-	-	-			mg/kg	0.17	A-T-024s
Nickel$_D^{M\#}$	39	-	-	-	-			mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	<1	-	-	-	-			mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	85	-	-	-	-			mg/kg	5	A-T-024s

Envirolab Job Number: 22/05381

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/05381/9	22/05381/10	22/05381/11	22/05381/12	22/05381/13			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH06	BH06	BH06	BH06	BH06					
Depth to Top	3.50	4.50	8.80	11.50	13.30					
Depth To Bottom										
Date Sampled	18-May-22	20-May-22	20-May-22	20-May-22	20-May-22					
Sample Type	Soil	Soil	Solid	Soil	Solid					
Sample Matrix Code	3	3	7		7					
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02	-	-	-	-			mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.04	-	-	-	-			mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.04	-	-	-	-			mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.05	-	-	-	-			mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	-	-	-	-			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	-	-	-	-			mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	<0.06	-	-	-	-			mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	-	-	-	-			mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	<0.08	-	-	-	-			mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.03	-	-	-	-			mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	-	-	-	-			mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	<0.03	-	-	-	-			mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	<0.07	-	-	-	-			mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.08	-	-	-	-			mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/05381

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/05381/9	22/05381/10	22/05381/11	22/05381/12	22/05381/13			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH06	BH06	BH06	BH06	BH06					
Depth to Top	3.50	4.50	8.80	11.50	13.30					
Depth To Bottom										
Date Sampled	18-May-22	20-May-22	20-May-22	20-May-22	20-May-22					
Sample Type	Soil	Soil	Solid	Soil	Solid					
Sample Matrix Code	3	3	7		7					
TPH CWG with Clean Up *C1										
Ali >C5-C6$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
Ali >C6-C8$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	-	-	-	-			mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	-	-	-	-			mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	-	-	-	-			mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	-	-	-	-			mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	2	-	-	-	-			mg/kg	1	A-T-055s
Total Aliphatics$_A$	2	-	-	-	-			mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	-	-	-	-			mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	-	-	-	-			mg/kg	1	A-T-055s
Aro >C12-C16$_A$	2	-	-	-	-			mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	2	-	-	-	-			mg/kg	1	A-T-055s
Aro >C21-C35$_A$	3	-	-	-	-			mg/kg	1	A-T-055s
Total Aromatics$_A$	8	-	-	-	-			mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35)$_A$	10	-	-	-	-			mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	-	-	-	-			mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: iD GeoEnvironmental Ltd (Knutsford), Caledonian House, Tatton Street, Knutsford, WA16 6AG

Project: Radcliffe

Clients Project No: 5238

Project No: 22/05381

Date Received: 31/05/2022 (am)

Cool Box Temperatures (°C): 14.8 & 15.1

Lab Sample ID	22/05381/1	22/05381/3	22/05381/4	22/05381/5	22/05381/6	22/05381/7	22/05381/8	22/05381/9	22/05381/10	22/05381/11	22/05381/13
Client Sample No											
Client Sample ID/Depth	WS04 0.80m	BH05 0.70m	BH05 4.40m	BH05 8.40m	BH05 13.40m	BH06 1.40-1.70m	BH06 2.20-2.50m	BH06 3.50m	BH06 4.50m	BH06 8.80m	BH06 13.30m
Date Sampled	16/05/22	16/05/22	20/05/22	20/05/22	20/05/22	18/05/22	18/05/22	18/05/22	20/05/22	20/05/22	20/05/22
Deviation Code											
F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key

F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	22/05381/1	22/05381/3	22/05381/4	22/05381/5	22/05381/6	22/05381/7	22/05381/8	22/05381/9	22/05381/10	22/05381/11	22/05381/13
Client Sample No											
Client Sample ID/Depth	WS04 0.80m	BH05 0.70m	BH05 4.40m	BH05 8.40m	BH05 13.40m	BH06 1.40-1.70m	BH06 2.20-2.50m	BH06 3.50m	BH06 4.50m	BH06 8.80m	BH06 13.30m
Date Sampled	16/05/22	16/05/22	20/05/22	20/05/22	20/05/22	18/05/22	18/05/22	18/05/22	20/05/22	20/05/22	20/05/22
PAH-16MS	✓	✓				✓	✓	✓			
Sulphide			✓	✓	✓				✓	✓	✓
VPHCWG						✓	✓	✓			
PAH (total 17)						✓	✓	✓			
BTEX (total)						✓	✓	✓			

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/05381/1	22/05381/3	22/05381/4	22/05381/5	22/05381/6	22/05381/7	22/05381/8	22/05381/9	22/05381/10	22/05381/11	22/05381/12	22/05381/13
Client Sample No												
Client Sample ID/Depth	WS04 0.80m	BH05 0.70m	BH05 4.40m	BH05 8.40m	BH05 13.40m	BH06 1.40-1.70m	BH06 2.20-2.50m	BH06 3.50m	BH06 4.50m	BH06 8.80m	BH06 11.50m	BH06 13.30m
Date Sampled	16/05/22	16/05/22	20/05/22	20/05/22	20/05/22	18/05/22	18/05/22	18/05/22	20/05/22	20/05/22	20/05/22	20/05/22
A-T-004s						08/06/2022	08/06/2022	08/06/2022				
A-T-007s						08/06/2022	08/06/2022	08/06/2022				
A-T-019s	07/06/2022	07/06/2022				07/06/2022	07/06/2022	07/06/2022				
A-T-022s						07/06/2022	07/06/2022	07/06/2022				
A-T-024s	08/06/2022	08/06/2022	14/06/2022	14/06/2022	14/06/2022	08/06/2022	08/06/2022	08/06/2022	14/06/2022	14/06/2022		14/06/2022
A-T-025w						13/06/2022	13/06/2022	13/06/2022				
A-T-026s	10/06/2022	10/06/2022	10/06/2022	10/06/2022	10/06/2022	10/06/2022			10/06/2022	10/06/2022		10/06/2022
A-T-026w						13/06/2022	13/06/2022	13/06/2022				
A-T-028s			08/06/2022	08/06/2022	08/06/2022				08/06/2022	08/06/2022		08/06/2022
A-T-030s						08/06/2022	08/06/2022	08/06/2022				
A-T-031s	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022		08/06/2022
A-T-031w						13/06/2022	13/06/2022	13/06/2022				
A-T-032s	08/06/2022	08/06/2022				08/06/2022	08/06/2022	08/06/2022				
A-T-032w						13/06/2022	13/06/2022	13/06/2022				
A-T-037w						13/06/2022	13/06/2022	13/06/2022				
A-T-043-s			08/06/2022	08/06/2022	08/06/2022				08/06/2022	08/06/2022		08/06/2022
A-T-044	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022	08/06/2022		08/06/2022
A-T-045	01/06/2022	01/06/2022				01/06/2022						
A-T-050w						13/06/2022	13/06/2022	13/06/2022				
A-T-055s						07/06/2022	07/06/2022	07/06/2022				
A-T-ANCs						08/06/2022	08/06/2022	08/06/2022				
Calc						01/06/2022	01/06/2022	01/06/2022				
Calc-no stones						13/06/2022	13/06/2022	13/06/2022				
Probe (w)						13/06/2022	13/06/2022	13/06/2022				

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

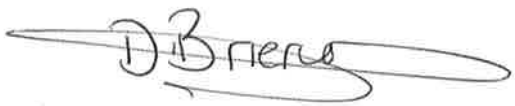
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/06702
Issue Number: 1 **Date:** 14 July, 2022

Client: iD GeoEnvironmental Ltd (Knutsford)
Caledonian House
Tatton Street
Knutsford
WA16 6AG

Project Manager: Michael Jones
Project Name: Radcliffe Hub
Project Ref: 5238
Order No: N/A
Date Samples Received: 08/07/22
Date Instructions Received: 08/07/22
Date Analysis Completed: 14/07/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

UKAS TESTING
1247

Envirolab Job Number: 22/06702

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/06702/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS03A									
Depth to Top										
Depth To Bottom										
Date Sampled	07-Jul-22									
Sample Type	Water - EW									
Sample Matrix Code	N/A									
pH (w)$_{A}^{\#}$	6.81							pH	0.01	A-T-031w
Sulphate (w)$_{A}^{\#}$	16							mg/l	1	A-T-026w
Arsenic (dissolved)$_{A}^{\#}$	1							µg/l	1	A-T-025w
Cadmium (dissolved)$_{A}^{\#}$	<0.2							µg/l	0.2	A-T-025w
Copper (dissolved)$_{A}$	9							µg/l	1	A-T-025w
Chromium (dissolved)$_{A}^{\#}$	3							µg/l	1	A-T-025w
Lead (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Mercury (dissolved)$_{A}^{\#}$	<0.1							µg/l	0.1	A-T-025w
Nickel (dissolved)$_{A}^{\#}$	2							µg/l	1	A-T-025w
Selenium (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Zinc (dissolved)$_{A}^{\#}$	15							µg/l	1	A-T-025w

Envirolab Job Number: 22/06702

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/06702/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS03A									
Depth to Top										
Depth To Bottom										
Date Sampled	07-Jul-22									
Sample Type	Water - EW									
Sample Matrix Code	N/A									
PAH 16MS (w)										
Acenaphthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Acenaphthylene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Anthracene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(a)anthracene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(a)pyrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(ghi)perylene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Chrysene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Fluoranthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Fluorene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Naphthalene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Phenanthrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Pyrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Total PAH 16MS (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w

REPORT NOTES

General

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The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
Subscript "^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: iD GeoEnvironmental Ltd (Knutsford), Caledonian House, Tatton Street, Knutsford, WA16 6AG

Project: Radcliffe Hub

Clients Project No: 5238

Project No: 22/06702

Date Received: 08/07/2022 (am)

Cool Box Temperatures (°C): 18.6

Lab Sample ID	22/06702/1
Client Sample No	
Client Sample ID/Depth	WS03A
Date Sampled	07/07/22
Deviation Code	
A7 (no HNO3)	✓

Key
A7 (no HNO3) *No HNO3 preserved bottle provided (dissolved metals will be deviating)*

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/06702/1
Client Sample No	
Client Sample ID/Depth	WS03A
Date Sampled	07/07/22
A-T-019w	14/07/2022
A-T-025w	14/07/2022
A-T-026w	12/07/2022
A-T-031w	13/07/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

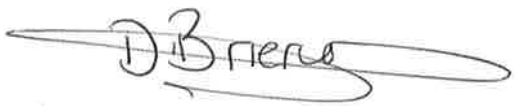
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/06703
Issue Number: 1 **Date:** 19 July, 2022

Client: iD GeoEnvironmental Ltd (Knutsford)
Caledonian House
Tatton Street
Knutsford
WA16 6AG

Project Manager: Michael Jones
Project Name: Radcliffe Hub
Project Ref: 5238
Order No: TBC
Date Samples Received: 08/07/22
Date Instructions Received: 08/07/22
Date Analysis Completed: 19/07/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 22/06703

Client Project Name: Radcliffe Hub

Client Project Ref: 5238

Lab Sample ID	22/06703/1	22/06703/2	22/06703/3	22/06703/4	22/06703/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH07	BH07	BH7	BH07	BH07					
Depth to Top	2.80	6.50	9.50	12.50	15.50					
Depth To Bottom										
Date Sampled	04-Jul-22	04-Jul-22	05-Jul-22	05-Jul-22	04-Jul-22					
Sample Type	Soil	Solid	Solid	Solid	Solid					
Sample Matrix Code	5A	7	7	7	7					
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1			% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.98	8.76	8.95	9.09	9.07			pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.05	0.01	<0.01	<0.01	0.01			g/l	0.01	A-T-026s
Sulphate (acid soluble)$_D$$^{M\#}$	-	<200	<200	<200	<200			mg/kg	200	A-T-028s
Sulphur (total)$_D$	-	203	362	167	505			mg/kg	50	A-T-024s
Calorific Value$_A$	-	2.1	2.9	2.0	1.8			MJ/kg	0.1	Subcon Chemtest

REPORT NOTES

General

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The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
Subscript "^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: iD GeoEnvironmental Ltd (Knutsford), Caledonian House, Tatton Street, Knutsford, WA16 6AG

Project: Radcliffe Hub

Clients Project No: 5238

Project No: 22/06703

Date Received: 08/07/2022 (am)

Cool Box Temperatures (°C): 18.6

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/06703/1	22/06703/2	22/06703/3	22/06703/4	22/06703/5
Client Sample No					
Client Sample ID/Depth	BH07 2.80m	BH07 6.50m	BH7 9.50m	BH07 12.50m	BH07 15.50m
Date Sampled	04/07/22	04/07/22	05/07/22	05/07/22	04/07/22
A-T-024s		14/07/2022	14/07/2022	14/07/2022	14/07/2022
A-T-026s	15/07/2022	15/07/2022	15/07/2022	15/07/2022	15/07/2022
A-T-028s		13/07/2022	13/07/2022	13/07/2022	13/07/2022
A-T-031s	14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
A-T-044	13/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

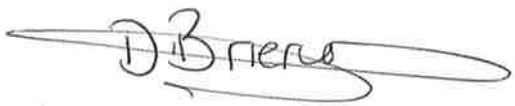
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/06986
Issue Number: 1 **Date:** 22 July, 2022

Client: iD GeoEnvironmental Ltd (Knutsford)
Caledonian House
Tatton Street
Knutsford
WA16 6AG

Project Manager: Michael Jones
Project Name: Radcliffe
Project Ref: 5238
Order No: N/A
Date Samples Received: 15/07/22
Date Instructions Received: 18/07/22
Date Analysis Completed: 22/07/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

UKAS TESTING
1247

Envirolab Job Number: 22/06986

Client Project Name: Radcliffe

Client Project Ref: 5238

Lab Sample ID	22/06986/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH07									
Depth to Top										
Depth To Bottom										
Date Sampled	14-Jul-22									
Sample Type	Water - EW									
Sample Matrix Code	N/A									
pH (w)$_{A}^{\#}$	7.38							pH	0.01	A-T-031w
Sulphate (w)$_{A}^{\#}$	67							mg/l	1	A-T-026w
Arsenic (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Cadmium (dissolved)$_{A}^{\#}$	<0.2							µg/l	0.2	A-T-025w
Copper (dissolved)$_{A}$	<4							µg/l	4	A-T-025w
Chromium (dissolved)$_{A}^{\#}$	6							µg/l	1	A-T-025w
Lead (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Mercury (dissolved)$_{A}^{\#}$	<0.1							µg/l	0.1	A-T-025w
Nickel (dissolved)$_{A}^{\#}$	5							µg/l	2	A-T-025w
Selenium (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Zinc (dissolved)$_{A}^{\#}$	54							µg/l	2	A-T-025w

REPORT NOTES

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For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
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TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

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1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
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EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: iD GeoEnvironmental Ltd (Knutsford), Caledonian House, Tatton Street, Knutsford, WA16 6AG

Project: Radcliffe

Clients Project No: 5238

Project No: 22/06986

Date Received: 18/07/2022 (am)

Cool Box Temperatures (°C): 21.2

Lab Sample ID	22/06986/1
Client Sample No	
Client Sample ID/Depth	BH07
Date Sampled	14/07/22
Deviation Code	
A7 (no HNO3)	✓

Key
A7 (no HNO3) *No HNO3 preserved bottle provided (dissolved metals will be deviating)*

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/06986/1
Client Sample No	
Client Sample ID/Depth	BH07
Date Sampled	14/07/22
A-T-025w	22/07/2022
A-T-026w	22/07/2022
A-T-031w	22/07/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Appendix F

MURRAY RIX

CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client iD GeoEnvironmental Ltd

Address Caledonian House
Tatton Street
Knutsford
WA16 6AG

Contract 5238 -
Radcliffe Hub

Job Number MRN 4296/2
Date of Issue 22 February 2022
Pages 1 of 4

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870 FAX 0161 475 0871

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.5: 1990

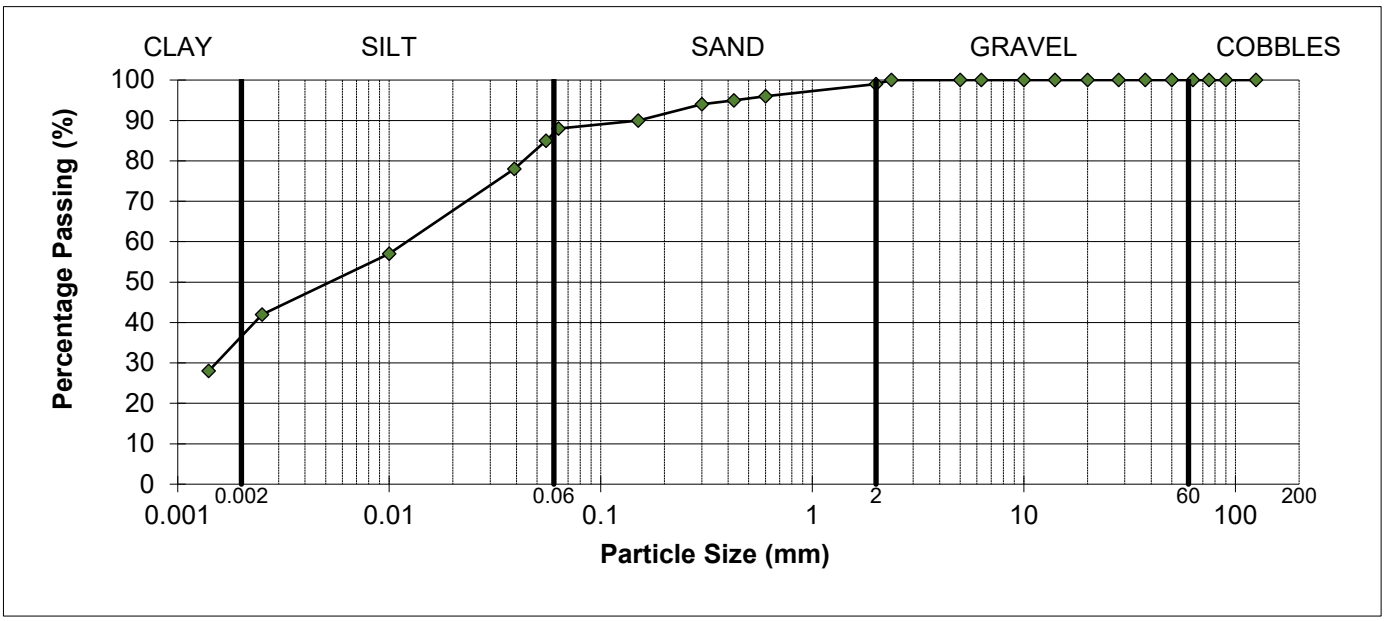
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	iD GeoEnvironmental Ltd
SITE	5238 - Radcliffe Hub
JOB NUMBER	MRN 4296/2

SAMPLE LABEL	WS02 1.5-2.0	DATE SAMPLED	19-Jan-22
LAB SAMPLE No	108802	DATE RECEIVED	27-Jan-22
DATE TESTED	02-Feb-22	SAMPLED BY	Client

MATERIAL	Firm brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2.36	100	
90	100		2	99	
75	100		0.6	96	
63	100		0.425	95	
50	100		0.3	94	
37.5	100		0.15	90	
28	100		0.063	88	
20	100		0.055	85	
14	100		0.039	78	
10	100		0.01	57	
6.3	100		0.0025	42	
5	100		0.0014	28	



REMARKS
As received moisture content = 33%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 22-Feb-22

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870 FAX 0161 475 0871

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

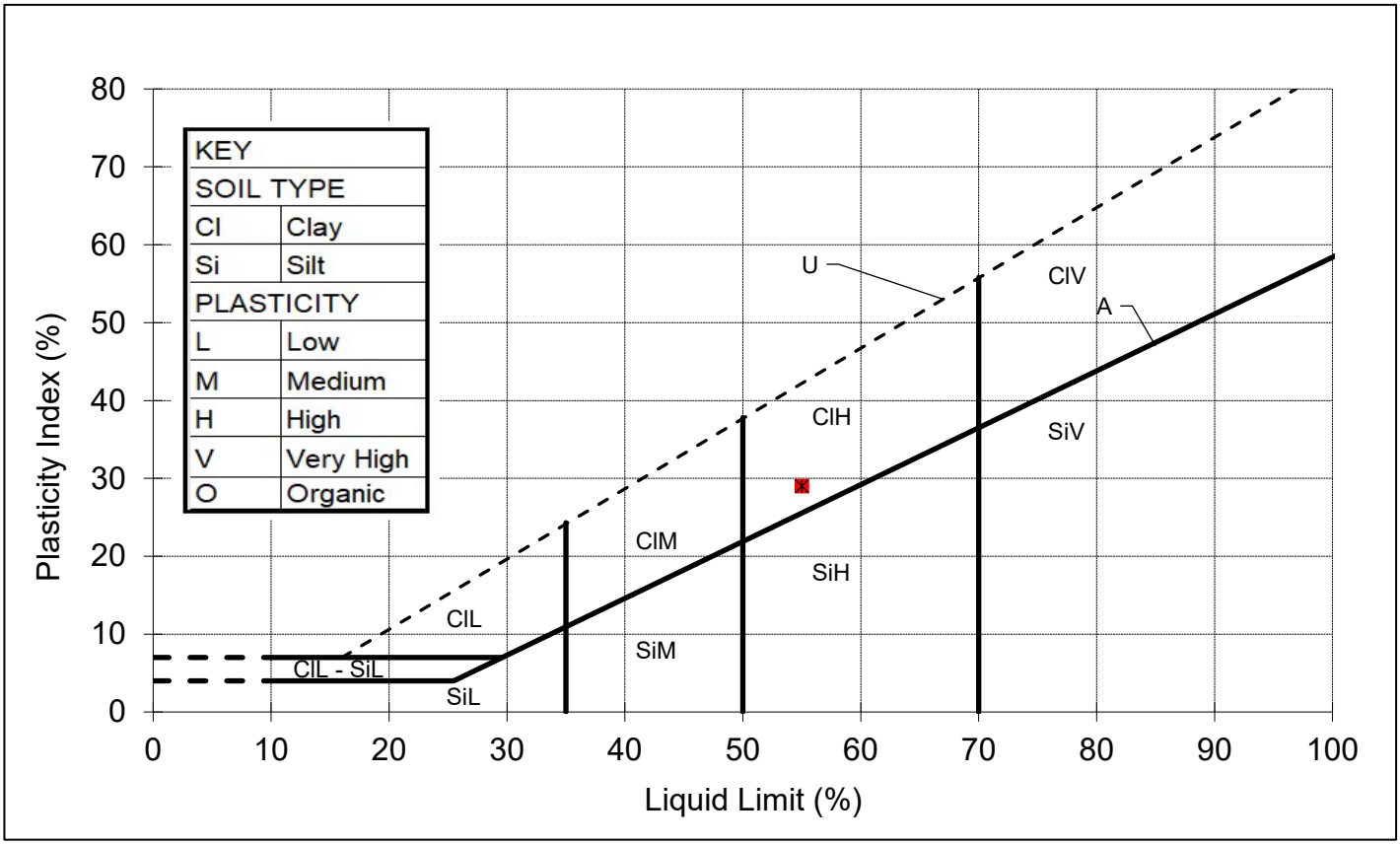
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	iD GeoEnvironmental Ltd
SITE	5238 - Radcliffe Hub
JOB NUMBER	MRN 4296/2

SAMPLE LABEL	WS02 1.5-2.0	DATE SAMPLED	19-Jan-22
SAMPLE No.	108802	DATE RECEIVED	27-Jan-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Firm brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
33	55	26	29	95



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 22-Feb-22

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870 FAX 0161 475 0871

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.5: 1990

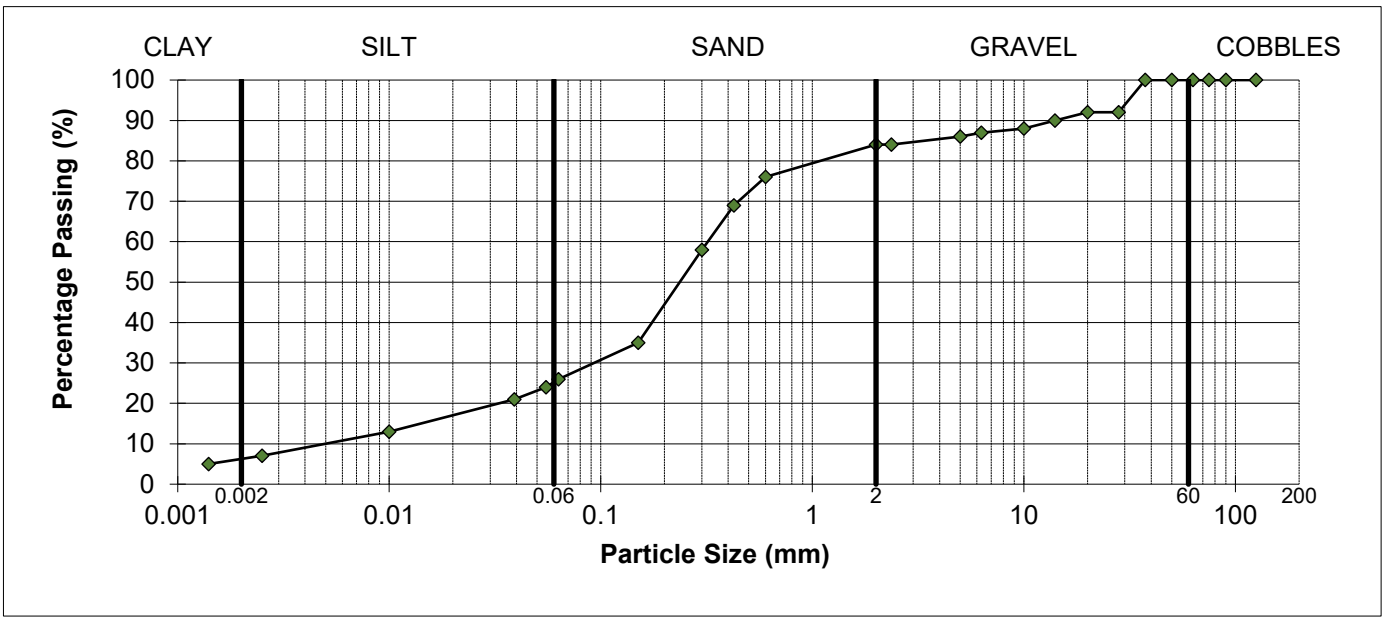
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	iD GeoEnvironmental Ltd
SITE	5238 - Radcliffe Hub
JOB NUMBER	MRN 4296/2

SAMPLE LABEL	WS002 2.5-3.5	DATE SAMPLED	19-Jan-22
LAB SAMPLE No	108803	DATE RECEIVED	27-Jan-22
DATE TESTED	02-Feb-22	SAMPLED BY	Client

MATERIAL	Brown clay bound silty SAND with occasional gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2.36	84	
90	100		2	84	
75	100		0.6	76	
63	100		0.425	69	
50	100		0.3	58	
37.5	100		0.15	35	
28	92		0.063	26	
20	92		0.055	24	
14	90		0.039	21	
10	88		0.01	13	
6.3	87		0.0025	7	
5	86		0.0014	5	



REMARKS
As received moisture content = 16%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 22-Feb-22

MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client iD GeoEnvironmental Ltd

Address Caledonian House
Tatton Street
Knutsford
WA16 6AG

Contract Blackburn Street

Job Number MRN 4296/7
Date of Issue 20 June 2022

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

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M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	iD GeoEnvironmental Ltd
SITE	Blackburn Street
JOB NUMBER	MRN 4296/7

SAMPLE LABEL	BH05	DATE SAMPLED	Not advised
LAB SAMPLE No	112802-112807	DATE RECEIVED	25-May-22
DATE TESTED	17-Jun-22	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Depth (m)	Test Type*	D (mm)	W** (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
4.0	A	85.0	61.0	1.2	6601.75	81.25	0.18	1.24	0.23
5.0	A	85.0	64.0	3.2	6926.42	83.23	0.46	1.26	0.58
7.2	A	85.0	38.5	2.2	4166.68	64.55	0.53	1.12	0.59
9.8	A	85.0	67.0	1.8	7251.10	85.15	0.25	1.27	0.32
10.2	A	85.0	64.0	1.1	6926.42	83.23	0.16	1.26	0.20
13.2	A	78.0	57.0	0.8	5660.82	75.24	0.14	1.20	0.17
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00

Test Type *

A	Axial Test	D	Diametral Test
B	Block Test	I	Irregular Lump Test

*W Entry required if test type is not Diametral

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 20-Jun-22

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	iD GeoEnvironmental Ltd
SITE	Blackburn Street
JOB NUMBER	MRN 4296/7

SAMPLE LABEL	BH06	DATE SAMPLED	Not advised
LAB SAMPLE No	112808-112811	DATE RECEIVED	25-May-22
DATE TESTED	17-Jun-22	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Depth (m)	Test Type*	D (mm)	W** (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
5.5	A	85.0	58.0	0.8	6277.07	79.23	0.13	1.23	0.16
7.7	A	80.0	54.0	1.5	5500.39	74.16	0.27	1.19	0.33
11.0	A	85.0	66.0	0.6	7142.87	84.52	0.08	1.27	0.11
13.2	A	80.0	59.0	2.1	6009.69	77.52	0.35	1.22	0.43
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00

Test Type *

A	Axial Test	D	Diametral Test
B	Block Test	I	Irregular Lump Test

*W Entry required if test type is not Diametral

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 20-Jun-22

MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client iD GeoEnvironmental Ltd

Address Caledonian House
Tatton Street
Knutsford
WA16 6AG

Contract Blackburn Street

Job Number MRN 4296/9
Date of Issue 19 July 2022
Page 1 of 4

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

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M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	iD GeoEnvironmental Ltd
SITE	Blackburn Street
JOB NUMBER	MRN 4296/9

SAMPLE LABEL	Not advised	DATE SAMPLED	Not advised
LAB SAMPLE No	114143-114152	DATE RECEIVED	07-Jul-22
DATE TESTED	18-Jul-22	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Depth (m)	Test Type*	D (mm)	W** (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
7.2	A	84.0	72.0	1.9	7700.55	87.75	0.25	1.29	0.32
8.8	A	83.0	69.0	5.8	7291.84	85.39	0.80	1.27	1.01
9.75	A	84.0	38.0	1.3	4064.18	63.75	0.32	1.12	0.36
10.0	A	83.0	36.0	3.5	3804.44	61.68	0.92	1.10	1.01
11.0	A	84.0	76.0	4.5	8128.36	90.16	0.55	1.30	0.72
13.0	A	82.0	77.0	2.2	8039.23	89.66	0.27	1.30	0.36
15.1	A	80.0	56.0	2.5	5704.11	75.53	0.44	1.20	0.53
16.2	A	72.0	78.0	0.5	7150.51	84.56	0.07	1.27	0.09
16.6	A	80.0	71.0	2.3	7232.00	85.04	0.32	1.27	0.40
17.0	A	81.0	46.0	2.2	4744.09	68.88	0.46	1.16	0.54
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00

Test Type *

A	Axial Test	D	Diametral Test
B	Block Test	I	Irregular Lump Test

*W Entry required if test type is not Diametral

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 19-Jul-22

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	iD GeoEnvironmental Ltd
SITE	Blackburn Street
JOB NUMBER	MRN 4296/9

SAMPLE REFERENCE	9.75	DATE RECEIVED	07-Jul-22
SAMPLE NUMBER	114152	DATE SAMPLED	Not advised
DATE TESTED	18-Jul-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	MW	DIAMETER (mm)	83
LENGTH AFTER PREPARATION (mm)	166	LENGTH/DIAMETER RATIO	2.00

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	48.4	MEASURED COMPRESSIVE STRENGTH (N/mm2)	8.9

COMPRESSIVE STRENGTH (MPa)	**8.9**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
None

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED  DATE 19-Jul-22

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	iD GeoEnvironmental Ltd
SITE	Blackburn Street
JOB NUMBER	MRN 4296/9

SAMPLE REFERENCE	16.60	DATE RECEIVED	07-Jul-22
SAMPLE NUMBER	114154	DATE SAMPLED	Not advised
DATE TESTED	18-Jul-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	MW	DIAMETER (mm)	83
LENGTH AFTER PREPARATION (mm)	166	LENGTH/DIAMETER RATIO	2.00

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	28.4	MEASURED COMPRESSIVE STRENGTH (N/mm2)	5.2

COMPRESSIVE STRENGTH (MPa)	**5.2**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
None

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED DATE 19-Jul-22

Appendix G

iDG - GROUNDWATER MONITORING PROGRAM

iD GeoEnvironmental Limited

Project: 5238
Site: Radcliffe Hub

North West & Midlands
Caledonian House, Tatton Road
Knutsford, Cheshire, WA16 6AG
t: 01565 755557
www.id-gsc.co.uk

Date	WS01B		WS02		WS03A	
	Response Zone	AOD	Response Zone	AOD	Response Zone	AOD
	2.0 - 4.0m	63.97	1.5 - 4.5m	64.45	1.9 - 4.9m	64.36
	Groundwater Level (m bgl)	Groundwater Level (m AOD)	Groundwater Level (m bgl)	Groundwater Level (m AOD)	Groundwater Level (m bgl)	Groundwater Level (m AOD)
26/01/2022	3.76	60.21	4.07	60.38	3.87	60.49
08/03/2022	3.80	60.17	4.06	60.39	3.75	60.61
18/05/2022	-	-	-	-	-	-
27/05/2022	3.77	60.2	4.10	60.35	2.41	61.95
24/06/2022	3.81	60.16	4.15	60.3	2.18	62.18
05/07/2022	3.74	60.23	4.12	60.33	2.37	61.99
14/07/2022	3.83	60.14	4.14	60.31	2.09	62.27
28/07/2022	3.82	60.15	4.14	60.31	2.10	62.26

Date	WS04		BH05		BH06	
	Response Zone	AOD	Response Zone	AOD	Response Zone	AOD
	1.2 - 3.2m	63.63	2.0 - 3.0m	64.10	2.0 - 3.0m	65.62
	Groundwater Level (m bgl)	Groundwater Level (m AOD)	Groundwater Level (m bgl)	Groundwater Level (m AOD)	Groundwater Level (m bgl)	Groundwater Level (m AOD)
26/01/2022	-	-	-	-	-	-
08/03/2022	-	-	-	-	-	-
18/05/2022	Dry	-	2.36	61.74	-	-
27/05/2022	Dry	-	2.67	61.43	1.33	64.29
24/06/2022	Dry	-	2.51	61.59	1.62	64.00
05/07/2022	Dry	-	2.74	61.36	1.97	63.65
14/07/2022	Dry	-	2.90	61.20	2.27	63.35
28/07/2022	Dry	-	2.94	61.16	2.52	63.10

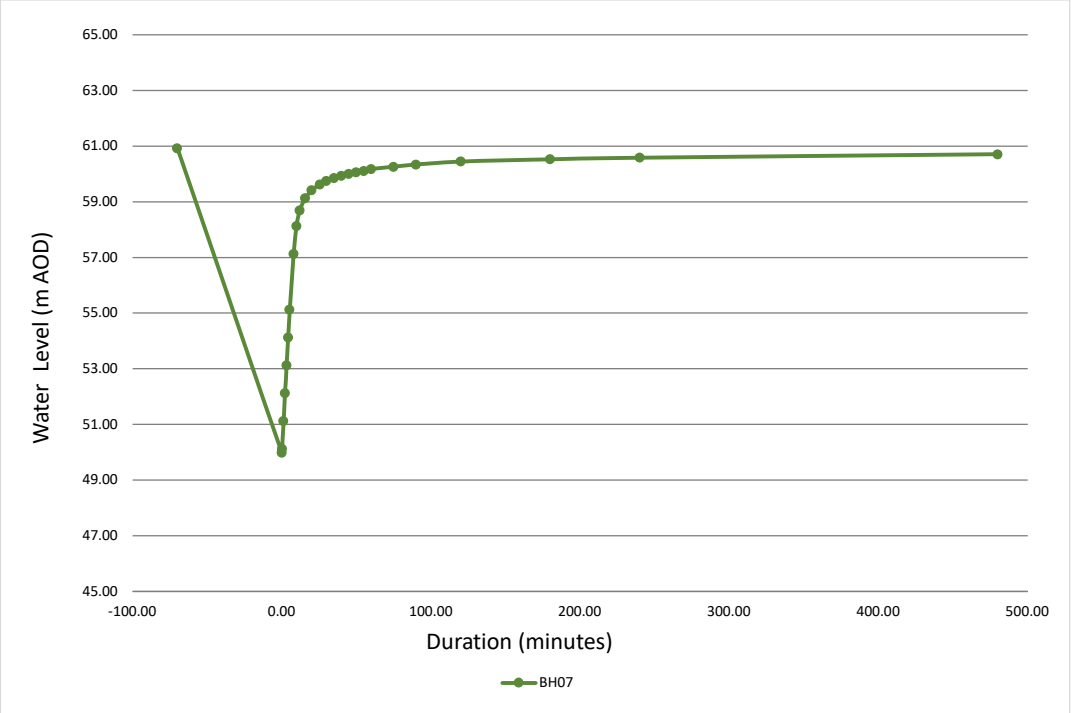
Date	BH07					
	Response Zone	AOD	Response Zone	AOD	Response Zone	AOD
	7.6 - 17.1m	64.13				
	Groundwater Level (m bgl)	Groundwater Level (m AOD)	Groundwater Level (m bgl)	Groundwater Level (m AOD)	Groundwater Level (m bgl)	Groundwater Level (m AOD)
26/01/2022	-	-				
08/03/2022	-	-				
18/05/2022	-	-				
27/05/2022	-	-				
24/06/2022	-	-				
12/07/2022	3.19	60.94				
14/07/2022	3.20	60.93				
24/07/2022	3.20	60.93				
28/07/2022	3.16	60.97				

GROUNDWATER RECOVERY MONITORING

Job Ref:	5238	Date:	14/07/2022
Site Name:	Radcliffe Hub	Engineer:	MJ
BH Ref:	BH07		

Borehole	BH07	WS01B	WS02	WS03A
Borehole Elevation (m AOD)	64.13	63.97	64.45	64.36

Time	Duration (m)	BH07		WS01B		WS02		WS03A	
		Depth (m bgl)	Elevation (m AOD)	Depth (m bgl)	Elevation (m AOD)	Depth (m bgl)	Elevation (m AOD)	Depth (m bgl)	Elevation (m AOD)
07:05:00	-70.00	3.20	60.93	3.83	60.14	4.14	60.31	2.1	62.26
08:15:00	0.00	14.14	49.99	3.83	60.14	4.14	60.31	2.1	62.26
08:15:17	0.28	14.00	50.13						
08:16:12	1.20	13.00	51.13						
08:17:14	2.23	12.00	52.13						
08:18:16	3.27	11.00	53.13						
08:19:18	4.30	10.00	54.13						
08:20:20	5.33	9.00	55.13						
08:23:00	8.00	7.00	57.13						
08:24:55	9.92	6.00	58.13						
08:27:04	12.07	5.44	58.69						
08:30:45	15.75	5.00	59.13	3.83	60.14	4.14	60.31	2.1	62.26
08:35:10	20.17	4.71	59.42						
08:40:33	25.55	4.50	59.63						
08:45:00	30.00	4.38	59.75						
08:50:00	35.00	4.28	59.85						
08:55:00	40.00	4.19	59.94						
09:00:00	45.00	4.13	60.00	3.83	60.14	4.14	60.31	2.1	62.26
09:05:00	50.00	4.07	60.06						
09:10:00	55.00	4.02	60.11						
09:15:00	60.00	3.95	60.18						
09:30:00	75.00	3.87	60.26						
09:45:00	90.00	3.79	60.34						
10:15:00	120.00	3.68	60.45						
11:15:00	180.00	3.60	60.53						
12:15:00	240.00	3.54	60.59	3.83	60.14	4.14	60.31	2.1	62.26
16:15:00	480.00	3.42	60.71	3.83	60.14	4.14	60.31	2.1	62.26



Appendix H

Generic Notes – ID Geoenvironmental Investigations

Environmental Setting

General

Third party information obtained from the British Geological Survey (BGS), the Coal Authority and the Local Authority etc is presented in the Correspondence Appendix of this Geoenvironmental Report.

Geology, Mining & Quarrying

In order to establish the geological setting of a site, ID Geoenvironmental refer to BGS maps for the area, and the relevant geological memoir.

A coal mining report is obtained from the Coal Authority. Further information is sourced from the Local Authority and by reference to current and historical OS plans.

Landfills and other Historical Land Uses

ID Geoenvironmental obtain data from the either Landmark Information Group or Groundsure, and if required from the Environment Agency and the Local Authority with respect to known areas of landfilling within 250m of the proposed development site. Reference is also made to historical OS plans, which are inspected for evidence of backfilled quarries, railway cuttings, colliery spoil tips etc.

Historical maps dating from the middle of the nineteenth century are also studied for evidence of historical land uses (i.e. gas works, foundries, chemical works) which may represent potential sources of contamination or ground instability.

Radon

Radon is a colourless, odourless gas, which is radioactive. It is formed in strata that contain uranium and radium (most notably granite), and can move though fissures eventually discharging to atmosphere, or the spaces under and within buildings. Where radon occurs in high concentrations, it can pose a risk to health.

Radon Affected Areas are designated by the UK Health Security Agency (UKHSA). UKHSA advise that radon concentrations should be measured in all properties located within Radon Affected Areas.

The risk of proposed properties being affected by radon has been assessed by reference to the information presented in the Groundsure Geoinsight Report or Landmark Report. The search data is based on a BGS radon dataset with a 75m resolution.

Radon potential maps published online by UKHSA (www.ukradon.org) are of a significantly lower resolution and show the worst-case radon potential within a 1km grid square.

Further details of the protective measures required, if appropriate, are provided in the Hazardous Gas section of this Geoenvironmental Report.

Hydrogeology

ID Geoenvironmental obtain information from the Environment Agency (EA) and the Landmark Information Group with respect to:

- groundwater quality
- recorded pollution incidents
- licensed groundwater abstractions

From 1 April 2010 the Environment Agency's Groundwater Protection Policy uses aquifer designations that are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems.

The aquifer designation data is based on geological mapping provided by the British Geological Survey.

These maps are split into two differing aquifer designations:

- **Superficial (Drift)** – permeable unconsolidated (loose) deposits such as sands and gravels.
- **Bedrock** – solid permeable formations such as sandstone, chalk or limestone.

The maps display the following aquifer designations:

- **Principal aquifers:** *"These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer"*.
- **Secondary A** – *"permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers";*
- **Secondary B** - *predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers*
- **Unproductive Strata**: *These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. However groundwater flow through such rocks, although imperceptible, does take place and needs to be considered in assessing the risk associated with persistent pollutants. Some non-aquifers can yield water in sufficient quantities for domestic use".*

Groundwater vulnerability is determined by 4 variables:

1. The presence and nature of overlying soil (the weathered zone affected by living organisms; soil in the UK can extend up to 2m in depth). Physical properties of the soil affect the

downward passage of water and it's ability to attenuate pollutants. The EA make reference to a three-fold classification of soil types:-

- Soils of **low** leaching potential are defined as *"soils in which the pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants".*
- Soils of **intermediate** leaching potential are defined as *"soils which have a moderate ability to attenuate diffuse source pollutants or in which it is possible that some non-adsorbed diffuse source pollutants and liquid discharges could penetrate the soil layer".*
- Soils of **high** leaching potential are defined as *"soils with little ability to attenuate diffuse source pollutants and in which non-adsorbed diffuse source pollutants and liquid discharges have the potential to move rapidly to underlying strata or to shallow groundwater".*

In urban areas and restored mineral workings the soil information is based on fewer observations than elsewhere. A worst-case vulnerability (H) is therefore assumed for these areas and for current mineral workings by the EA. All are given a designation of **HU** unless proved otherwise.

2. The presence and nature of Drift, which often overlies bedrock. Where Drift is of substantial thickness and low permeability, it can provide an effective barrier to surface pollutant migration. Permeable Drift is classified as a Minor Aquifer except where it is in probable hydraulic continuity with a Major Aquifer, where it is regarded as part of the Major Aquifer unless proven otherwise by site investigation.

3. The nature of the geological strata (bedrock). Rocks that contain groundwater in exploitable quantities are called aquifers.

4. The depth of the unsaturated zone; i.e. that part of the aquifer which lies above the water table

The EA have also designated Source Protection Zones, which are based on proximity to a groundwater source (springs, wells and abstraction boreholes). The size of a Source Protection Zone is a function of the aquifer, volume of groundwater abstracted and the effective rainfall, and may vary from tens to several thousand hectares.

Hydrology

ID Geoenvironmental obtain information from the Environment Agency and the Landmark Information Group with respect to:

- surface water quality
- recorded pollution incidents
- licensed abstractions (groundwater & surface waters)
- licensed discharge consents
- site susceptibility to flooding

The EA have set **water quality** targets for all rivers. These targets are known as River Quality Objectives (RQO's). The water quality classification scheme used to set RQO planning targets is known as the River Ecosystem scheme. The scheme comprises five classes (RE1 to RE5) which

reflect the chemical quality requirements of communities of plants and animals occurring in our rivers.

General Quality Assessment (GQA) grades reflect actual water quality. They are based on the most recent analytical testing undertaken by the EA. There are six GQA grades (denoted A to F) defined by the concentrations of biochemical oxygen demand, total ammonia and dissolved oxygen.

The susceptibility of a site to **flooding** is assessed by reference to a Flood Map on the Environment Agency's website. These maps provide show natural floodplains - areas potentially at risk of flooding if a river rises above its banks, or high tides and stormy seas cause flooding in coastal areas.

There are two different kinds of area shown on the Flood Map:

1. Dark blue areas could be flooded by the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year, or by a river by a flood that has a 1% (1 in 100) or greater chance of happening each year

2. Light blue areas show the additional extent of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1% (1 in 1000) chance of occurring each year.

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements

The maps also show all flood defences built in the last five years to protect against river floods with a 1% (1 in 100) chance of happening each year, or floods from the sea with a 0.5% (1 in 200) chance of happening each year, together with some, but not all, older defences and defences which protect against smaller floods.

The Agency's assessment of the likelihood of flooding from rivers and the sea at any location is based on the presence and effect of all flood defences, predicted flood levels, and ground levels.

It should also be noted that as the floodplain shown is the 1 in 100 year (or 1 in 200 year as appropriate), areas outside this may be flooded by more extreme floods (e.g. the 1 in 1000 year flood). Also, parts of the areas shown at risk of flooding will be flooded by lesser floods (e.g. the 1 in 5 year flood). In some places due to the shape of the river valley, the smaller floods will flood a very similar extent to larger floods but to a lesser depth.

If a site falls within a floodplain, it is recommended that a flood survey be undertaken by a specialist consultant who can advise on appropriate mitigating measures; ie raising slab levels, provision of storage etc.

Furthermore, as discussed in Planning Policy Statement 25 (PPS25) a consequence of amendment 8 to Article 10 of The Town and Country Planning (General Development Procedure) Order 1995 ("the GDPO"), on 1st October 2006, LPAs are required to consult the Environment Agency on all applications for development in flood risk areas (except minor development), including those in areas with critical drainage problems and for any development on land exceeding 1 hectare outside flood risk areas.

COMAH & Explosive Sites

ID Geoenvironmental obtain information from the Landmark Information Group with respect to COMAH or explosive sites within 1km of the proposed development site. MMi's report refers to any that are present, and recommends that the Client seeks further advice from the HSE.

Areas around COMAH sites (chemical plants etc) are zoned with respect to the implementation of emergency plans. The HSE are a statutory consultee to the local planning authority for all COMAH sites. The COMAH site may have to revise it's emergency action plan if development occurs. This might be quite straightforward or could entail significant expenditure. Consequently, the COMAH site may object to a proposed development (although it is the Local Authority who have final say, and they are likely to place more weight on advice from the HSE).

Preliminary Conceptual Ground Model

The site's environmental setting (and proposed end use) is used by ID Geoenvironmental to assess the significance of any contamination encountered during the subsequent ground investigation

Assessment of contaminated land is based on an evaluation of pollutant linkages (source-pathway-receptor). Contaminants within the near surface strata represent a potential source of pollution. The environment (most notably groundwater), site workers and end users are potential targets.

Potential pollutant linkages are shown on a preliminary conceptual site model, presented as a Drawing in an Appendix to this Geoenvironmental Report. The preliminary model is revised in light of data arising from the subsequent ground investigation.

Generic Notes 2.
Ground Investigation Fieldwork

General

IDG Ground Investigations are undertaken in accordance with current UK guidance including:

- *BS EN 1997-1:2004 Eurocode 7: Geotechnical design — Part 1: General rules*
- *BS EN 1997-2:2007 Eurocode 7: Geotechnical design —Part 2: Ground investigation and testing*
- *NA to BS EN 1997-2:2007 UK National Annex to Eurocode 7. Geotechnical design. Ground investigation and testing*
- *BS 5930:1999 Code of practice for site investigations (partially replaced, under revision).*
- *BS 10175:2011* Investigation of potentially contaminated sites. Code of practice.
- *BS EN ISO 14688-1:2002 Geotechnical investigation and testing. Identification and classification of soil. Identification and description.*
- *BS EN ISO 14688-2:2004 Geotechnical investigation and testing. Identification and classification of soil. Principles for a classification.*
- *BS EN ISO 14689-1:2003 Geotechnical investigation and testing. Identification and classification of rock. Identification and description.*
- "*Guidance on the protection of housing on contaminated land*" – NHBC & EA R&D Publication 66 (2000, 2008) updated 3rd June 2014
- "*Technical Aspects of Site Investigation*" – EA R&D Technical Report P5-065/TR (2000)
- "*Development of appropriate soil sampling strategies for land contamination*" – EA R&D Technical Report P5-066/TR (2001)
- AGS: 1996 "*Guide to the selection of Geotechnical Soil Laboratory Testing*"

Exploratory hole logs are presented in Appendices to this Geoenvironmental Report. These logs include details of the:

- Investigation technique adopted
- Descriptions of the solid strata, and any groundwater encountered.
- Samples taken
- Results of any in-situ testing
- Any gas\groundwater monitoring well installed

Exploratory Hole Locations

Exploratory hole locations are selected by IDG, prior to commencement of fieldwork, to provide a representative view of the strata beneath the site and to target potential contaminant sources identified during the preliminary investigation (desk study). Additional exploratory locations are often determined by the site engineer in light of the ground conditions actually encountered; this enables better delineation of the depth and lateral extent of organic contamination, poor ground, relict structures etc.

Investigation Techniques

Ground conditions can be investigated by a number of techniques. Techniques most commonly used by IDG include:

- Machine excavated trial pits, usually equipped with a backactor and a 0.6m wide bucket.
- Cable percussive (Shell & Auger) boreholes, typically using 150mm diameter tools and casing. Cable Percussive drilling is employed to advance boreholes in superficial (made ground and Drift strata).
- Window or Windowless Sampling boreholes. Constraints associated with existing buildings, operations and underground service runs can render some sites partly or wholly inaccessible to a mechanical excavator. In such circumstances, window sampling is often the most appropriate technique. A window sampling drilling rig can be manoeuvred in areas of restricted access and results in minimal disturbance of the ground (a 150mm) diameter tarmac/concrete core can be lifted and put to one side). However, it should be noted that window sampling allows only a limited inspection of the ground (especially made ground with a significant proportion of coarse material) and cannot be used in solid strata.
- Rotary percussive open-hole probeholes are typically drilled using a tricone rock roller bit with water or air as the flushing medium. Rotary probeholes are generally lined through made ground with temporary steel casing to prevent hole collapse. Rotary boreholes are used to enable progress in solid strata (rockhead) and are commonly drilled to identify the presence of shallow mineworkings or to install deep groundwater monitoring boreholes in the solid strata.

Hazardous ground gas and groundwater monitoring boreholes may be installed in cable percussive boreholes, window sample probeholes and rotary boreholes. Where installed, gas\groundwater monitoring wells typically comprise a lower slotted section, surrounded by a filter pack of 10 mm diameter non-calcareous gravel and an upper plain section surrounded in part by a bentonite seal and in part by gravel or arisings. The top of the plain pipe is cut off below ground level and the monitoring well protected by a circular or square, stopcock type manhole cover set in concrete, or the plain pipe is cut off just above ground level and the well protected by 100mm diameter raised steel helmet set in concrete, which stands approximately 300mm proud of ground level.

Monitoring well details, including the location of the response zone and bentonite seal are presented on the relevant exploratory hole logs.

In-situ Testing

Where relative densities of granular materials given on the trial pit and window sample logs are based on visual inspection only, they do not relate to any specific bearing capacities.

BS EN ISO 22476-3:2005 Geotechnical investigation and testing. Field testing. Standard penetration test

The relative densities of granular materials encountered in cable percussive boreholes are based on Standard Penetration Test (SPT) results. SPTs are carried out boreholes, in accordance with BS EN ISO 22476-3:2005. The sampler is penetrated over an initial seating drive of 150mm. The sampler is then driven for a test drive of 300mm in four increments of 75mm. The total number of blow required to drive the sampler 300mm is recorded as the penetration resistance or N-value. Where full penetration (450mm) is not possible the test is continued up to a maximum of 50 blows and the depth of penetration is recorded in millimetres.

The strength of cohesive deposits is determined using a hand shear vane in general accordance with BS1377-7-1990.

Shear strength test results reported on trial pit logs are considered to be more reliable than those reported on window sample logs. Significant sample disturbance occurs during window sampling and consequently shear strength results on disturbed window samples are generally lower than results obtained during trial pitting, in-situ or in large excavated blocks.

Sampling

Representative soil/fill samples are taken at regular intervals from the exploratory holes to assist in description of the ground and to allow selected laboratory testing to be performed. The type of sample taken is dependent on the nature of the stratum and the purpose of the analysis.

Where the soils encountered contain a significant proportion of coarse grained material, truly representative samples are not typically obtained and only the finer fraction is placed in sample containers. However, a visual estimate of the amount of coarse material is made on site. Note: Coarse constituents not sampled are defined as: coarse gravel, cobble and boulder. (i.e. any 'particles' with an average diameter greater than 20mm).

Occasionally, unrepresentative 'spot' samples are also taken from some exploratory locations for contaminant analysis, typically where unusual, localised pockets of materials are encountered.

Samples of soil for chemical testing are placed into appropriate containers (see below) prior to delivery to the selected laboratory. Samples of water are taken in one litre, brown glass bottles and stored in cool boxes, at a temperature of approximately 4ºC, until delivery to the selected laboratory. Soil\fill samples for organic analysis are also stored in cool boxes.

Sample Containers (for geotechnical analysis). The majority of samples are only scheduled for PI and sulphate testing, for which 500g of sample is required (a full 0.5-litre plastic tub). However, bulk bags are taken where scheduling of compaction or grading tests are required.

Containers (for contaminant analysis). In order to comply with MCERTS requirements, labs have to provide a sample description and consequently require sufficient soil sample, and the use of wide-necked containers. For any sample requiring both inorganic & organic analysis, it is necessary to submit both a 1-litre glass jar and a 1 kg plastic tub.

Where scheduling for VOC (including GRO) testing is anticipated, a glass vial is also required. In summary (for contaminant analysis):

Anticipated testing	Container(s)	Remarks
pH & metals only	1 kg plastic tub	
organics (TPH, PAH) etc only	1 litre wide-necked glass jar	Vial required if TPH is to include GRO as well as DRO & LRO, or speciated PAH
VOCs (incl. naphthalene and\or GRO) only	glass vial & 1kg plastic tub	
pH & metals, and organics	1 litre wide-necked glass jar 1kg plastic tub	

pH & metals, and organics (incl. VOCs or GRO)	glass vial 1 litre wide-necked glass jar 1kg plastic tub	

Groundwater

Where encountered during fieldwork, groundwater is recorded on exploratory hole logs. If monitoring wells are installed, groundwater levels are also recorded on one or more occasions after completion of the fieldwork.

It should be borne in mind that the rapid excavation rates used during a ground investigation may not allow the establishment of equilibrium water levels. Water levels are likely to fluctuate with season/rainfall and could be substantially higher at wetter times of the year than those found during the ground investigation.

Long-term monitoring of standpipes or piezometers is always recommended if water levels are likely to have a significant effect on earthworks or foundation design.

Description of Strata

Soils encountered during an IDG investigation are described (logged) in general accordance with EN ISO 14688-1. The descriptions and depth of deposits encountered are presented on the exploratory hole logs and summarised in the Ground Conditions section of the report within the main body of text.

Rocks encountered during an IDG investigation are described (logged) in general accordance with EN ISO 14689-1. The descriptions and depth of strata encountered are presented on the exploratory hole logs and summarised in the Ground Conditions section of the report within the main body of text.

The materials encountered in the trial pits are logged, samples taken, and tests performed on the in-situ materials in the excavation faces, to depths of up to 1.2m; below this depth these operations are conducted at the surface on disturbed samples recovered from the excavation.

Key to Exploratory Hole Logs

Keys to logs are presented in the Appendix(ces) containing the logs. There are two Keys – Symbols & Legends and Terms & Definitions.

Generic Notes – ID Geoenvironmental Investigations

3. Geotechnical Laboratory Tests

General

Soil samples are delivered to the laboratory for testing along with a schedule of testing drawn up by IDG. All tests are carried out in accordance with BS 1377:1990.

The test results are presented as received in an Appendix to this Geoenvironmental Report.

The following laboratory testing are routinely carried out on a selection of samples:

- Atterberg limits & moisture contents
- Soluble sulphate & pH

The additional tests are typically only scheduled where significant earthworks regrade is anticipated:

- Grading.
- Compaction tests
- Particle density.

Atterberg Limits & Moisture Content

The Liquid and Plastic Limits of samples of natural in-situ clay are determined using the cone penetrometer method and the rolling thread test. These tests enable determination of an average Plasticity Index (PI) for each "type" of clay, although judgement is applied where variable results are reported.

PI can be related to shrinkability (low, medium or high) and then to minimum founding depth. IDG typically only consider a soil to be shrinkable if the proportion finer than 63μm is >35%.

PI results are compared against guidance given in the NHBC Standards, Chapter 4.2 (revised April 2003), which advocates the use of modified Plasticity Index (I'p), defined as:

I'p = Ip * (%< 425μm/100)

ie if PI is 30%, but the soil contains 80% < 425μm, then: I'p = 30 * 80/100 = 24%.

It should be noted that in accordance with the requirements of BS 1377, the % passing the 425μm sieve is routinely reported by testing labs.

IDG apply engineering judgment where PI results are spread over a range of classifications. Consideration is given to:

- the average values for each particular soil type (ie differentiate between residual soil and alluvium),
- the number of results in each class and
- the actual values.

Unless the judgment strongly indicates otherwise, IDG typically adopt a conservative approach and recommend assumption of the higher classification.

Soluble Sulphate and pH

Sulphates in soil and groundwater are the chemical agents most likely to attack sub-surface concrete, resulting in expansion and softening of the concrete to a mush. Another common cause of concrete deterioration is groundwater acidity.

The rate of chemical attack depends on the concentration of aggressive ions and their replenishment at the reaction surface. The rate of replenishment is related to the presence and mobility of groundwater.

IDG refer to BRE Special Digest 1 (SD1) "Concrete in aggressive ground. Part 1: Assessing the aggressive chemical environment" (2005). SD 1 provides definitions of:

- the nature of the site (greenfield, brownfield or pyritic)
- the groundwater regime (static, mobile or highly mobile)
- the Design Sulphate Class (DC Class) and
- the Aggressive Chemical Environment for Concrete (ACEC Class)

IDG reports clearly state each of the above for the site being considered.

The concentrations of sulphate in aqueous soil/fill extracts are determined in the laboratory using the gravimetric method. The results are expressed in terms of SO_4 for direct comparison with BS 5328:1997. The pH value of each sample was determined by the electrometric method.

SD1 also discusses determination of "representative" sulphate concentration from a number of tests. Essentially if <10 samples of a given soil-type have been tested, the highest measured sulphate concentration should be taken. If >10 samples have been tested, the mean of the highest 20% of the sulphate test results can be taken. With respect to groundwater, the highest sulphate concentration should always be taken.

With respect to pH (soil & groundwater) the value used is the lowest value if <10 samples have been tested and the mean of the lowest 20% if >10 samples have been tested.

Generic Notes – ID Geoenvironmental Investigations

4 Contamination Laboratory Analysis & Interpretation (including WAC)

Current UK Guidance

The UK approach to contaminated land is set out in **Land Contamination Risk Management (LCRM)** published on the Gov.uk website. The approach is based upon risk assessment, where risk is defined as the combination of the probability of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.

In the context of land contamination, there are three essential elements to any risk: (1) a contaminant source, (2) a receptor (eg controlled water or people exposed to the contaminants) and (3) a pathway linking (1) and (2). Risk can only exist where all three elements combine to create a pollutant linkage. Risk assessment requires the formulation of a conceptual model which supports the identification and assessment of pollutant linkages.

As recommended by LCRM, IDG adopt a tiered approach to risk assessment, consistent with UK guidance and best practice. In general this comprises the following elements of work:

- A Preliminary Risk Assessment (PRA)
- A Generic Quantitative Risk Assessment (GQRA)
- A Detailed Quantitative Risk Assessment (DQRA)

Preliminary Risk Assessment
A preliminary risk assessment is generally undertaken as part of a "Desk Study" investigation. This investigation collates readily available information including historical land uses, the geological, hydrogeological and hydrological setting of the site, and the proposed end-use which is presented as a "Preliminary Conceptual Model". Potential pollutant linkages are defined and a preliminary assessment of the risks posed to receptors is stated.

Further information regarding the development of a conceptual model for the site is presented in Generic Notes 1 – Environmental Setting and Preliminary Risk Assessment.

Generic Quantitative Risk Assessment
Where potential pollutant linkages are identified in the preliminary conceptual model a generic quantitative risk assessment (GQRA) generally forms part of an intrusive phase of site investigation, allowing for the sampling of both soil and groundwater. The intrusive investigation should target pollutant linkages identified in the Preliminary Conceptual Model, but should also investigate previously unidentified sources and contaminant pathways encountered during the site investigation works.

Human Health
Detailed guidance on human health risk assessment is available in the following:

- INFO-RA2-2: assessing risks to human health
  - Human health toxicological assessment of contaminants in soil - Science Report: SC050021/SR2
  - Updated technical background to the CLEA model - Science Report: SC050021/SR3
  - CLEA Software (Version 1.05) Handbook Science report: SC050021/SR4
  - Compilation of data for priority organic pollutants for derivation of Soil Guideline Values - Science Report: SC050021/SR7

- Guidance on Comparing Soil Contamination Data with a Critical Concentration - CL:AIRE and CIEH, May 2008

Generic Assessment Criteria represent "screening concentrations" devised for a number of standard land-use scenarios. They are based conservative receptor and exposure parameters and provide a useful method of screening out sites where contaminants pose a negligible risk. GACs are available from a number of sources for the following land-use scenarios. These scenarios include:

- Residential end-use with consumption of homegrown produce.
- Residential end-use without consumption of homegrown produce.
- Residential Public Open Space (Landscaped Areas)
- Public Open Space (Parks)
- Allotments
- Commercial Development

The initial step of such a generic quantitative risk assessment is to compare site chemical data with appropriate UK generic assessment criteria. These following GACs are currently appropriate.

- Soil Guideline Values (SGVs) (Environment Agency 2009) are based on CLEA "default settings and therefore represent screening criteria based on minimal risk to human health. SGVs are available for arsenic, cadmium, mercury, nickel, selenium, BTEX, phenols and dioxins, furans and dioxin-like PCB substances for residential, allotments and commercial land-uses based on a sandy loam soil and a 6% soil organic matter (SOM) content.
- Soil Generic Assessment Criteria for Human Health Risk Assessment (EIC/AGS/CL:AIRE 2009) adopted CLEA default settings and therefore represent screening criteria based on minimal risk to human health. GACs were derived for 3 metals and 32 organic contaminants for four standard land uses at 1%, 2% and 6% SOM content.
- Suitable for Use Levels (S4ULs) (LQM/CIEH, Nathanail 2015) represent generic assessment criteria for each of the above standard land-uses, based on updated toxicological assessments and modified exposure parameters. They therefore represent screening criteria based on minimal risk to human health. S4ULs for organic compounds are available for 1%, 2% and 6% SOM. *(S4ULs Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3061. All rights Reserved.)*
- Category 4 Screening Levels (Defra March 2014) are primarily intended to be used to assist the classification of land under the revised Part 2A Statutory Guidance issued in 2012. The revised guidance introduced the concept of four categories of contaminated land (Category 1 (significant/high risk) – Category 4 (low risk). C4SLs are low risk levels which are not representative of significant possibility of significant harm (SPoSH) and, whilst not intended to mark the top of Category 4, should the C4SLs not be exceeded, land can be demonstrated as being in Category 4 and cannot be determined as contaminated land.

The GAC selected to form the basis of a Generic Risk Assessment are dependent on the existing or proposed land use as defined in the Conceptual Model (which identifies the critical receptor and exposure parameters) and other factors such as the SOM content of the near surface soils at the site.

Soil organic matter (SOM) is the fraction of soil composed of organic matter. It consists principally of decomposed plant remains. The presence of SOM is important in determining the fate and behaviour of a number of organic contaminants. Generally, the greater the SOM content of soil, the greater the sorptive capacity of the soil and the lower the mobility of certain contaminant phases. (Note: TOC = SOM x 0.58; and FOC = TOC/100).

Generic Assessment Criteria adopted by IDG available, by regulators, upon request.

The CLEA model assumes a simple linear partitioning between the sorbed, dissolved and vapour phases. The theoretical upper boundaries to this behaviour are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous or vapour based saturation limit (the lower saturation limit). Assessment criteria which exceed the lower of the two saturation limits and where the vapour pathway is an important contributor to exposure are highlighted in red in the CLEA model. These values are depicted as shaded values in the IDG GAC Tables. In such cases the exposure from the vapour phase will be over predicted and where the vapour pathway is the only exposure route being considered the risk is likely to be negligible.

IDG Reports will therefore state the applicable land-use scenario, and the SOM content adopted for the assessment. In general, the initial assessment **assumes a low soil organic matter content (1% SOM)** to ensure that the assessment is appropriately conservative. Where contaminant concentrations exceed the adopted GAC, site-specific assessment (for example applying measured SOM contents of soils or development site-specific exposure parameters) will be undertaken to further evaluate the risk. It should be noted that exceedance of GAC does not necessarily mean that remediation will be required.

Interpretation of Results

Prior to undertaking any comparison of soil contamination data, the issue of the averaging area requires further consideration. IDG consider that contamination across the entire site needs to be characterised by reference to the Conceptual Site Model. Consequently, IDG gather and analyse sample results by "soil type", or by former use in a given sub-area of the site, before undertaking statistical analysis; ie the averaging area is associated with the extent of a particular fill type, or an area affected by spillage\leakage rather than from within a specified depth below the site surface.

In terms of brownfield redevelopment, this is considered an appropriate methodology which provides a representative sample population for statistical analysis which allows for the necessary relocation of soils during site development works.

Should any of the GAC criteria detailed above be exceeded, then three possible courses of action could be considered. (The first is only applicable in terms of human health, but the second and third could also be applied to groundwater or landfill gas).

- Undertake further statistical analysis to determine whether contaminant concentrations of inorganic contaminants within soil\fill actually present a risk (only applicable to assessing the risk to human health).
- Based on a Generic Quantitative Risk Assessment, advocate an appropriate level of remediation to "break" the pollutant linkage - for example the removal/relocation of the contaminated materials or the provision of a clean cover.
- Carry out a more a Detailed Quantitative Risk Assessment in order to further assess the risk.

Controlled Waters Receptors

Where the environmental setting of a site is considered moderately or highly "sensitive" in respect of controlled waters (i.e where a pollutant linkage potentially exists to a controlled waters receptor) a risk assessment will be undertaken. This initially comprises comparison of soil-leachate or groundwater concentrations to the appropriate water quality standard. Depending upon the specific characteristics and environmental setting of the site the appropriate standard is likely to be one of the following:

- Water Supply (Water Quality) Regulations 1989

- Environmental Quality Standards: The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive)(England and Wales) Directions 2010.
- The Surface Waters (Abstraction for Drinking Water) Regulations

It is not possible to derive generic GAC values for controlled waters, because distance to the receptor, ground permeability and hydraulic gradient are key factors in the assessment, and both are extremely site-specific. As a consequence should groundwater or soil leachate concentrations exceed the adopted water quality standards in a site with moderate or high sensitivity, a detailed quantitative risk assessment may be required.

Phytotoxic Effects

With respect to the assessment of potential **phytotoxic effects** of contaminants, IDG refer to available publications relating to allowable concentrations of heavy metals (copper and zinc) in arable soils which have been set by the Department of Environment[i]. These values are detailed in the table below.

Allowable Concentrations of Heavy Metals in Arable Soils

Element	Limit According to pH of soil (mg/kg)			
	5.0 to <5.5	5.5 to <6.0	6.0 to 7.0	>7.0
Copper	80	100	135	200
Nickel	50	60	75	110
Zinc	200	200	200	300

IDG have reviewed the available data on Boron behaviour in soil, plant uptake and the relatively high precipitation rates typical in the UK. In the absence of any definitive value IDG have opted to be relatively conservative and have adopted a Boron Soil Screening Value of 5mg/kg. This value is considered protective of the majority of common landscape plants.

Hazardous Ground Gas

Tier 1 risk assessment of **hazardous gas** is undertaken through reference to the following documents:

- Approved Document C, Building Regulations 2000
- Boyle & Witherington (2007) – Guidance on evaluation on development proposals on sites where methane and carbon dioxide are present, incorporating “traffic lights”. Report Ref. 10627-R01-(02), for NHBC
- CIRIA C665 (2006) – Assessing risks posed by hazardous ground gases to buildings
- BS 8485:2007 – Code of Practice for the characterisation & remediation from ground gas in affected developments

Further information is presented in Generic Notes No. 5 – Hazardous Gas.

Waste Classification & WAC

Waste soils to be disposed off-site should be characterised by a general chemical testing for a broad suite to include pH, TOC, metals, speciated PAH and banded hydrocarbons. WAC testing is not required to characterise the waste. Chemical test result should be provided to the waste haulier and receiving landfill who will confirm the classification of the waste soils.

In the context of waste soils generated by remediation and\or groundwork activities on brownfield sites, the following definitions (from the Landfill Regulations 2002) apply:

- Inert (e.g. uncontaminated ‘natural’ soil, bricks, concrete, tiles & ceramics).

- Non-Hazardous (e.g. soil excavated from a contaminated site which contains dangerous substances, but at concentrations below prescribed thresholds).
- Hazardous (e.g. soil excavated from a contaminated site which contains dangerous substances at concentrations above prescribed thresholds).

Dangerous substances include compounds containing a variety of determinants commonly found in contaminated soils on brownfield sites, for example arsenic, lead, chromium, benzene etc.

From 16th July 2005, landfill operators require Waste Acceptance Criteria (WAC) laboratory data, should soil waste be classified as **hazardous**, and such waste must have been subjected to pre-treatment. However, subject to WAC testing it may be possible to classify it as stable, non-reactive hazardous waste, which can be placed within a dedicated cell within the non-hazardous landfill.

It should be noted that where non-hazardous waste is accepted at a non-hazardous landfill facility, WAC testing is not is required.

Should off-site disposal of soils classified as hazardous waste be undertaken during redevelopment, then WAC analysis should be scheduled at an early stage in the remediation programme.

However, organic compounds (BTEX, TPH, PAH etc) are the most common contaminants that result in soils being classed as hazardous. These contaminants can often be dealt with by alternative technologies (eg by bioremediation or stabilisation) and consequently retention on site is often possible.

Key References

Environment Agency (2008), "Evaluation of models for predicting plant uptake of chemicals from soil" Science Report – SC050021/SR.

Environment Agency (2008), "Human health toxicological assessment of contaminants in soil". Science Report – SR2.

Environment Agency (2009), "Updated Technical Background to the CLEA Model (as amended 2009)". Science Report - SC050021/SR3.

Environment Agency (2009), "CLEA Software (Version 1.05) Handbook". Science Report - SC050021/SR4.

"Guidance on Comparing Soil Contamination Data with a Critical Concentration". CL:AIRE and CIEH (May 2008).

CL:AIRE (2010), "Soil Generic Assessment Criteria for Human Health Risk Assessment".

CL:AIRE (2013), "Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. SP1010 Final Project Report.

DEFRA (2014), "Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination –. SP1010 Policy Companion Document.

Nathanial (*et. al.*) (2015). The LQM/S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.

Department of Environment (1996), “Code of Practice for Agricultural use of Sewage Sludge”.

Generic Notes – ID Geoenvironmental Investigations

5. Hazardous Gas

General

Hazardous gas is considered to be any mixture of potentially explosive, toxic or asphyxiating gases, most notably methane, carbon dioxide and oxygen (deficiency).

IDG Investigations are undertaken in accordance with the following Standards and Guidance:

- BS8576:2013 Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs).
- BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon-dioxide ground gases for new buildings.
- BS10175:2011 +A2-2017 Investigation of potentially contaminated sites – Code of practice.
- CIRIA C665 (2007) Assessing risks posed by hazardous ground gases to buildings.
- CIRIA C716 Remediating and mitigating risks from volatile organic compound (VOC) vapours from land affected by contamination.
- CIRIA 735 (2014) Good practice on the testing and verification of protection systems for buildings against hazardous ground gases.

In addition, radon, a naturally occurring radioactive gas is also considered. Further information about radon is included in Notes 1. – Environmental Setting.

At preliminary stage, the assessment of potential risks associated with hazardous gas are based on a review of data obtained from the Landmark Information Group/Groundsure Limited, and the Local Authority. Reference is also made to historical OS plans, which are inspected for evidence of backfilled quarries, railway cuttings, colliery spoil tips etc.

Sources

Potential sources of hazardous gas include:

- Landfill sites
- Made ground, especially where significant depths are present
- Shallow mineworkings associated with coal extraction
- Geological strata, including peat, organic silts, coal-bearing strata and limestone (reaction with acidic waters), granite (radon)
- Groundwater can sometimes act as a “carrier” for hazardous gas.
- Leakages from pipelines or storage tanks
- Sewers, septic tanks and cess pits

Generation

Wherever biodegradable material is deposited, landfill gas (principally a mixture of methane and carbon dioxide) is likely to be generated by microbial activity. Carbon dioxide is an asphyxiant and toxic; methane is

flammable and a mixture containing between 5% and 15% methane by volume in air is explosive. Landfill gas in the ground is unlikely in itself to pose a significant risk, though it may damage vegetation. However, infiltration of landfill gas into confined spaces (e.g. cellars, services, etc) may give rise to considerable risk.

There is no typical figure for the length of time that landfill gas will be evolved, but at many sites significant gas generation continues for at least 15 years after the last deposit of waste.

Migration

Gas migration from a landfill site may occur in several ways. It may migrate through adjacent strata; the distance of migration being dependent on the pressure gradients, volume of gas and permeability of the strata. Where there are faults, cavities and fissures within the strata, gas may move considerable distances. Other migration pathways for gas include man-made features such as mine shafts, roadways and underground services.

Gas migration is influenced by a number of climatic factors, such as atmospheric pressure variations, water table level variations and the influence of a covering of snow or ice over the surface of the site and surrounding area.

Gas Monitoring Procedure

IDG adopt a standard gas monitoring procedure. This procedure involves the measurement, in the following order of:

- Atmospheric temperature, pressure and ambient oxygen concentration on site immediately prior to and on completion of monitoring.
- Borehole gas emission rate.
- Methane, oxygen and carbon dioxide concentrations using an infra-red gas analyser.
- Standing water level using a dipmeter.

In addition, ground conditions at each sampling location are recorded together with prevailing weather conditions and any other observations such as any vandalism.

Where samples of gas are required for laboratory analysis, Gresham Tubes or Tedlar Bags are used. Gas concentrations in the well are typically recorded immediately before and after retrieval of a sample.

Monitoring Programme
The appropriate length of the monitoring programme is confirmed in accordance with BS8576:2013 (Figure 6).

Site Characterisation
Gas monitoring results are assessed in accordance with BS8485:2015.

Borehole gas flow rates (Q_{hg}) are calculated for each gas at borehole standpipe for each monitoring event. On completion of the monitoring programme a GSV is adopted for the site taking into account the monitoring data, conceptual model, hazardous gas source(s) and nature of pathway. Where the dataset is representative and comprehensive, the GSV should be at the maximum borehole Q_{hg} measured for all the monitoring events.

A worst case check (based on site wide highest flow rate and site wide highest gas concentration) should also be calculated for the site. The worst case Q_{hg} should be compared with the maximum borehole Q_{hg}.

Characteristic gas situation (CS) is determined using the Q_{hg} adopted for the site in accordance with BS8485:2015.

Table 1 – Characteristic Situation BS8485:2015

Characteristic Situation	GSV CH_4 or CO_2 (l/hr)	Additional limiting factors	Typical source of generation
1	<0.07	Typically <1% methane concentration and <5% carbon-dioxide concentration (otherwise consider and increase to CS2)	Natural soils with low organic content
2	<0.07 to <0.7	Typical measured flow rate <70 litre/hr)otherwise increase to Characteristic Situation 3)	Natural soil, high peat/organic content
3	0.7 to <3.5		Old landfill, inert waste, mineworking flooded.
4	3.5 to <15	Quantitative Risk Assessment required to evaluate scope of protection measures.	Mineworking – susceptible to flooding, completed landfill, inert waste (WMP 26B criteria)
5	15 to <70		Mineworking unflooded, inactive
6	>70		Recent landfill site

Notes:

Borehole flow rate = volume of gas (regardless of composition) which is escaping from well (l/hr).

Gas Screening Value (litre/hour) = gas concentration (%) / 100 x borehole flow rate (l/hr).

Gas protection measures

A minimum "Gas Protection Score" is allocated for new buildings at the site. This is based on the characteristic situation of the site and the proposed building type. Low rise residential properties are generally classed as "Type A" buildings, whilst managed residential apartments are classed as "Type B buildings".

The required gas protection measures, taking into account the proposed foundation and floor slab construction methods are selected to meet the required gas protection score. A combination of at least two of the following three types of gas protection measures are required to achieve the minimum gas protection score.

- The structural barrier of the floor slab, or of the basement slab and walls if a basement is present (Gas Protection Score 0-2.5).
- Ventilation measures (Gas Protection Score 0.5-4.0); and,
- Gas resistant membrane (Gas Protection Score 2). It is important to note that there are several requirements (including independent validation) that need to be fulfilled in order to achieve the score of 2.