

APPENDIX H - GROUNDSURE REPORT (AVAILABLE AS A SEPARATE DOCUMENT)

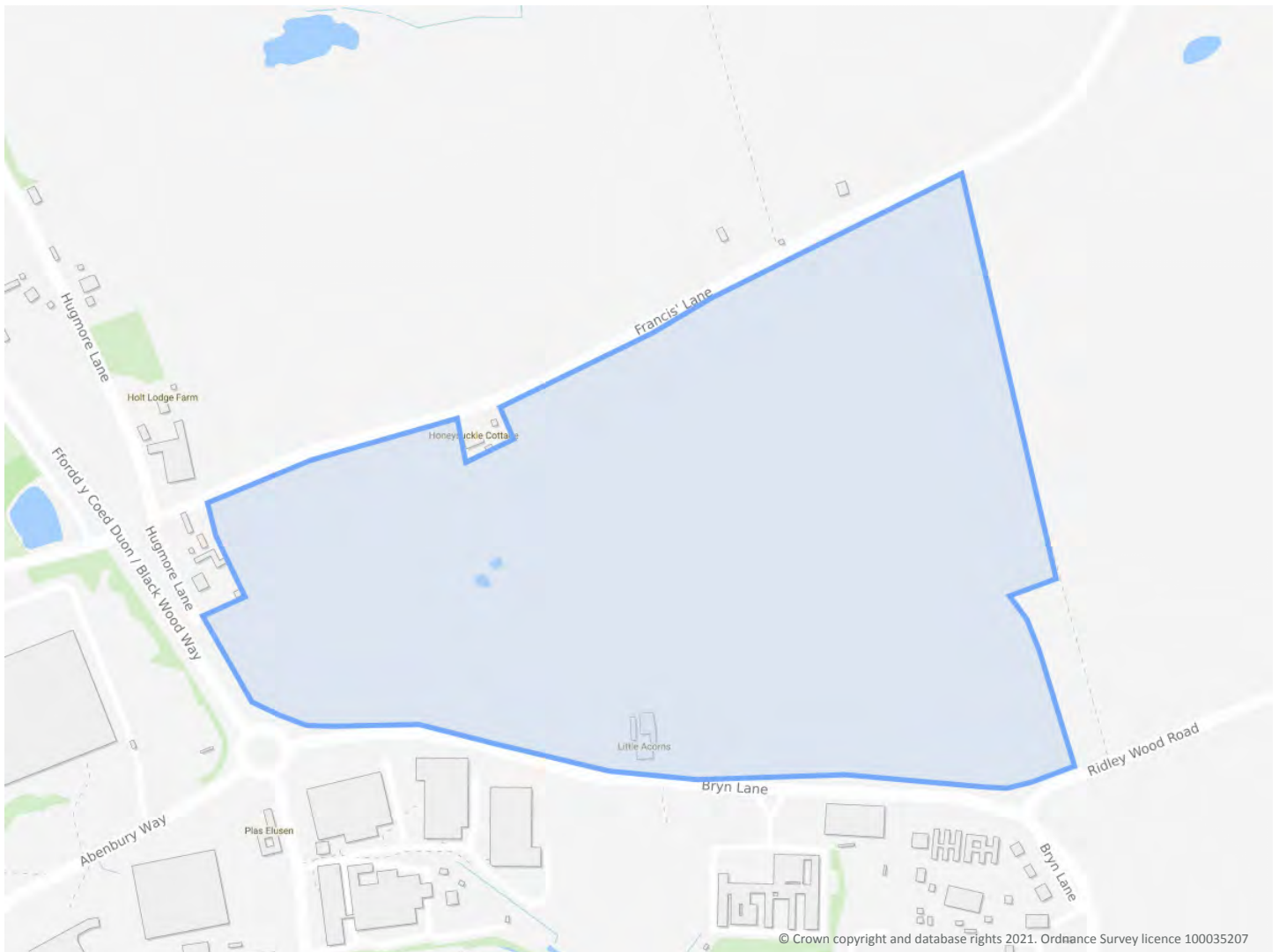
LAND NORTH OF BRYN LANE, WREXHAM INDUSTRIAL ESTATE, WREXHAM, LL13 9UT

Order Details

Date: 25/10/2021
Your ref: 1779_TE1624
Our Ref: GS-8287503
Client: Tier Environmental

Site Details

Location: 338541 351126
Area: 38.93 ha
Authority: [Wrexham - Wrexham County Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

N/A: >10ha

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	0	0	7	9	-
14	1.2	Historical tanks	0	0	16	14	-
16	1.3	Historical energy features	0	0	0	12	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
17	1.6	Historical military land	0	0	1	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	0	0	12	16	-
20	2.2	Historical tanks	0	0	61	31	-
23	2.3	Historical energy features	0	0	0	33	-
25	2.4	Historical petrol stations	0	0	0	0	-
25	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
26	3.1	Active or recent landfill	0	0	0	0	-
26	3.2	Historical landfill (BGS records)	0	0	0	0	-
27	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
27	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
27	3.5	Historical waste sites	0	0	0	0	-
27	3.6	Licensed waste sites	0	0	10	7	-
32	3.7	Waste exemptions	0	0	4	7	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
34	4.1	Recent industrial land uses	0	1	23	-	-
36	4.2	Current or recent petrol stations	0	0	0	1	-
36	4.3	Electricity cables	0	0	0	0	-
37	4.4	Gas pipelines	0	0	0	0	-
37	4.5	Sites determined as Contaminated Land	0	0	0	0	-



37	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
37	4.7	Regulated explosive sites	0	0	0	0	-
37	4.8	Hazardous substance storage/usage	0	0	0	0	-
38	4.9	<u>Historical licensed industrial activities (IPC)</u>	0	0	0	5	-
38	4.10	<u>Licensed industrial activities (Part A(1))</u>	0	0	4	30	-
44	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	1	9	-
46	4.12	Radioactive Substance Authorisations	0	0	0	0	-
46	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	0	9	-
47	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
47	4.15	Pollutant release to public sewer	0	0	0	0	-
48	4.16	List 1 Dangerous Substances	0	0	0	0	-
48	4.17	<u>List 2 Dangerous Substances</u>	0	0	0	1	-
48	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	2	3	-
49	4.19	Pollution inventory substances	0	0	0	0	-
49	4.20	Pollution inventory waste transfers	0	0	0	0	-
49	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
50	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
51	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
53	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
55	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
55	5.5	Groundwater vulnerability- local information	None (within 0m)				
56	5.6	<u>Groundwater abstractions</u>	0	0	1	0	15
60	5.7	<u>Surface water abstractions</u>	0	0	0	0	1
60	5.8	Potable abstractions	0	0	0	0	0
61	5.9	<u>Source Protection Zones</u>	2	0	0	0	-
61	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
62	6.1	<u>Water Network (OS MasterMap)</u>	0	0	11	-	-



63	6.2	<u>Surface water features</u>	1	0	9	-	-
64	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
64	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
65	6.5	<u>WFD Groundwater bodies</u>	2	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
66	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
66	7.2	Historical Flood Events	0	0	0	-	-
66	7.3	Flood Defences	0	0	0	-	-
67	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
67	7.5	Flood Storage Areas	0	0	0	-	-
68	7.6	Flood Zone 2	None (within 50m)				
68	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
69	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
71	9.1	<u>Groundwater flooding</u>	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
72	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
73	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
73	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
73	10.4	Special Protection Areas (SPA)	0	0	0	0	0
73	10.5	National Nature Reserves (NNR)	0	0	0	0	0
74	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
74	10.7	<u>Designated Ancient Woodland</u>	0	0	0	0	14
75	10.8	Biosphere Reserves	0	0	0	0	0
75	10.9	Forest Parks	0	0	0	0	0
75	10.10	Marine Conservation Zones	0	0	0	0	0
75	10.11	Green Belt	0	0	0	0	0
75	10.12	Proposed Ramsar sites	0	0	0	0	0



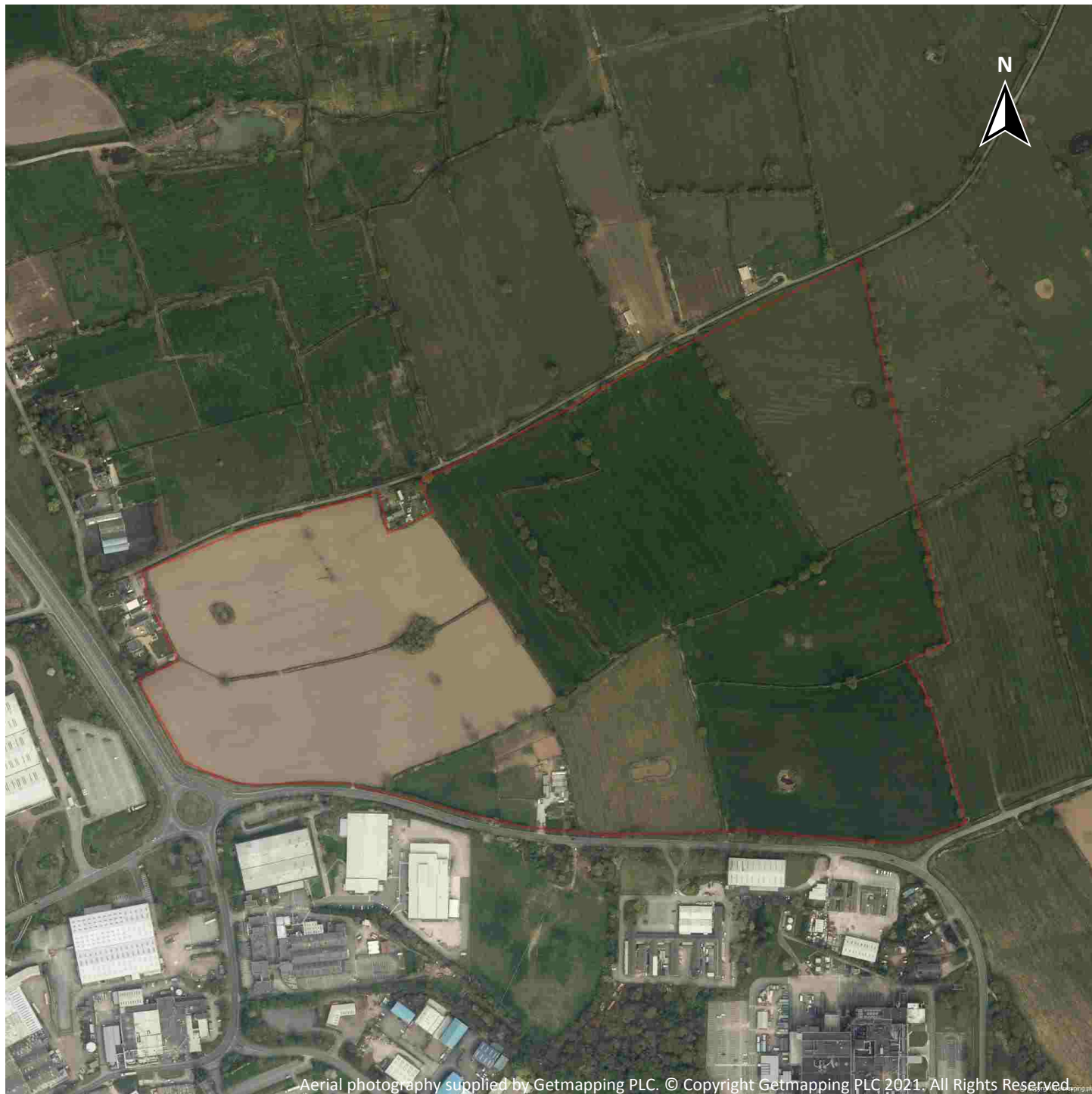
76	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
76	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
76	10.15	Nitrate Sensitive Areas	0	0	0	0	0
76	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
77	<u>10.17</u>	<u>SSSI Impact Risk Zones</u>	2	-	-	-	-
78	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
79	11.1	World Heritage Sites	0	0	0	-	-
80	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
80	11.3	National Parks	0	0	0	-	-
80	<u>11.4</u>	<u>Listed Buildings</u>	0	0	1	-	-
81	11.5	Conservation Areas	0	0	0	-	-
81	11.6	Scheduled Ancient Monuments	0	0	0	-	-
81	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
82	<u>12.1</u>	<u>Agricultural Land Classification</u>	Grade 3a (within 250m)				
83	12.2	Open Access Land	0	0	0	-	-
83	12.3	Tree Felling Licences	0	0	0	-	-
83	12.4	Environmental Stewardship Schemes	0	0	0	-	-
83	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
84	13.1	Priority Habitat Inventory	0	0	0	-	-
84	13.2	Habitat Networks	0	0	0	-	-
84	13.3	Open Mosaic Habitat	0	0	0	-	-
84	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
85	<u>14.1</u>	<u>10k Availability</u>	Identified (within 500m)				
86	<u>14.2</u>	<u>Artificial and made ground (10k)</u>	0	1	1	1	-
87	<u>14.3</u>	<u>Superficial geology (10k)</u>	1	0	0	0	-

88	14.4	Landslip (10k)	0	0	0	0	-
89	14.5	<u>Bedrock geology (10k)</u>	2	0	1	0	-
90	14.6	<u>Bedrock faults and other linear features (10k)</u>	1	0	1	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
91	15.1	<u>50k Availability</u>	Identified (within 500m)				
92	15.2	<u>Artificial and made ground (50k)</u>	1	0	0	1	-
93	15.3	<u>Artificial ground permeability (50k)</u>	1	0	-	-	-
94	15.4	<u>Superficial geology (50k)</u>	2	0	0	0	-
95	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
95	15.6	Landslip (50k)	0	0	0	0	-
95	15.7	Landslip permeability (50k)	None (within 50m)				
96	15.8	<u>Bedrock geology (50k)</u>	4	0	1	0	-
97	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
97	15.10	<u>Bedrock faults and other linear features (50k)</u>	2	0	1	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
98	16.1	<u>BGS Boreholes</u>	0	5	25	-	-
Page	Section	Natural ground subsidence					
101	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
102	17.2	<u>Running sands</u>	Very low (within 50m)				
104	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
105	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
106	17.5	<u>Landslides</u>	Very low (within 50m)				
107	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
109	18.1	Natural cavities	0	0	0	0	-
110	18.2	BritPits	0	0	0	0	-
110	18.3	<u>Surface ground workings</u>	29	6	37	-	-
113	18.4	Underground workings	0	0	0	0	0
113	18.5	Historical Mineral Planning Areas	0	0	0	0	-



113	18.6	Non-coal mining	0	0	0	0	0
113	18.7	Mining cavities	0	0	0	0	0
113	18.8	JPB mining areas	None (within 0m)				
114	18.9	<u>Coal mining</u>	Identified (within 0m)				
114	18.10	Brine areas	None (within 0m)				
114	18.11	Gypsum areas	None (within 0m)				
114	18.12	Tin mining	None (within 0m)				
114	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
115	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
116	20.1	<u>BGS Estimated Background Soil Chemistry</u>	11	2	-	-	-
117	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
117	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
118	21.1	Underground railways (London)	0	0	0	-	-
118	21.2	Underground railways (Non-London)	0	0	0	-	-
119	21.3	Railway tunnels	0	0	0	-	-
119	21.4	<u>Historical railway and tunnel features</u>	0	0	4	-	-
119	21.5	Royal Mail tunnels	0	0	0	-	-
120	21.6	Historical railways	0	0	0	-	-
120	21.7	Railways	0	0	0	-	-
120	21.8	Crossrail 1	0	0	0	0	-
120	21.9	Crossrail 2	0	0	0	0	-
120	21.10	HS2	0	0	0	0	-

Recent aerial photograph



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Capture Date: 10/04/2020

Site Area: 38.93ha



Recent site history - 2017 aerial photograph



Capture Date: 07/05/2017

Site Area: 38.93ha

Recent site history - 2009 aerial photograph



Capture Date: 11/05/2009

Site Area: 38.93ha



Recent site history - 2003 aerial photograph



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Capture Date: 04/08/2003

Site Area: 38.93ha

Recent site history - 2000 aerial photograph



Capture Date: 04/09/2000

Site Area: 38.93ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical military land

1.1 Historical industrial land uses

Records within 500m

16

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	94m S	Unspecified Tanks	1982 - 1992	966840



ID	Location	Land use	Dates present	Group ID
1	102m S	Telecomm Exchange	1982 - 1992	933845
C	173m S	Unspecified Tanks	1982 - 1992	875572
D	225m S	Railway Sidings	1960 - 1968	935833
D	230m S	Railway Sidings	1949	880775
4	246m SW	Unspecified Tanks	1949	814860
5	247m S	Unspecified Heap	1960 - 1968	958224
6	279m SW	Railway Sidings	1949	870067
7	318m SW	Railway Sidings	1960 - 1968	945208
8	318m S	Industrial Estate	1982	844626
9	356m S	Unspecified Commercial/Industrial	1949	796408
D	408m S	Railway Buildings	1960 - 1968	984437
D	423m S	Railway Building	1960 - 1968	913474
11	425m S	Unspecified Pit	1960 - 1982	914267
D	438m S	Unspecified Tanks	1992	814864
16	479m S	Unspecified Heap	1960 - 1982	900352

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

30

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	94m S	Tanks	1982 - 1991	125438
A	95m S	Tanks	1993 - 1995	128131
A	97m S	Tanks	1989	104984



ID	Location	Land use	Dates present	Group ID
B	160m S	Unspecified Tank	1982 - 1990	146089
B	160m S	Unspecified Tank	1974 - 1991	132233
B	161m S	Unspecified Tank	1993 - 1995	127145
C	170m S	Tanks	1982 - 1990	128028
C	170m S	Tanks	1993 - 1995	138886
C	171m S	Unspecified Tank	1974 - 1991	122911
C	180m S	Tanks	1982 - 1990	138225
C	185m S	Tanks	1991	126604
C	195m S	Tanks	1993 - 1995	127752
C	195m S	Tanks	1982 - 1991	144889
3	218m S	Tanks	1987	104983
E	248m S	Unspecified Tank	1974 - 1991	130673
E	249m S	Unspecified Tank	1993 - 1995	136940
E	263m S	Tanks	1989	140200
F	394m S	Tanks	1960	104982
F	400m S	Tanks	1960	104981
D	426m S	Tanks	1987 - 1989	138288
D	431m S	Tanks	1989 - 1990	148016
D	432m S	Tanks	1991	148576
D	432m S	Tanks	1993 - 1995	146317
12	436m SW	Unspecified Tank	1982 - 1999	147396
D	442m S	Tanks	1991	147597
D	450m S	Tanks	1991	128946
D	463m S	Unspecified Tank	1982	110678
D	463m S	Tanks	1993 - 1995	124731
D	464m S	Tanks	1991	142622
D	465m S	Tanks	1993 - 1995	136561

This data is sourced from Ordnance Survey / Groundsure.



1.3 Historical energy features

Records within 500m

12

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
10	375m S	Electricity Substation	1991 - 1995	84681
13	452m S	Electricity Substation	1974 - 1995	68827
14	469m SW	Electricity Substation	1982 - 1988	81255
15	476m SW	Electricity Substation	1982 - 1999	67486
D	491m S	Electricity Substation	1989	78303
D	492m S	Electricity Substation	1990	67055
D	492m S	Electricity Substation	1990	74971
D	492m S	Electricity Substation	1989	76207
D	498m S	Electricity Substation	1982 - 1987	66128
D	498m S	Electricity Substation	1993	67655
D	498m S	Electricity Substation	1995	75403
D	498m S	Electricity Substation	1994	83333

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



1.5 Historical garages

Records within 500m

0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

1

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

Features are displayed on the Past land use map on **page 13**

ID	Location	Site Name	Date of Operation	Activities
2	190m S	ROF Wrexham	c.1938 - 1988	c. WW2: Produced cordite;; post WW2: Cordite production ceased in 1945 and the area was used as an industrial estate by the Welsh Development Agency to boost the local economy; Explosives Factory

This data is sourced from Ordnance Survey / Groundsure / other sources.



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

2.1 Historical industrial land uses

Records within 500m

28

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	94m S	Unspecified Tanks	1992	966840
A	94m S	Unspecified Tanks	1982	966840
B	102m S	Telecomm Exchange	1992	933845

ID	Location	Land Use	Date	Group ID
B	102m S	Telecomm Exchange	1982	933845
D	173m S	Unspecified Tanks	1992	875572
D	173m S	Unspecified Tanks	1982	875572
E	225m S	Railway Sidings	1960	935833
E	225m S	Railway Sidings	1968	935833
E	230m S	Railway Sidings	1949	880775
2	246m SW	Unspecified Tanks	1949	814860
F	247m S	Unspecified Heap	1960	958224
F	247m S	Unspecified Heap	1968	958224
3	279m SW	Railway Sidings	1949	870067
H	318m SW	Railway Sidings	1960	945208
H	318m SW	Railway Sidings	1968	945208
4	318m S	Industrial Estate	1982	844626
5	356m S	Unspecified Commercial/Industrial	1949	796408
E	408m S	Railway Buildings	1960	984437
E	408m S	Railway Buildings	1968	984437
E	423m S	Railway Building	1960	913474
E	423m S	Railway Building	1968	913474
K	425m S	Unspecified Pit	1982	914267
K	425m S	Unspecified Pit	1960	914267
K	425m S	Unspecified Pit	1968	914267
E	438m S	Unspecified Tanks	1992	814864
P	479m S	Unspecified Heap	1982	900352
P	479m S	Unspecified Heap	1960	900352
P	479m S	Unspecified Heap	1968	900352

This data is sourced from Ordnance Survey / Groundsure.



2.2 Historical tanks

Records within 500m

92

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	94m S	Tanks	1982	125438
A	94m S	Tanks	1987	125438
A	94m S	Tanks	1989	125438
A	94m S	Tanks	1990	125438
A	94m S	Tanks	1990	125438
A	95m S	Tanks	1991	125438
A	95m S	Tanks	1993	128131
A	95m S	Tanks	1995	128131
A	95m S	Tanks	1994	128131
A	97m S	Tanks	1989	104984
C	160m S	Unspecified Tank	1982	146089
C	160m S	Unspecified Tank	1987	146089
C	160m S	Unspecified Tank	1989	146089
C	160m S	Unspecified Tank	1989	146089
C	160m S	Unspecified Tank	1990	146089
C	160m S	Unspecified Tank	1990	146089
C	160m S	Unspecified Tank	1991	132233
C	160m S	Unspecified Tank	1974	132233
C	161m S	Unspecified Tank	1993	127145
C	161m S	Unspecified Tank	1995	127145
C	161m S	Unspecified Tank	1994	127145
D	170m S	Tanks	1982	128028
D	170m S	Tanks	1987	128028



ID	Location	Land Use	Date	Group ID
D	170m S	Tanks	1989	128028
D	170m S	Tanks	1989	128028
D	170m S	Tanks	1990	128028
D	170m S	Tanks	1990	128028
D	170m S	Tanks	1993	138886
D	170m S	Tanks	1995	138886
D	170m S	Tanks	1994	138886
D	171m S	Unspecified Tank	1991	122911
D	171m S	Unspecified Tank	1974	122911
D	180m S	Tanks	1982	138225
D	180m S	Tanks	1987	138225
D	180m S	Tanks	1989	138225
D	180m S	Tanks	1989	138225
D	180m S	Tanks	1990	138225
D	180m S	Tanks	1990	138225
D	185m S	Tanks	1991	126604
D	195m S	Tanks	1993	127752
D	195m S	Tanks	1995	127752
D	195m S	Tanks	1994	127752
D	195m S	Tanks	1982	144889
D	195m S	Tanks	1987	144889
D	195m S	Tanks	1989	144889
D	195m S	Tanks	1989	144889
D	195m S	Tanks	1990	144889
D	195m S	Tanks	1990	144889
D	196m S	Tanks	1991	144889
1	218m S	Tanks	1987	104983
G	248m S	Unspecified Tank	1982	130673

ID	Location	Land Use	Date	Group ID
G	248m S	Unspecified Tank	1987	130673
G	248m S	Unspecified Tank	1989	130673
G	248m S	Unspecified Tank	1989	130673
G	248m S	Unspecified Tank	1990	130673
G	248m S	Unspecified Tank	1990	130673
G	249m S	Unspecified Tank	1991	130673
G	249m S	Unspecified Tank	1974	130673
G	249m S	Unspecified Tank	1993	136940
G	249m S	Unspecified Tank	1995	136940
G	249m S	Unspecified Tank	1994	136940
G	263m S	Tanks	1989	140200
G	263m S	Tanks	1989	140200
J	394m S	Tanks	1960	104982
J	400m S	Tanks	1960	104981
E	426m S	Tanks	1987	138288
E	426m S	Tanks	1989	138288
E	431m S	Tanks	1989	148016
E	431m S	Tanks	1990	148016
E	431m S	Tanks	1990	148016
E	432m S	Tanks	1991	148576
E	432m S	Tanks	1993	146317
E	432m S	Tanks	1995	146317
E	432m S	Tanks	1994	146317
L	436m SW	Unspecified Tank	1994	147396
L	436m SW	Unspecified Tank	1999	147396
L	436m SW	Unspecified Tank	1995	147396
L	436m SW	Unspecified Tank	1995	147396
L	437m SW	Unspecified Tank	1982	147396

ID	Location	Land Use	Date	Group ID
L	437m SW	Unspecified Tank	1988	147396
L	437m SW	Unspecified Tank	1990	147396
L	437m SW	Unspecified Tank	1990	147396
E	442m S	Tanks	1991	147597
E	450m S	Tanks	1991	128946
E	463m S	Unspecified Tank	1982	110678
E	463m S	Tanks	1993	124731
E	463m S	Tanks	1995	124731
E	463m S	Tanks	1994	124731
E	464m S	Tanks	1991	142622
E	465m S	Tanks	1993	136561
E	465m S	Tanks	1995	136561
E	465m S	Tanks	1994	136561

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

33

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
I	375m S	Electricity Substation	1991	84681
I	376m S	Electricity Substation	1993	84681
I	376m S	Electricity Substation	1995	84681
I	376m S	Electricity Substation	1994	84681
M	452m S	Electricity Substation	1993	68827
M	452m S	Electricity Substation	1995	68827
M	452m S	Electricity Substation	1994	68827



ID	Location	Land Use	Date	Group ID
M	452m S	Electricity Substation	1991	68827
M	452m S	Electricity Substation	1974	68827
M	453m S	Electricity Substation	1982	68827
M	453m S	Electricity Substation	1987	68827
M	453m S	Electricity Substation	1989	68827
M	453m S	Electricity Substation	1989	68827
M	453m S	Electricity Substation	1990	68827
N	469m SW	Electricity Substation	1982	81255
N	469m SW	Electricity Substation	1988	81255
O	476m SW	Electricity Substation	1994	67486
O	476m SW	Electricity Substation	1999	67486
O	476m SW	Electricity Substation	1995	67486
O	476m SW	Electricity Substation	1995	67486
O	478m SW	Electricity Substation	1982	67486
O	478m SW	Electricity Substation	1988	67486
O	478m SW	Electricity Substation	1990	67486
O	478m SW	Electricity Substation	1990	67486
E	491m S	Electricity Substation	1989	78303
E	492m S	Electricity Substation	1989	76207
E	492m S	Electricity Substation	1990	74971
E	492m S	Electricity Substation	1990	67055
E	498m S	Electricity Substation	1982	66128
E	498m S	Electricity Substation	1987	66128
E	498m S	Electricity Substation	1993	67655
E	498m S	Electricity Substation	1995	75403
E	498m S	Electricity Substation	1994	83333

This data is sourced from Ordnance Survey / Groundsure.



2.4 Historical petrol stations

Records within 500m**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

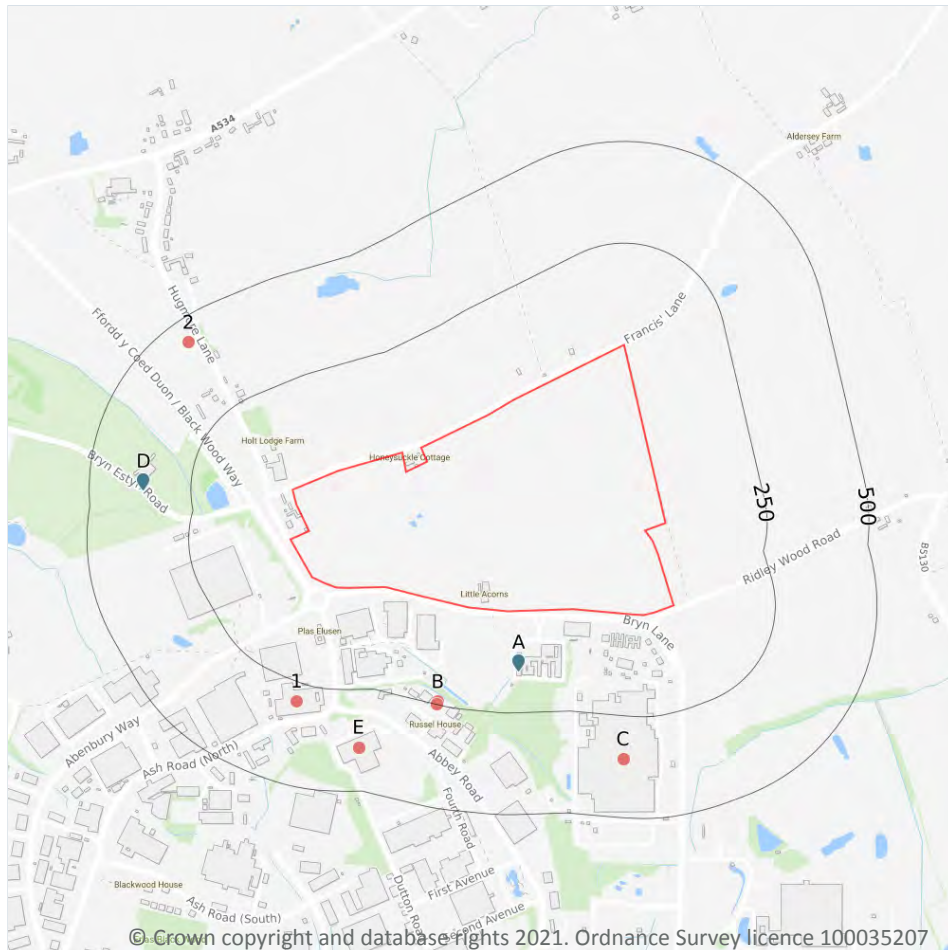
Records within 500m**0**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Licensed waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m

0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m

17

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 26**

ID	Location	Details		
A	127m S	Site Name: Bryn Lane Composting Facility Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Composting Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: ZP3795ER/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 22/08/2012 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Modified

ID	Location	Details		
A	128m S	Site Name: Bryn Lane Waste Recycling And Composting Facility Site Address: Land/ Premises At, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: EA/EPR/ZP3795ER/V004 Operator: Waste Recycling Ltd Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 05/05/2011 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Wrexham, LL13 9UT Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 0 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	128m S	Site Name: Bryn Lane Waste Recycling And Composting Facility Site Address: Land/ Premises At, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: ZP3795ER/V002 Operator: Waste Recycling Group Ltd Waste Management licence No: 100079 Annual Tonnage: 0	Issue Date: 27/11/2007 Effective Date: - Modified: 16/04/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
A	128m S	Site Name: Bryn Lane Composting Facility Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: ZP3795ER/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 22/08/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified



ID	Location	Details		
A	128m S	Site Name: Bryn Lane Composting Facility Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: EA/EPR/ZP3795ER/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 22/08/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: - Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: -	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Clwyd, Wrexham, Wrexham, LL13 9UT Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective



ID	Location	Details		
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: Clays Site Site Address: Clays Site, Bryn Estyn Road, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: LEW037 EPR reference: XP3691EG/A001 Operator: Clays Farm Golf Centre Limited Waste Management licence No: 102738 Annual Tonnage: 0	Issue Date: 05/10/2011 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
D	367m W	Site Name: Clays Site Site Address: Clays Site, Bryn Estyn Road, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LEW037 EPR reference: EA/EPR/XP3691EG/A001 Operator: Clays Farm Golf Centre Limited Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/10/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Wrexham, Wrexham, LL13 9UB Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: Clays Farm Golf Centre Limited Waste Management licence No: 0 Annual Tonnage: 99999	Issue Date: 05/10/2011 Effective Date: 05/10/2011 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective



ID	Location	Details		
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: - Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/01/2018 Effective Date: 05/01/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: - Site Address: Clays Site, Bryn Estyn Rd, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Deposit of waste to land as a recovery operation Size: - Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: William Lewis Waste Management licence No: 102738 Annual Tonnage: -	Issue Date: 21/02/2019 Effective Date: 21/02/2019 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Clwyd, Wrexham, Wrexham, LL13 9UB Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: William Lewis Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/01/2018 Effective Date: 05/01/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: William Lewis Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/01/2018 Effective Date: 05/01/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

This data is sourced from the Environment Agency and Natural Resources Wales.



3.7 Waste exemptions

Records within 500m

11

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 26**

ID	Location	Site	Reference	Category	Sub-Category	Description
B	244m S	DRAGON HYDRAULICS, Unit 3 Abbey Road North, Wrexham Industrial Estate, WREXHAM, LL13 9RX	WEX125151	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	250m S	-	WEX264851	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	250m S	Rodens Hall, Isycoed, Wrexham, Wrecsam, LL13 9RX	NRW-WME001936	Using waste exemption	Waste Exemption - Agricultural	Use of waste derived biodiesel as fuel
B	250m S	Rodens Hall, Isycoed, Wrexham, Wrecsam, LL13 9RX	NRW-WME001936	Storing waste exemption	Waste Exemption - Non-Agricultural	Storage of sludge
1	297m S	Trans Continental A C UK Ltd, Ash Road North, Wrexham Industrial Estate, Wrexham, Wrecsam, LL13 9UF	NRW-WME046393	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
C	358m S	Allied Fire Alarms & Escapes Co Ltd, Allied House Bryn Lane, Wrexham Industrial Estate, WREXHAM, Wrexham, LL13 9UT	NRW-WME046506	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	358m S	Allied Fire Alarms & Escapes Co Ltd, Allied House Bryn Lane, Wrexham Industrial Estate, WREXHAM, Wrexham, LL13 9UT	NRW-WME046506	Storing waste exemption	Not on a farm	Storage of waste in secure containers
E	394m S	AST Plastic Containers UK LLP, Unit 1, Abbey Road, Wrexham Industrial Estate, Wrexham, Wrecsam, LL13 9RF	NRW-WME061390	Storing waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Storage of waste in a secure place

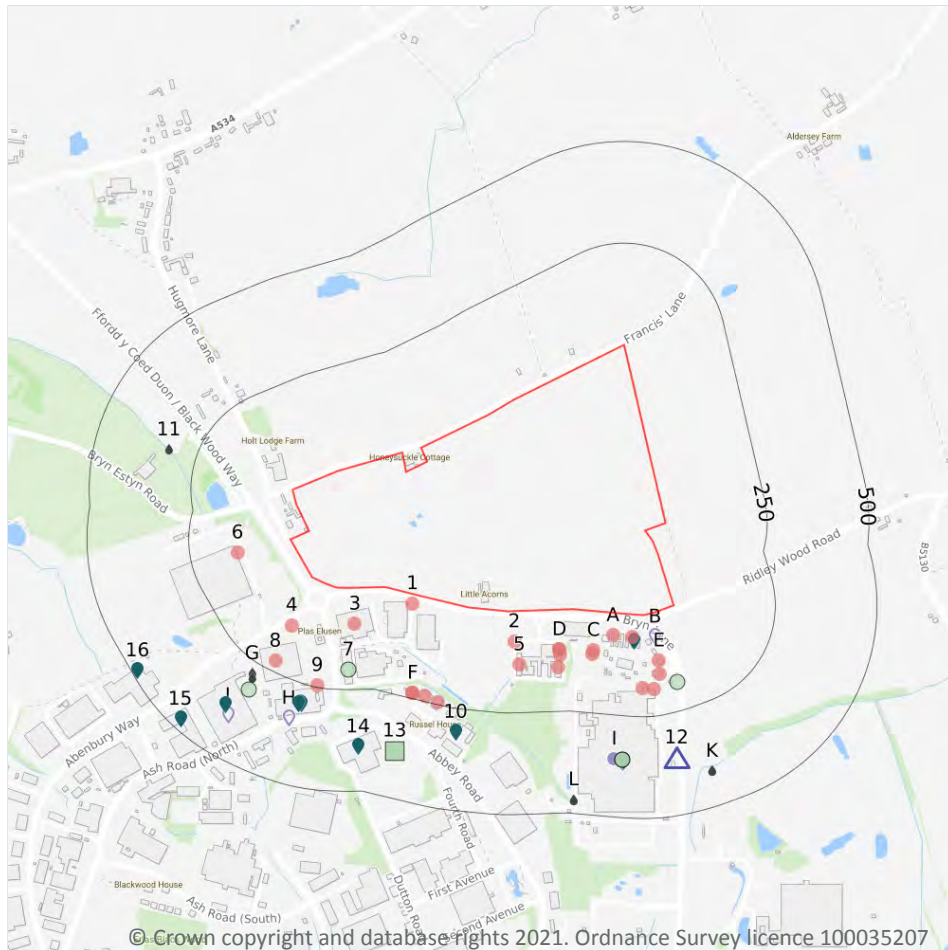


ID	Location	Site	Reference	Category	Sub-Category	Description
E	394m S	AST Plastic Containers UK LLP, Unit 1, Abbey Road, Wrexham Industrial Estate, Wrexham, Wreccsam, LL13 9RF	NRW-WME061390	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Cleaning, washing, spraying or coating relevant waste
E	394m S	AST Plastic Containers UK LLP, Unit 1, Abbey Road, Wrexham Industrial Estate, Wrexham, Wreccsam, LL13 9RF	NRW-WME061390	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Preparatory treatments (baling, sorting, shredding etc)
2	443m NW	DCWW, Rodens Hall Farm, Bowling Bank, Wrexham, Wreccsam, LL13 9RS	NRW-WME054232	Storing waste exemption	Not on a farm	Storage of sludge

This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Historical licensed industrial activities
- ◇ Part A(1) industrial activities
- Licensed pollutant release (Part A(2)/B)
- Licensed Discharges to controlled waters
- List 2 Dangerous Substances
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

24

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Activity	Category
1	23m S	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
A	56m S	Main Man Supplies	Unit 1 Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Special Purpose Machinery and Equipment	Industrial Products

ID	Location	Company	Address	Activity	Category
A	56m S	Electromec Ltd	Unit 5 Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Electrical and Electronic Engineers	Engineering Services
2	75m S	Bryn Business Centre	Clwyd, LL13	Business Parks and Industrial Estates	Industrial Features
3	89m S	Wockhardt UK Ltd	ASH ROAD NORTH, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UF	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
C	96m S	Tank	Clwyd, LL13	Tanks (Generic)	Industrial Features
D	98m S	Aspull Engineering	Kellogs Site Bryn Business Centre, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Industrial Engineers	Engineering Services
D	98m S	Air Covers	Unit E, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Aviation Engineers	Engineering Services
C	105m S	Tank	Clwyd, LL13	Tanks (Generic)	Industrial Features
D	112m S	Wellpecs Ltd	Unit H1 Bryn Business Centre, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Electrical and Electronic Engineers	Engineering Services
E	117m S	Grafters Ltd	Unit 6, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Recycling, Reclamation and Disposal	Recycling Services
4	128m SW	Gas Governor	Clwyd, LL13	Gas Features	Infrastructure and Facilities
5	131m S	Dacta Ltd	Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Educational Equipment and Supplies	Industrial Products
6	134m W	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
D	140m S	A M Industrial Supplies	Unit J2 Bryn Business Centre, Bryn Lane, Wrexham, Clwyd, LL13 9UT	General Purpose Machinery	Industrial Products
E	149m S	Telephone Exchange	Clwyd, LL13	Telecommunications Features	Infrastructure and Facilities
E	179m S	Chimney	Clwyd, LL13	Chimneys	Industrial Features
E	183m S	Chimney	Clwyd, LL13	Chimneys	Industrial Features



ID	Location	Company	Address	Activity	Category
8	225m SW	J C B Drivetrain Systems	Unit 1, Ash Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JT	Engines	Industrial Products
F	236m S	Relabelled	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	Office and Shop Equipment	Industrial Products
F	236m S	Kids Direct Ltd	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	Published Goods	Industrial Products
F	237m S	A & S Jones	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	General Construction Supplies	Industrial Products
9	244m S	Tank	Clwyd, LL13	Tanks (Generic)	Industrial Features
F	245m S	Jami Q's	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	Textiles, Fabrics, Silk and Machinery	Industrial Products

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1
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Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	LPG	Status
12	359m S	CERTAS ENERGY	Bryn Lane, Wrexham Industrial Estate, Wrexham, Wrexham, LL13 9UT	No	Non-Retail

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0
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High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m**0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

5

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Details	
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Other Mineral Fibres Permit Number: AG1425	Original Permit Number: IPCAIRAPP Date Approved: 8-4-1993 Effective Date: 8-4-1993 Status: Superseded By Variation
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Manufacture And Use Of Organic Chemicals Permit Number: AK5407	Original Permit Number: IPCAPP Date Approved: 18-2-1994 Effective Date: 28-2-1994 Status: Superseded By Variation
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Other Mineral Fibres Permit Number: BC5539	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Manufacture And Use Of Organic Chemicals Permit Number: BC6713	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Revoked
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Other Mineral Fibres Permit Number: BG0342	Original Permit Number: IPCMINVAR Date Approved: 21-9-2001 Effective Date: 15-10-2001 Status: Revoked

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m

34

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**



ID	Location	Details	
B	58m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 09/11/2005 Effective Date: 09/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	58m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 09/11/2005 Effective Date: 09/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	58m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 09/11/2005 Effective Date: 09/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	58m S	Operator: KELLOGG CO (GB) LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; ON SITE EFFLUENT TREATMENT PLANT DISCHARGING =>300 M CUBED PER DAY Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/04/2005 Status: DETERMINATION
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: PRODUCING PLANT HEALTH PRODUCTS OR BIOCIDES Permit Number: SP3030LZ Original Permit Number: JP3038HV	EPR Reference: - Issue Date: 19/12/2012 Effective Date: 19/12/2012 Last date noted as effective: 26/10/2020 Status: EFFECTIVE
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: - Permit Number: SP3030LZ Original Permit Number: JP3038HV	EPR Reference: - Issue Date: 19/12/2012 Effective Date: 19/12/2012 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: PRODUCING PHARMACEUTICAL PRODUCTS Permit Number: SP3030LZ Original Permit Number: JP3038HV	EPR Reference: - Issue Date: 13/02/2019 Effective Date: 13/02/2019 Last date noted as effective: 01/07/2021 Status: EFFECTIVE



ID	Location	Details	
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL EPR/SP3030LZ Process: PLANT HEALTH AND BIOCIDES; PRODUCING PLANT HEALTH PRODUCTS/BIOCIDES Permit Number: JP3038HV Original Permit Number: SP3030LZ	EPR Reference: - Issue Date: 19/12/2012 Effective Date: 19/12/2012 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: PLANT HEALTH AND BIOCIDES; PRODUCING PLANT HEALTH PRODUCTS/BIOCIDES Permit Number: SP3030LZ Original Permit Number: SP3030LZ	EPR Reference: - Issue Date: 04/12/2006 Effective Date: 04/12/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: COMBUSTION; ANY FUEL =>50MW Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING BIOLOGICAL TREATMENT Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: KP3135LW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 05/05/2006 Effective Date: 05/05/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: KP3135LW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 05/05/2006 Effective Date: 05/05/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED



ID	Location	Details	
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: KP3135LW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 05/05/2006 Effective Date: 05/05/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: VP3832KF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 23/03/2010 Effective Date: 23/03/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: VP3832KF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 23/03/2010 Effective Date: 23/03/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: VP3832KF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 23/03/2010 Effective Date: 23/03/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: VP3935CF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 19/04/2012 Effective Date: 19/04/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: VP3935CF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 19/04/2012 Effective Date: 19/04/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: VP3935CF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 19/04/2012 Effective Date: 19/04/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW... Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE

ID	Location	Details	
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW... Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW... Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: CREATED BY IED - DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING BIOLOGICAL TREATMENT Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 01/07/2013 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: DISPOSAL OF NON-HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 50 TONNES PER DAY (OR 100 TONNES PER DAY IF THE ONLY WASTE TREATMENT ACTIVITY IS ANAEROBIC DIGESTION) INVOLVING ONE OR MORE OF THE FOLLOWING ACTIVITIES, AND EXCLUDING ACTIVITIES COVERED BY COUNCIL DIRECTIVE 91/271/EEC CONCERNING URBAN WASTE-WATER TREATMENT(4)?BIOLOGICAL TREATMENT Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: - Permit Number: BV8016ID Original Permit Number: -	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/04/2017 Status: DULY MADE

ID	Location	Details	
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW MATERIALS, WHETHER PREVIOUSLY PROCESSED OR UNPROCESSED, INTENDED FOR THE PRODUCTION OF FOOD OR FEED (WHERE THE WEIGHT OF THE FINISHED PRODUCT EXCLUDES PACKAGING)? ONLY VEGETABLE RAW MATERIALS WITH A FINISHED PRODUCT PRODUCTION CAPACITY GREATER THAN 300 TONNES PER DAY OR 600 TONNES PER DAY WHERE THE INSTALLATION OPERATES FOR A PERIOD OF NO MORE THAN 90 CONSECUTIVE DAYS IN ANY YEAR Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: BURNING ANY FUEL IN AN APPLIANCE WITH A RATED THERMAL INPUT OF 50 OR MORE MEGAWATTS Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: UNLESS FALLING WITHIN PART A2 OF THIS SECTION, SURFACE TREATING METALS AND PLAST... Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: UNLESS FALLING WITHIN PART A2 OF THIS SECTION, SURFACE TREATING METALS AND PLAST... Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: - Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/04/2017 Status: ISSUED



ID	Location	Details	
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: DISPOSAL OF NON-HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 50 TONNES PER DAY (OR 100 TONNES PER DAY IF THE ONLY WASTE TREATMENT ACTIVITY IS ANAEROBIC DIGESTION) INVOLVING ONE OR MORE OF THE FOLLOWING ACTIVITIES, AND EXCLUDING ACTIVITIES COVERED BY COUNCIL DIRECTIVE 91/271/EEC CONCERNING URBAN WASTE-WATER TREATMENT(4)?PHYSICO-CHEMICAL TREATMENT Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: UNLESS FALLING WITHIN PART A(2) OF THIS SECTION, SURFACE TREATING METALS AND PLASTIC MATERIALS USING AN ELECTROLYTIC OR CHEMICAL PROCESS WHERE THE AGGREGATED VOLUME OF THE TREATMENT VATS IS MORE THAN 30M3 Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/07/2021 Status: EFFECTIVE

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m

10

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
A	66m S	Orchid Laundry & Dry Cleaning Ltd, Unit 6, Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, LL13 9UT	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
H	296m S	Coveris, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Current Permit Permit Type: Part B/A2	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.



ID	Location	Address	Details	
H	298m S	Intelicoat Technologies, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
H	300m S	Exopack Advanced Coatings, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Historical Permit Permit Type: Part A2	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
10	307m S	Petcor Limited, Unit A4 and A6 Abbey Road, Redwither Buisness Park, Wrexham, LL13 9XG	Process: Animal Feed Compound Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
I	359m S	Kellogg Company of Great Britain Ltd, Bryn Lane, Wrexham Industrial Estate, Wrexham, LL13 9UT	Process: Combustion & Incineration Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
J	379m SW	JCB Transmissions, Unit 4, Abenbury Way, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
14	390m S	Hoya Lens UK Ltd, Fourth Road, Wrexham Industrial Estate, Wrexham, LL13 9UA	Process: Surface Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
15	476m SW	Caparo Wire Ltd, PO Box 87, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9JT	Process: Surface Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: Enforcement Notified Date of enforcement: 30/03/2006 Comment: Wood processing
16	486m SW	Waste Oil Burners, Unit 3 Abenbury Way, Wrexham Industrial Estate, Wrexham, LL13 9US	Process: Timber Manufacture Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.

This data is sourced from Local Authority records.



4.12 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m

9

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
G	278m SW	JCB TRANSMISSIONS LTD WREXHAM IND E, JCB TRANSMISSIONS LTD WREXHAM IN, WREXHAM IND ESTATE WREXHAM, WREXHAM	Effluent Type: UNSPECIFIED Permit Number: CM0097602 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF DEE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 25/07/1984 Effective Date: 25/07/1984 Revocation Date: 14/07/1994
G	287m SW	JCB TRANSMISSIONS LTD WREXHAM IND E, JCB TRANSMISSIONS LTD WREXHAM IN, WREXHAM IND ESTATE WREXHAM, WREXHAM	Effluent Type: UNSPECIFIED Permit Number: CM0097601 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF DEE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 25/07/1984 Effective Date: 25/07/1984 Revocation Date: 09/03/1993
11	320m W	BRYN VILLA, HUGMORE LANE, LLANYPWLL, WREXHAM, WALES, LL13 9YE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: CG0447601 Permit Version: 1 Receiving Water: UNNAMED WATERCOURSE	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY Issue date: 01/09/2006 Effective Date: 01/12/2006 Revocation Date: -
K	414m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0083601 Permit Version: 1 Receiving Water: UNNAMED TRIB OF RIVER DEE	Status: REVOKED - UNSPECIFIED Issue date: 08/02/1978 Effective Date: 08/02/1978 Revocation Date: 29/09/1985
K	414m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0083601 Permit Version: 3 Receiving Water: UNNAMED TRIB OF RIVER DEE	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 06/07/1994 Effective Date: 06/07/1994 Revocation Date: 09/11/2005

ID	Location	Address	Details	
K	414m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0083601 Permit Version: 2 Receiving Water: UNNAMED TRIB OF RIVER DEE	Status: REVOKED - UNSPECIFIED Issue date: 30/09/1985 Effective Date: 30/09/1985 Revocation Date: 05/07/1994
L	465m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: UNSPECIFIED Permit Number: CM0097401 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF DEE	Status: REVOKED - UNSPECIFIED Issue date: 16/05/1984 Effective Date: 16/05/1984 Revocation Date: 29/09/1985
L	465m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: UNSPECIFIED Permit Number: CM0097401 Permit Version: 2 Receiving Water: UN-NAMED TRIB. OF DEE	Status: REVOKED - UNSPECIFIED Issue date: 16/05/1984 Effective Date: 30/09/1985 Revocation Date: 05/07/1994
L	465m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0097401 Permit Version: 3 Receiving Water: UN-NAMED TRIB. OF DEE	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 06/07/1994 Effective Date: 06/07/1994 Revocation Date: 09/11/2005

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.



4.16 List 1 Dangerous Substances

Records within 500m

0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m

1

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Name	Status	Receiving Water	Authorised Substances
13	385m S	Hoya Lens Uk Ltd (new Factory) Abbey Road, Wrexham Ind Est	Not Active	-	Chromium, Copper, Lead, Nickel, Zinc

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m

5

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Details	
E	179m S	Incident Date: 30/04/2015 Incident Identification: 1333634 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	201m S	Incident Date: 19/12/2013 Incident Identification: 1184930 Pollutant: Inorganic Chemicals/Products Pollutant Description: Other Inorganic Chemical or Product	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
G	317m SW	Incident Date: 25/07/2003 Incident Identification: 176604 Pollutant: Oils and Fuel Pollutant Description: Cutting Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Location	Details	
I	358m S	Incident Date: 08/01/2014 Incident Identification: 1191799 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
I	358m S	Incident Date: 07/02/2014 Incident Identification: 1202822 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0
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The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0
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The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

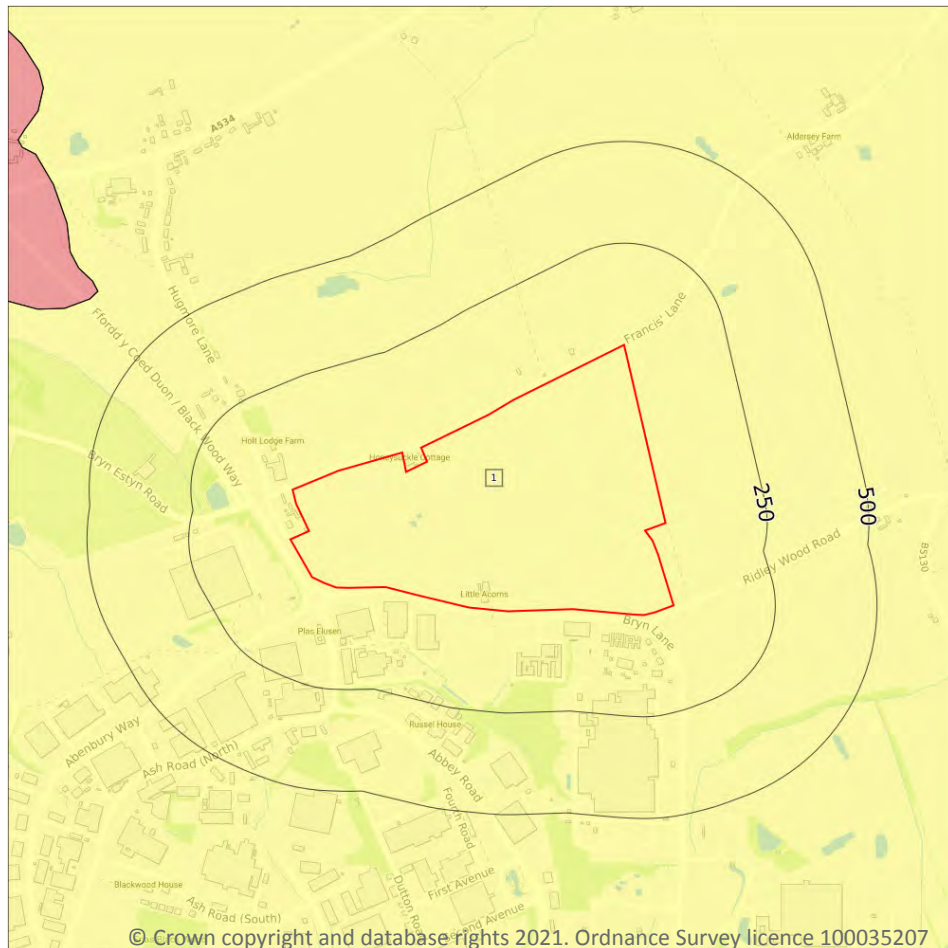
4.21 Pollution inventory radioactive waste

Records within 500m	0
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The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

1

Aquifer status of groundwater held within superficial geology.

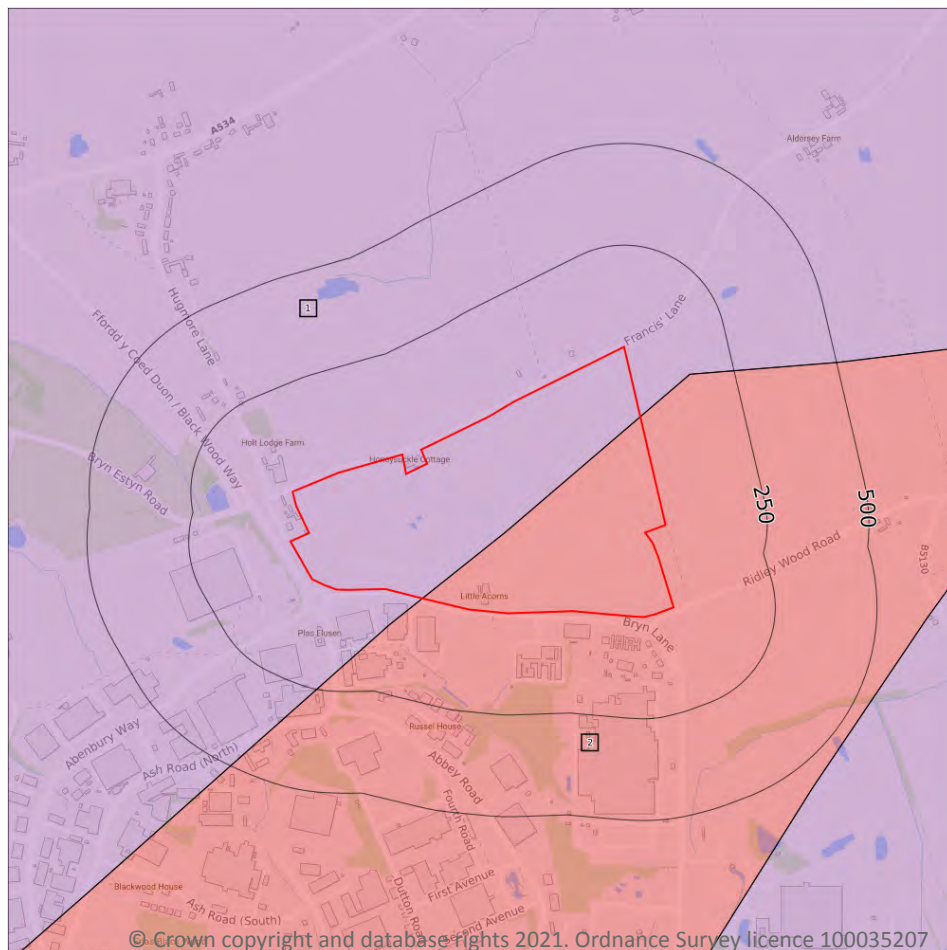
Features are displayed on the Hydrogeology map on **page 50**

ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 51**

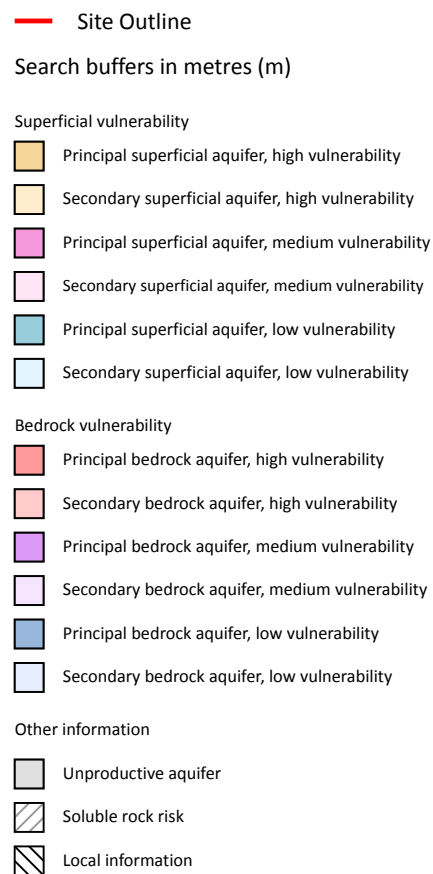
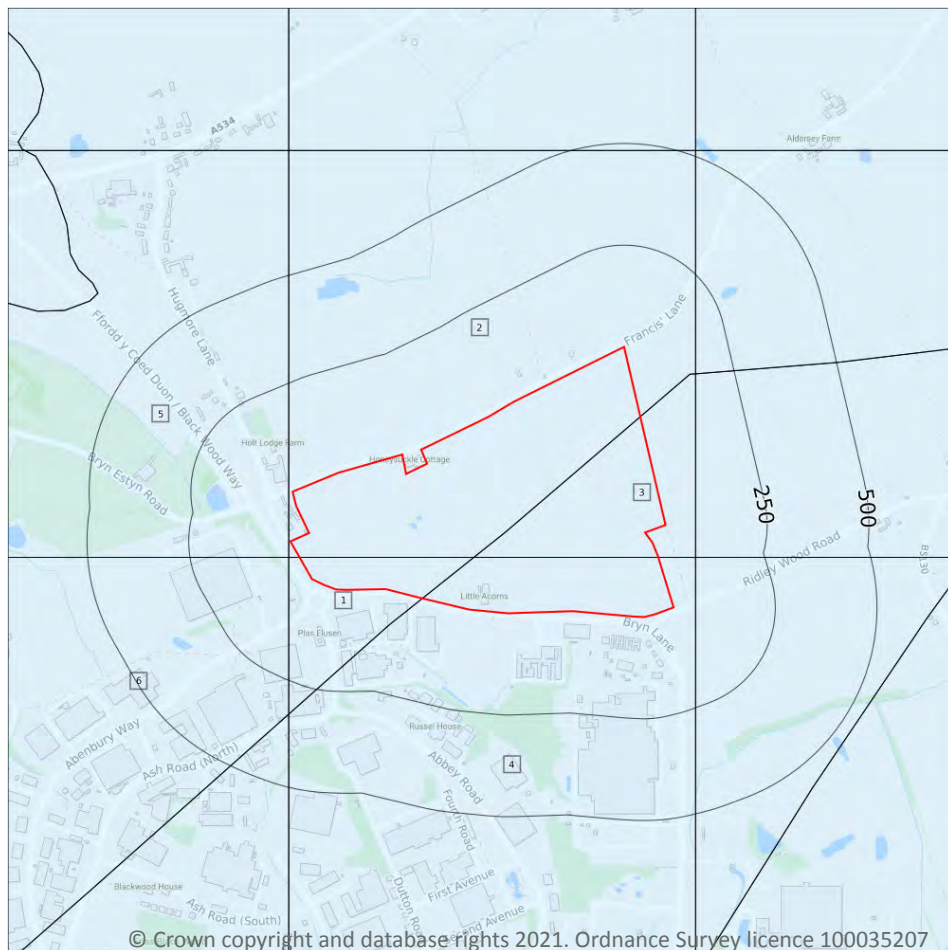
ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	On site	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



This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

6

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 53**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
5	4m W	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Intergranular
6	23m SW	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

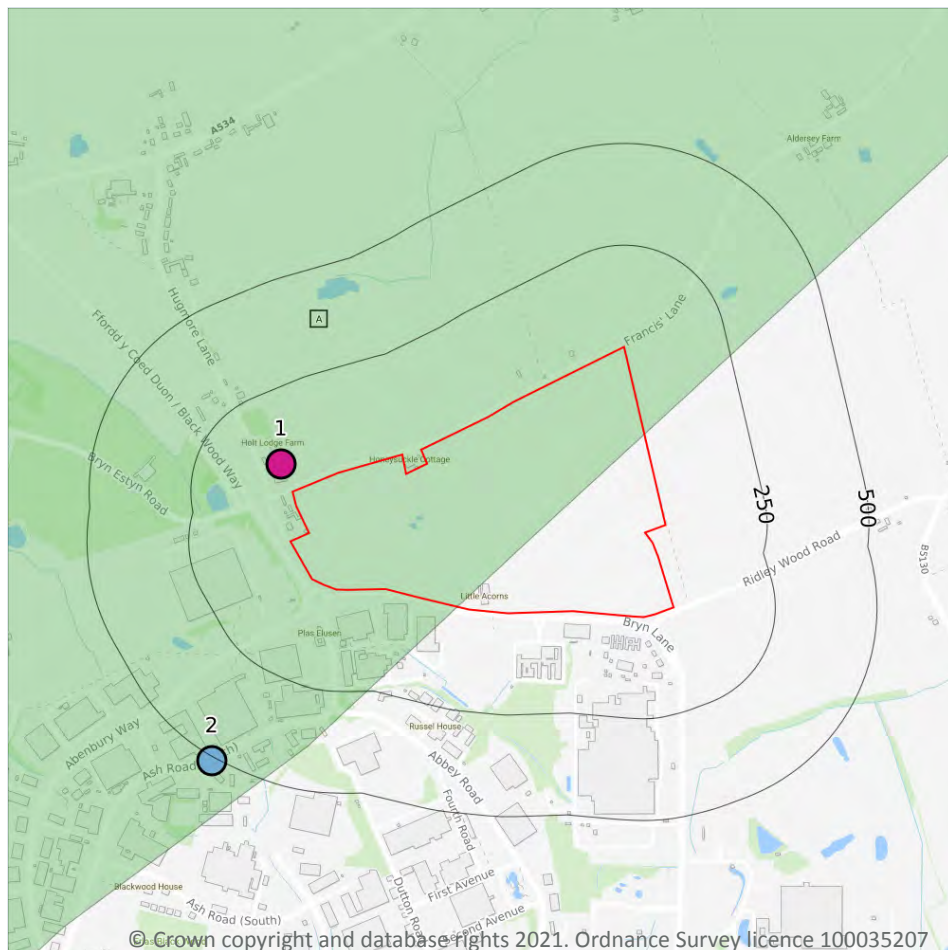
Records on site

0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

16

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Details	
1	74m NW	Status: Historical Licence No: 24/67/9/0130 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL Data Type: Point Name: Taylor Easting: 337980 Northing: 351230	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 14/06/1968 Expiry Date: - Issue No: 100 Version Start Date: 14/06/1968 Version End Date: -
-	1457m NW	Status: Historical Licence No: 24/67/7/0197 Details: Mineral Washing Direct Source: EAW Groundwater Point: BOREHOLE Data Type: Point Name: Lafarge Tarmac Trading Limited Easting: 336870 Northing: 352070	Annual Volume (m ³): 195180 Max Daily Volume (m ³): 533.28 Original Application No: - Original Start Date: 25/08/1982 Expiry Date: - Issue No: 103 Version Start Date: 27/03/2014 Version End Date: -
-	1457m NW	Status: Active Licence No: 24/67/7/0197 Details: Mineral Washing - Low Direct Source: Carboniferous strata at Llan y Pwll, Wrexham Point: - Data Type: Point Name: - Easting: 336870 Northing: 352070	Annual Volume (m ³): 195,180 Max Daily Volume (m ³): 533.28 Original Application No: - Original Start Date: 2019-03-22 00:00:00.0000000 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1480m E	Status: Historical Licence No: 24/67/7/0171 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: BOREHOLE Data Type: Point Name: Davies Easting: 340410 Northing: 350660	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/01/1969 Expiry Date: - Issue No: 100 Version Start Date: 31/01/1994 Version End Date: -
-	1488m E	Status: Historical Licence No: 24/67/7/0107 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL Data Type: Point Name: Evans Easting: 340420 Northing: 350670	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/10/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/10/1966 Version End Date: -



ID	Location	Details	
-	1681m S	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144 M DEEP, 200MM DIA BH AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338360 Northing: 349190	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -
-	1681m S	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144 M DEEP, 200MM DIA BH AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338360 Northing: 349190	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -
-	1692m S	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: SPECTRUM BUSINESS PARK BOREHOLE AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338350 Northing: 349180	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -
-	1793m S	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -
-	1793m S	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -

ID	Location	Details	
-	1793m S	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -
-	1947m E	Status: Historical Licence No: 24/67/7/0095 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: BOREHOLE Data Type: Point Name: Rigby Easting: 340870 Northing: 350580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/10/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/10/1966 Version End Date: -
-	1948m S	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -
-	1948m S	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -
-	1948m S	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -



ID	Location	Details	
-	1948m S	Status: Active Licence No: WA/067/0007/006 Details: Process Water - Medium Direct Source: Underground strata Point: - Data Type: Point Name: - Easting: 338190 Northing: 348940	Annual Volume (m ³): 131,400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 2016-10-02 00:00:00.0000000 Expiry Date: 2027-03-30 00:00:00.0000000 Issue No: - Version Start Date: - Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	1
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Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Details	
2	510m SW	Status: Historical Licence No: 24/67/7/0178 Details: Non-Evaporative Cooling Direct Source: EAW Surface Water Point: TRIBUTARY OF REDWITHER BROOK Data Type: Point Name: Caparo Wire Ltd Easting: 337810 Northing: 350500	Annual Volume (m ³): 9955.74 Max Daily Volume (m ³): 27.276 Original Application No: - Original Start Date: 12/05/1972 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2007 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0
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Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m**2**

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Type	Description
A	On site	3	Total catchment
A	On site	3	Total catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

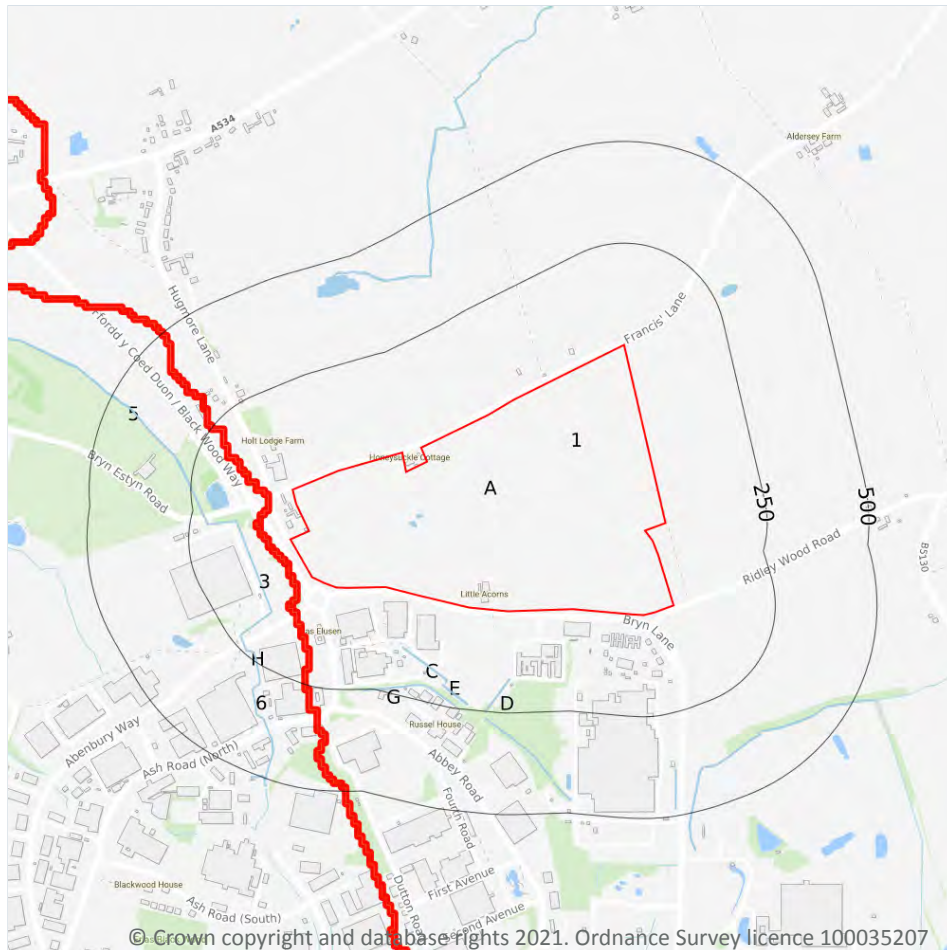
Records within 500m**0**

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.



6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

11

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type of water feature	Ground level	Permanence	Name
3	107m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
C	133m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	166m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	182m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	212m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	212m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	212m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	220m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	224m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	233m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	234m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

10

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 62**



This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River WB catchment	Dee - Chester Weir to Ceiriog	GB111067057080	Dee Lower Chester Weir to Ceiriog	Dee

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2756m NE	River	Dee - Chester Weir to Ceiriog	GB111067057080	Moderate	Fail	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.



6.5 WFD Groundwater bodies

Records on site

2

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Dee Permo-Triassic Sandstone	GB41101G202400	Good	Good	Good	2015
A	On site	Dee Permo-Triassic Sandstone	GB41101G202400	Good	Good	Good	2016

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m**0**

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m**0**

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m**0**

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.



7.4 Areas Benefiting from Flood Defences

Records within 250m

0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m

0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0
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Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

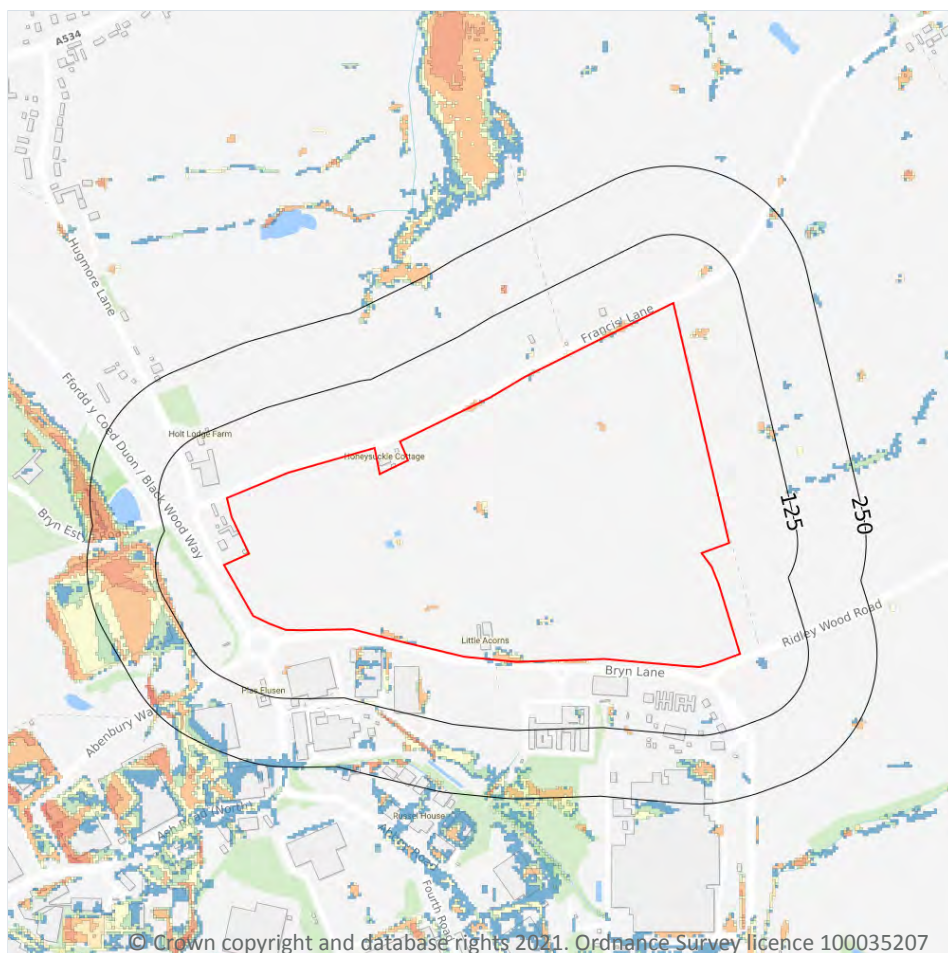
Records within 50m	0
--------------------	---

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 69**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

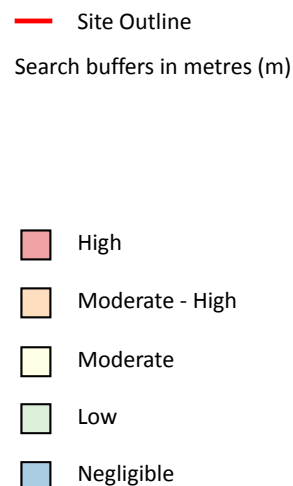
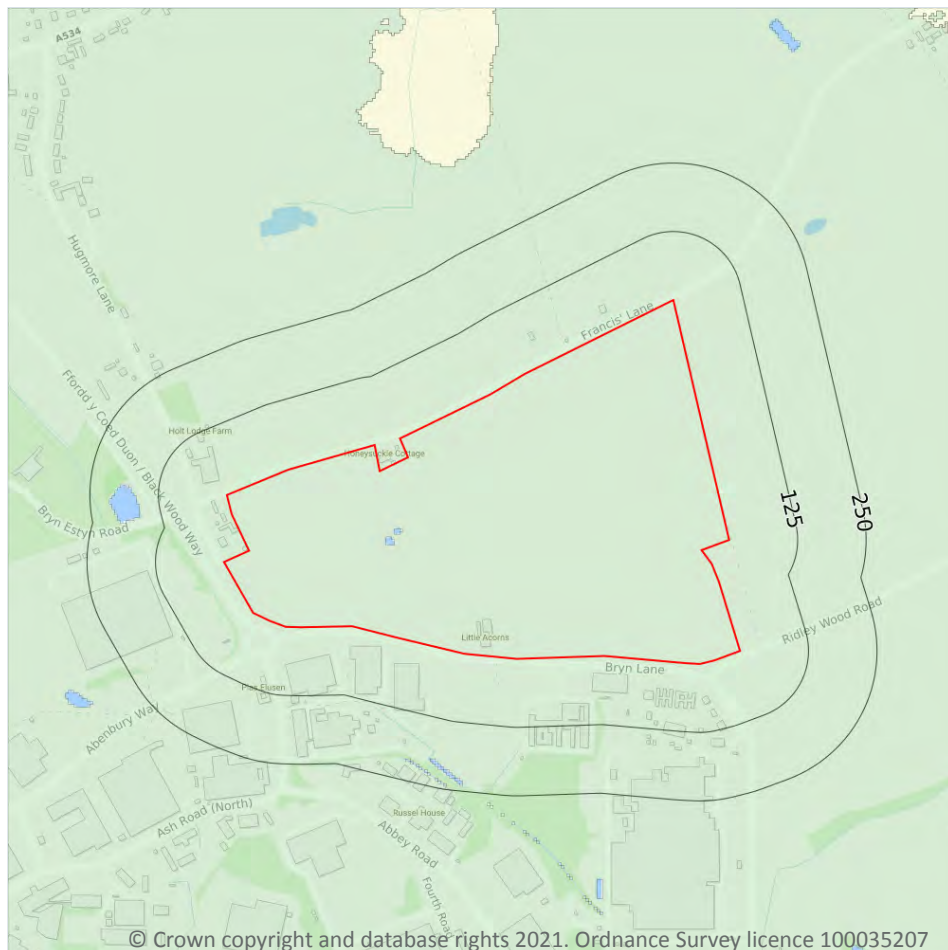
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Low

Highest risk within 50m

Low

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 71**

This data is sourced from Ambiantal Risk Analytics.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m

0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m

14

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 72**

ID	Location	Name	Woodland Type
1	826m W	Unknown	Restored Ancient Woodland Site
A	882m S	Unknown	Restored Ancient Woodland Site
A	884m S	Unknown	Restored Ancient Woodland Site
2	1023m W	Unknown	Ancient Semi Natural Woodland
3	1340m N	Unknown	Ancient Semi Natural Woodland
4	1376m SW	Unknown	Ancient Semi Natural Woodland
5	1415m N	Unknown	Ancient Semi Natural Woodland
B	1641m N	Unknown	Ancient Woodland Site of Unknown Category
-	1646m S	Unknown	Ancient Semi Natural Woodland
B	1649m N	Unknown	Ancient Woodland Site of Unknown Category
-	1691m NW	Unknown	Ancient Semi Natural Woodland
-	1755m W	Unknown	Ancient Semi Natural Woodland
9	1761m NW	Unknown	Ancient Semi Natural Woodland
-	1985m SW	Unknown	Ancient Semi Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



10.8 Biosphere Reserves

Records within 2000m

0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m

0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m

0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m

0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m

0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m**0**

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m**0**

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m**0**

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

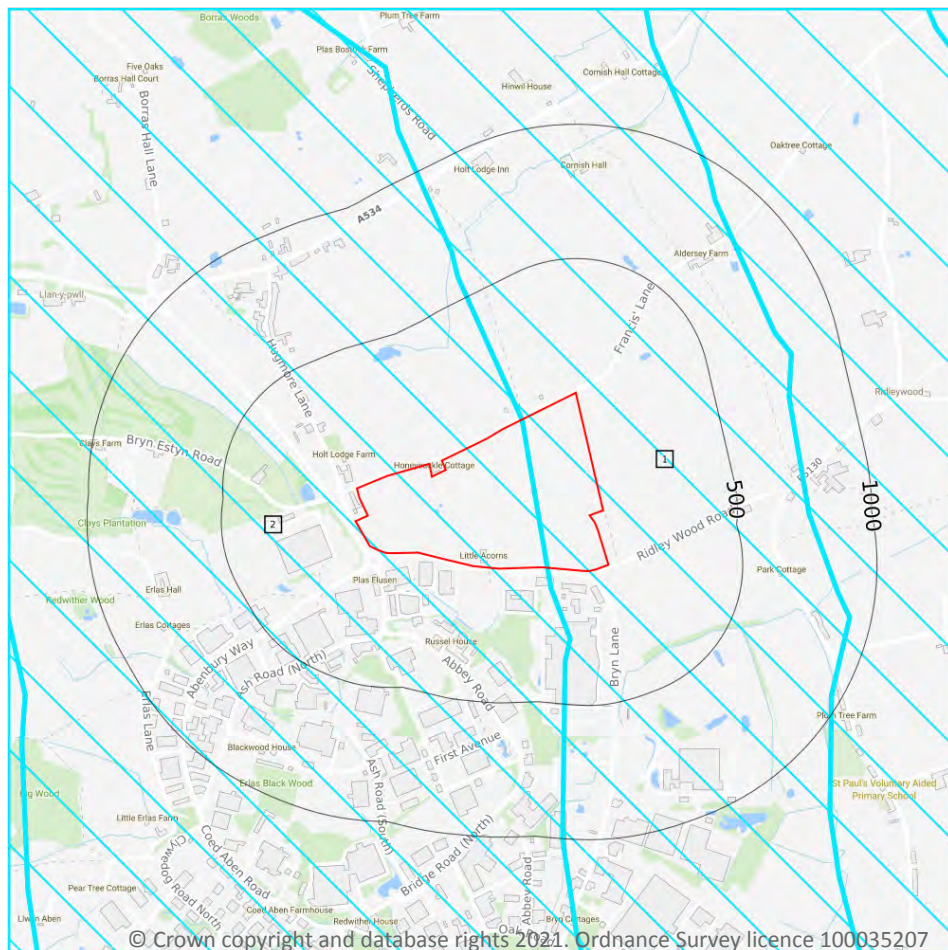
10.16 Nitrate Vulnerable Zones

Records within 2000m**0**

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

2

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 77**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t) Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion
2	On site	Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t) Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

1

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 79**

ID	Location	Name	Grade	Reference Number	Listed date
1	120m NW	New Holt Lodge Farm, Situated At Crossroads Where Hugmore Lane Meets Francis' Lane And Brynestyn Road	II	1541	09/06/1952

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m**0**

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m**0**

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m**0**

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

2

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 82**

ID	Location	Classification	Description
2	On site	Grade 3b	Moderate quality agricultural land
3	23m SW	Grade 3a	Good to moderate quality agricultural land

This data is sourced from Natural Resources Wales.



12.2 Open Access Land

Records within 250m

0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m

0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m**0**

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m**0**

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m**0**

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

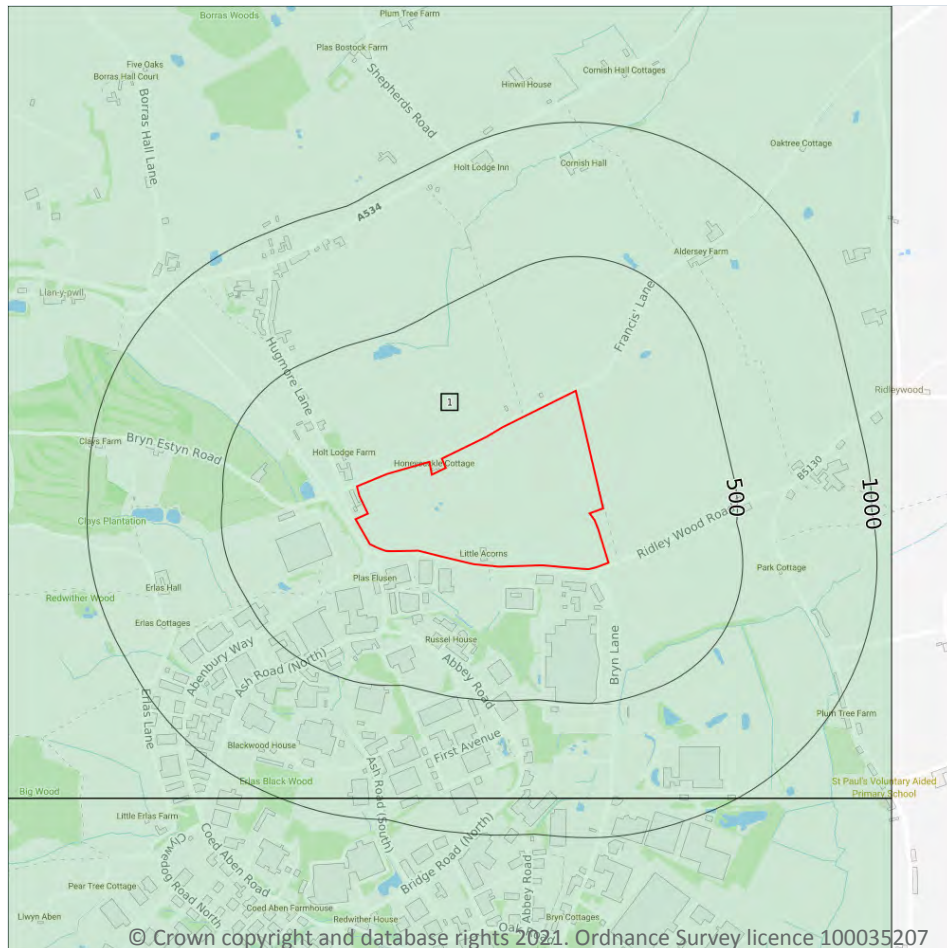
Records within 250m**0**

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

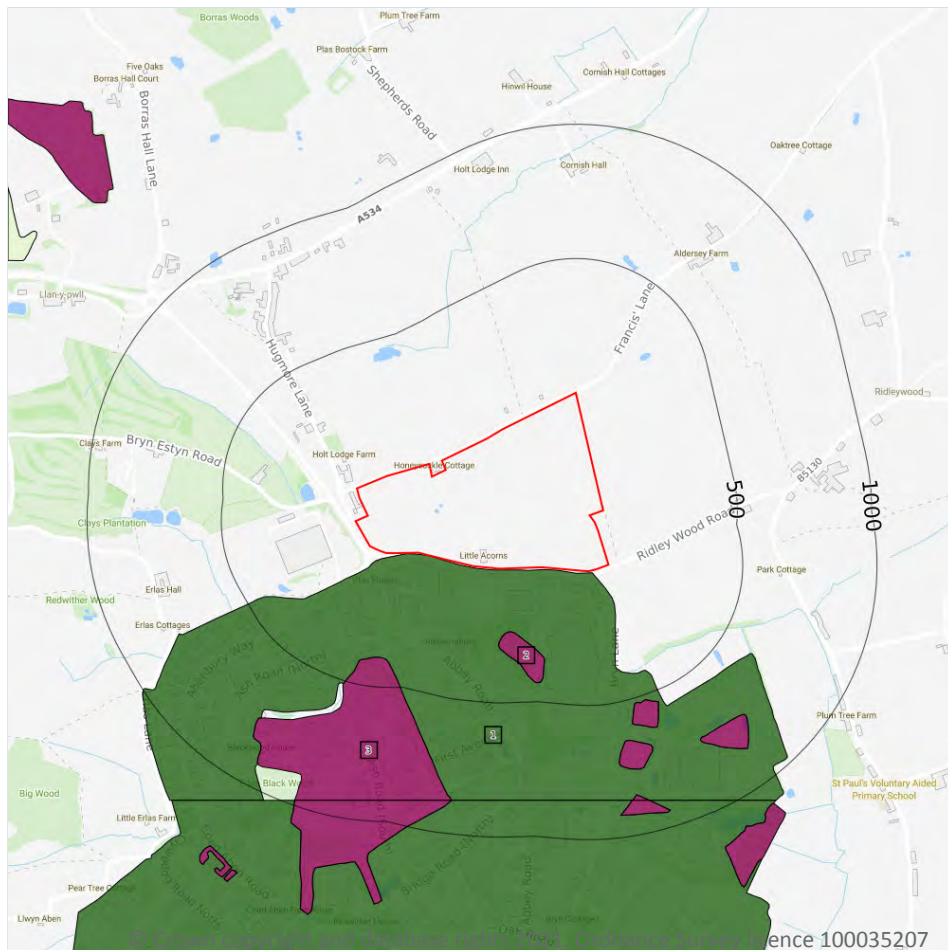
Features are displayed on the Geology 1:10,000 scale - Availability map on **page 85**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SJ35SE

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground



- Site Outline**
- Search buffers in metres (m)**
- Reclaimed ground
 - Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

3

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

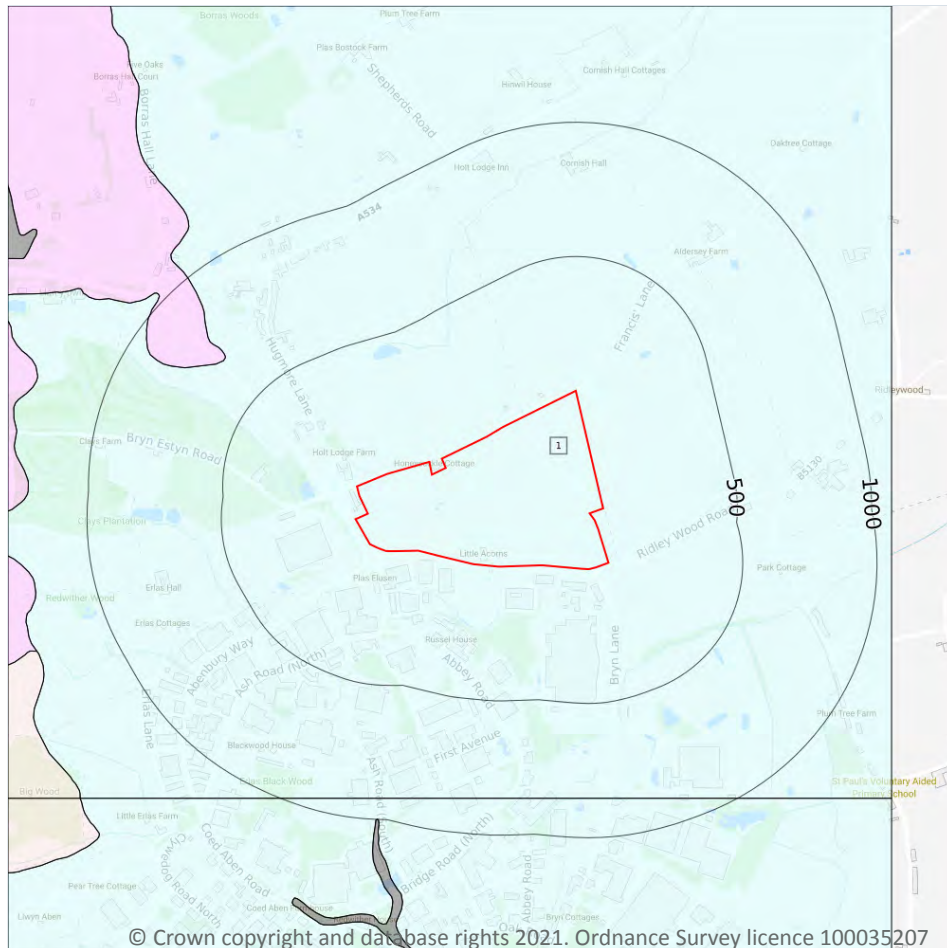
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 86**

ID	Location	LEX Code	Description	Rock description
1	1m S	LSGR-UNKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry
2	236m S	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
3	389m S	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m

1

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 87**

ID	Location	LEX Code	Description	Rock description
1	On site	TILL-DMTN	Till - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



The map displays the Bryn Estyn area in Wales. A red-outlined polygon is centered on the map, and a blue-shaded area is located to its right. The map includes roads such as A934, Bryn Estyn Road, and various lanes. Numbered markers 1, 2, 3, 4, and 5 are placed on the map. A dashed line runs diagonally across the area, and concentric circles are drawn around a central point. The map is overlaid with a grid of latitude and longitude coordinates.

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Bedrock geology (10k)
Please see table for more details.

Records within 500m	3
---------------------	---

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 89**

ID	Location	LEX Code	Description	Rock age
1	On site	SAL-MDST	Salop Formation - Mudstone	Cisuralian Epoch - Westphalian D Sub-age
2	On site	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch
4	152m E	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

2

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

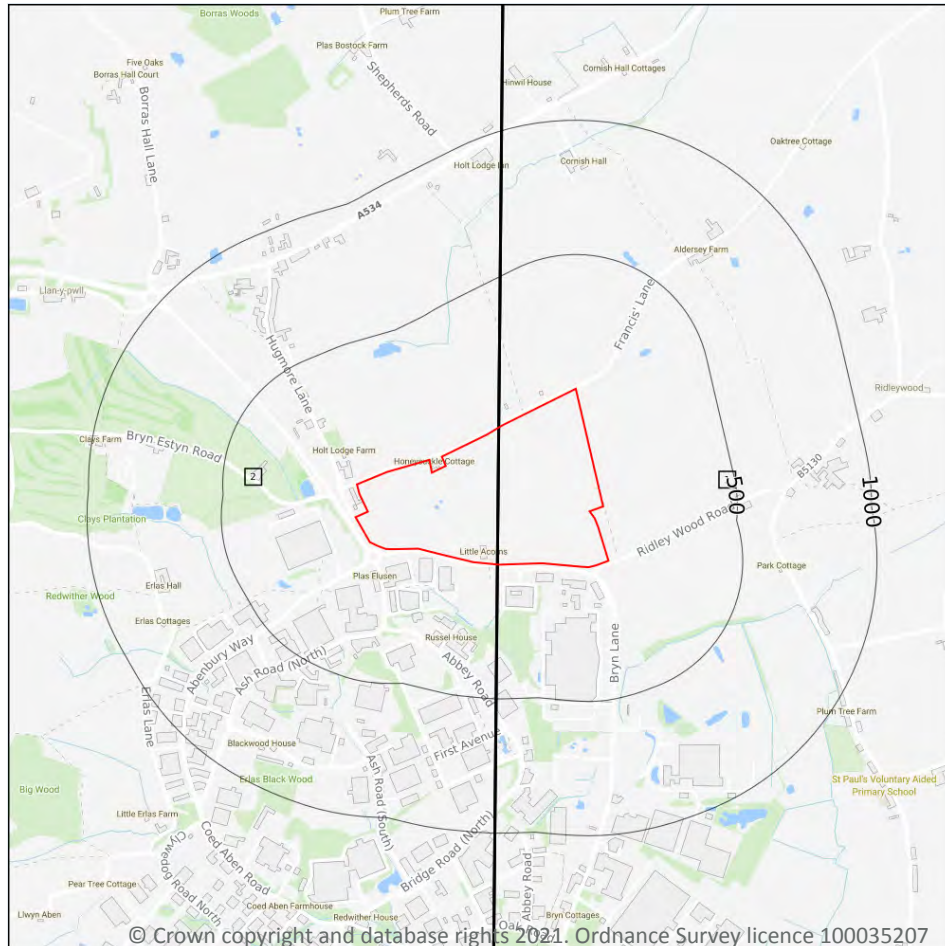
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 89**

ID	Location	Category	Description
3	On site	FAULT	Normal fault, inferred
5	152m E	FAULT	Normal fault, inferred

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

2

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

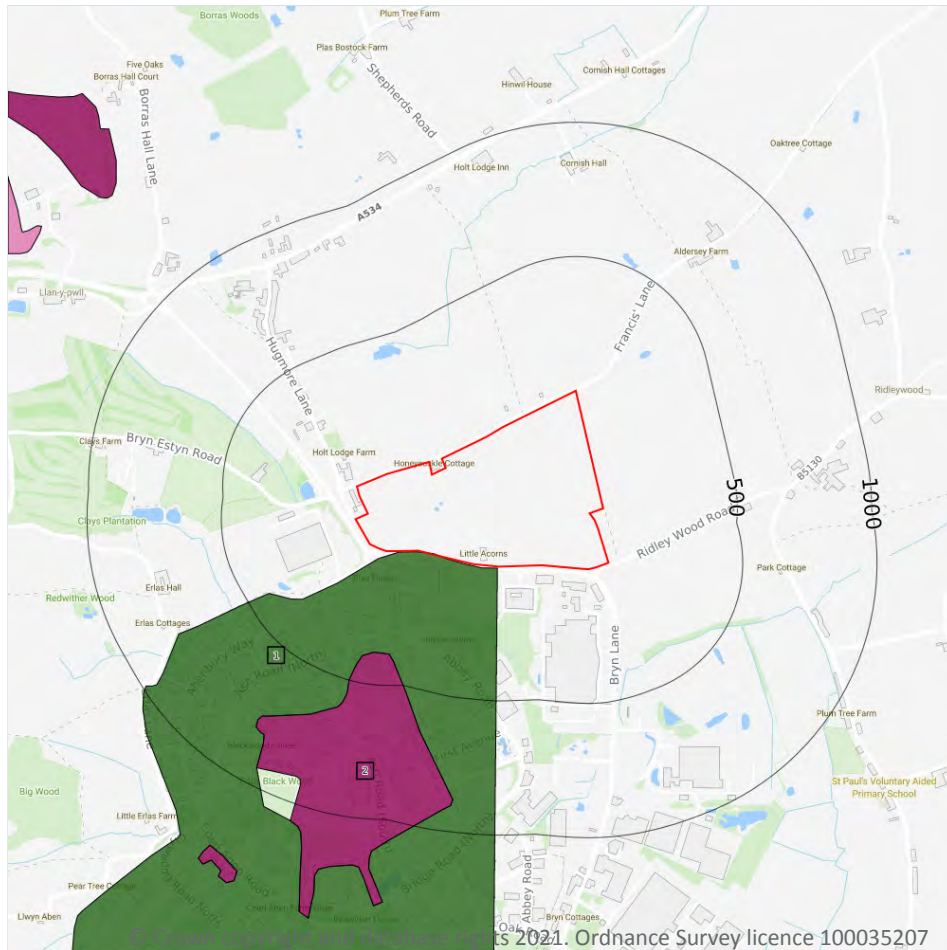
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 91**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	Full	EW122_nantwich_v4
2	On site	Full	Full	Full	Full	EW121_wrexham_v4

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Artificial and made ground



- Site Outline**
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

2

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 92**

ID	Location	LEX Code	Description	Rock description
1	On site	LSGR-ARTGR	LANDSCAPED GROUND (UNDIVIDED)	ARTIFICIALLY MODIFIED GROUND
2	380m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

1

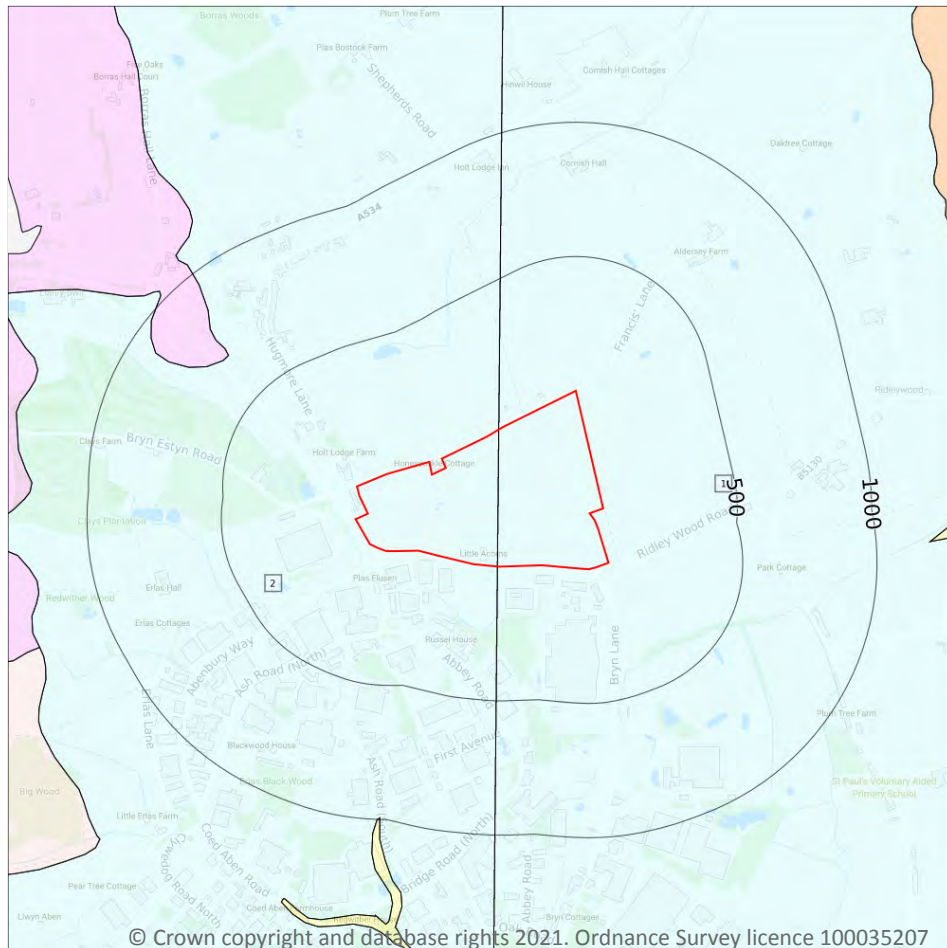
A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Very High	Low

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

2

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 94**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON
2	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m**1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m**0**

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

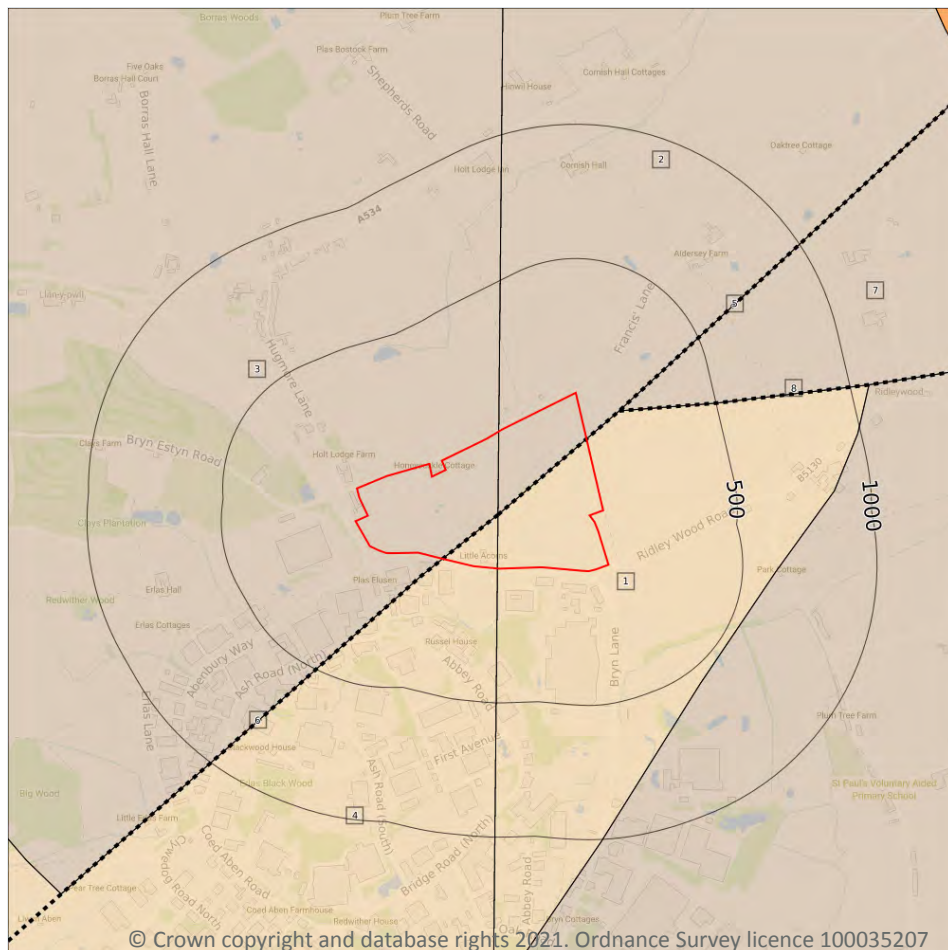
Records within 50m**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

5

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 96**

ID	Location	LEX Code	Description	Rock age
1	On site	SAL-MDSC	SALOP FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
2	On site	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-
3	On site	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-

ID	Location	LEX Code	Description	Rock age
4	On site	SAL-MDSC	SALOP FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
7	142m E	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m **2**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Moderate	Low
On site	Intergranular	High	High

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m **3**

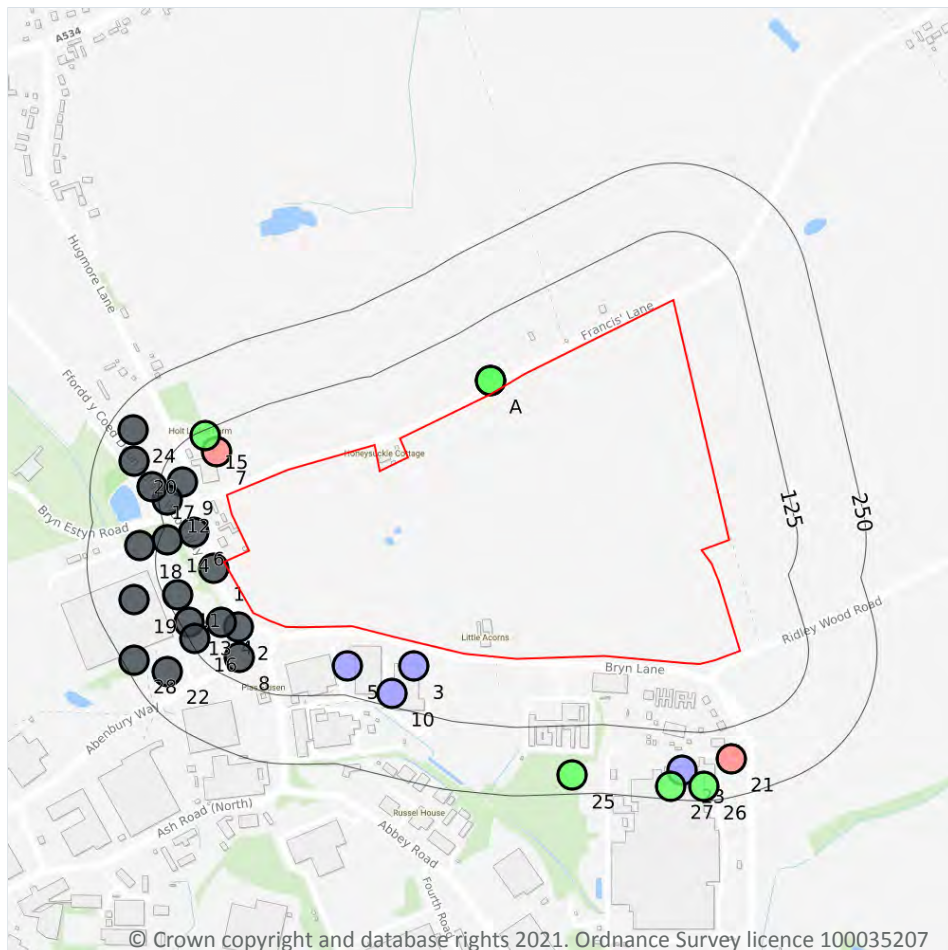
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 96**

ID	Location	Category	Description
5	On site	FAULT	Fault, inferred, displacement unknown
6	On site	FAULT	Fault, inferred, displacement unknown
8	142m E	FAULT	Fault, inferred, displacement unknown

This data is sourced from the British Geological Survey.

16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

30

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 98**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	21m SW	337986 351028	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD 34	-	Y	N/A
A	22m NW	338490 351370	BIESTON NO.19	18.0	N	154822
A	22m NW	338490 351370	HOLT, HOLT LODGE FARM	18.0	N	154650



ID	Location	Grid reference	Name	Length	Confidential	Web link
2	38m SW	338030 350920	WREXHAM IND EST TP 4	-	Y	N/A
3	43m S	338350 350850	RIDLEY FARM 2	5.03	N	154675
4	58m SW	338000 350930	WREXHAM IND EST 2	-	Y	N/A
5	72m S	338230 350850	RIDLEY FARM 1	4.88	N	154674
6	77m SW	337949 351093	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP37	-	Y	N/A
7	80m NW	337990 351240	COMMON WOOD FARM	61.57	N	154655
8	83m SW	338032 350866	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP40	-	Y	N/A
9	84m W	337929 351186	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP61	-	Y	N/A
10	101m S	338310 350800	RIDLEY FARM 3	5.03	N	154676
11	103m SW	337920 350980	WREXHAM IND EST TP 2	-	Y	N/A
12	109m W	337901 351152	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP36	-	Y	N/A
13	110m SW	337940 350930	WREXHAM IND EST TP 3	-	Y	N/A
14	112m W	337900 351080	WREXHAM IND EST 1	-	Y	N/A
15	115m NW	337970 351270	HOLT LODGE FARM	20.31	N	154843
16	116m SW	337950 350900	WREXHAM IND EST 3	-	Y	N/A
17	137m W	337873 351177	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD 32	-	Y	N/A
18	157m W	337850 351070	WREXHAM IND EST TP 1	-	Y	N/A
19	178m SW	337840 350970	WREXHAM IND EST 5	-	Y	N/A
20	181m W	337840 351224	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP35	-	Y	N/A
21	182m S	338930 350680	WREXHAM IND ESTATE KELLOGS 1	67.07	N	154667
22	190m SW	337900 350840	WREXHAM IND EST 4	-	Y	N/A
23	195m S	338840 350660	WREXHAM MAELOR TP 1	2.4	N	154808
24	209m NW	337838 351280	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD 31	-	Y	N/A
25	216m S	338640 350650	WREXHAM INDUSTRIAL ESTATE 7	20.0	N	154807
26	223m S	338880 350630	WREXHAM INDUSTRIAL ESTATE 2	20.0	N	154802
27	226m S	338820 350630	WREXHAM INDUSTRIAL ESTATE 3	20.0	N	154803

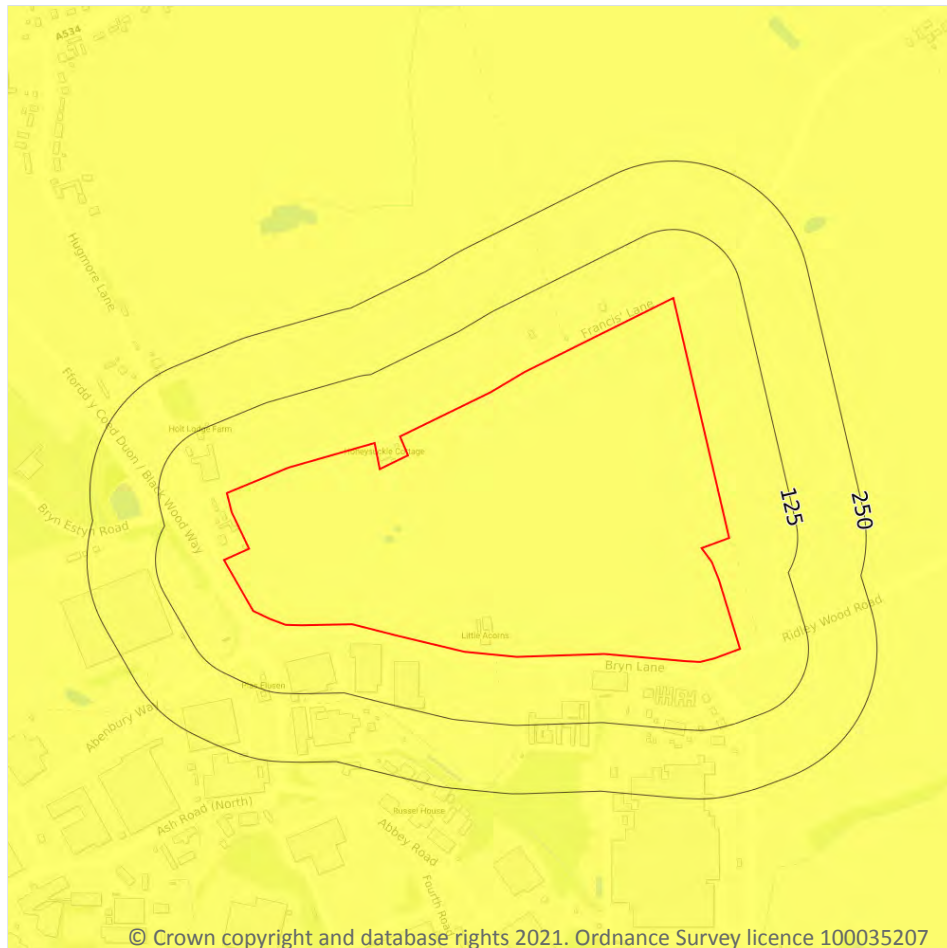


ID	Location	Grid reference	Name	Length	Confidential	Web link
28	232m SW	337840 350860	WREXHAM IND EST TP 5	-	Y	N/A

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

1

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

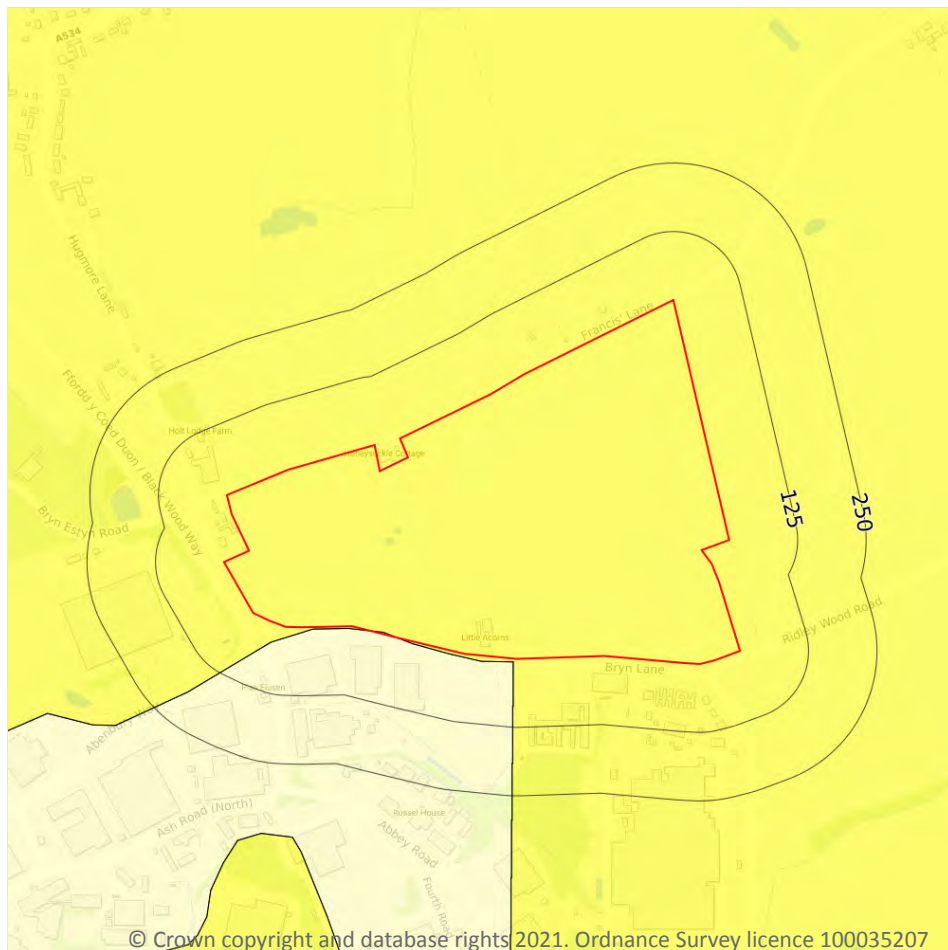
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 101**

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.2 Running sands

Records within 50m

2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 102**

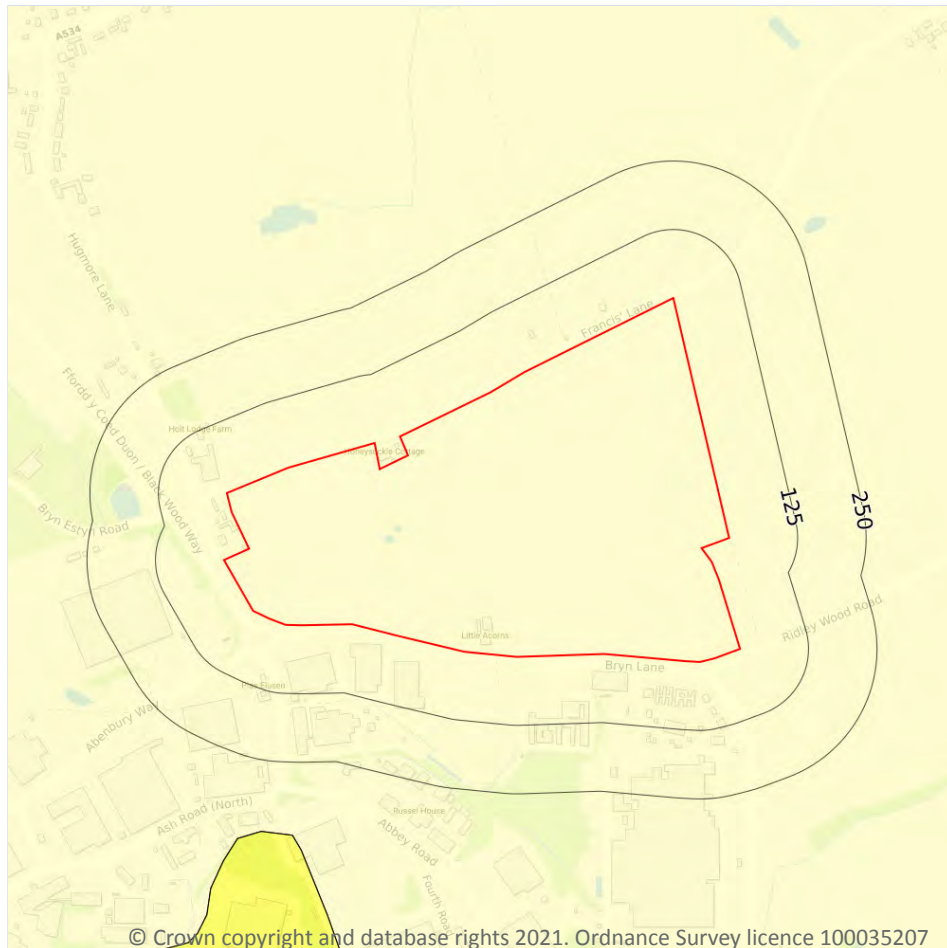
Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



— Site Outline
Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

17.3 Compressible deposits

Records within 50m

1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

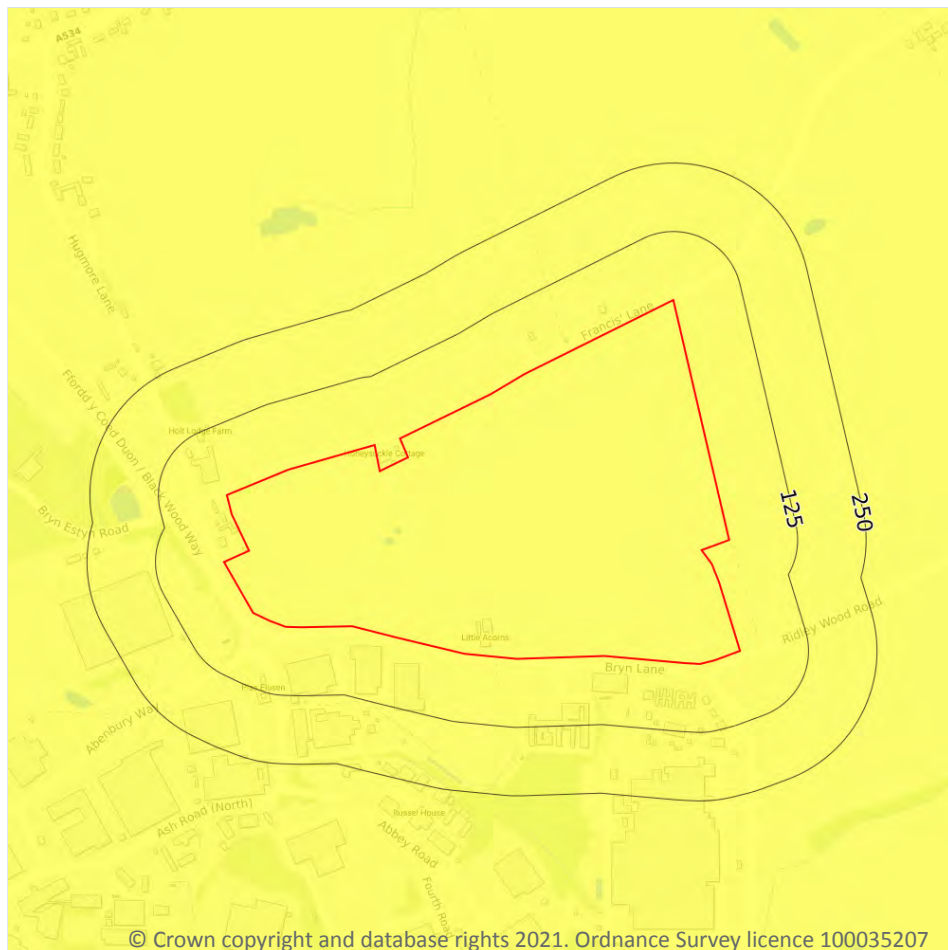
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 104**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

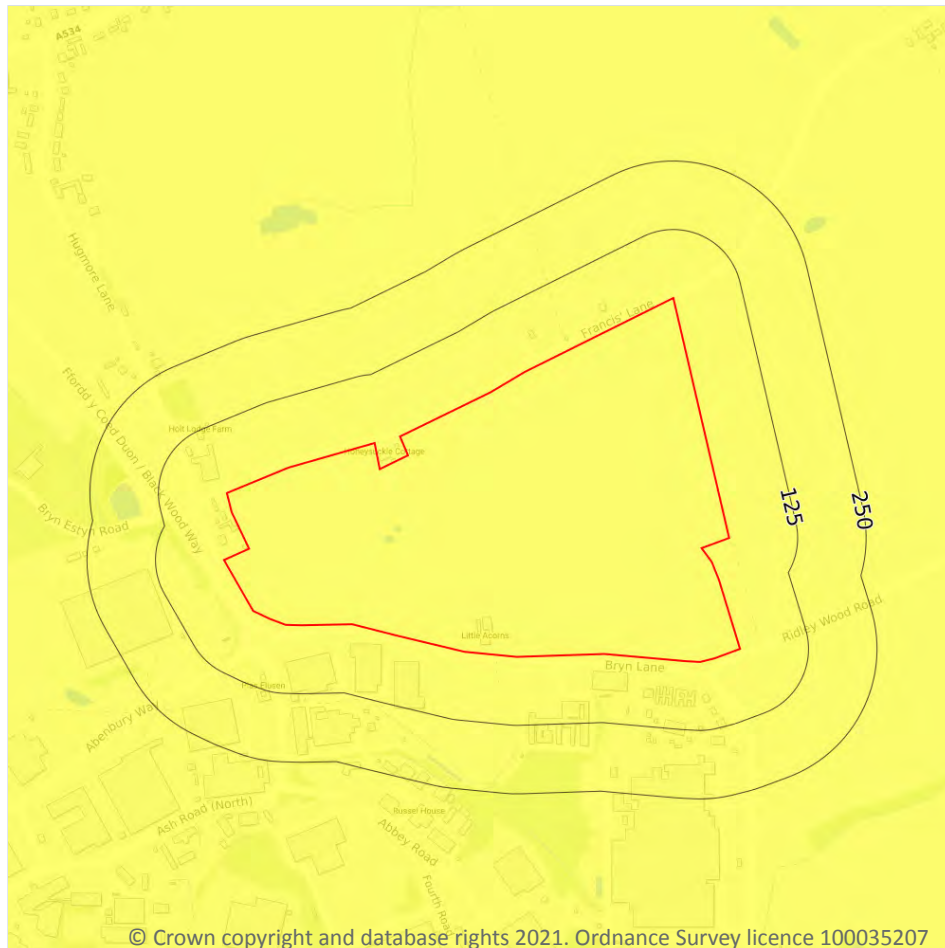
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 105**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.5 Landslides

Records within 50m

1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

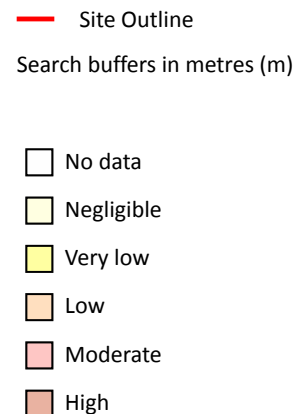
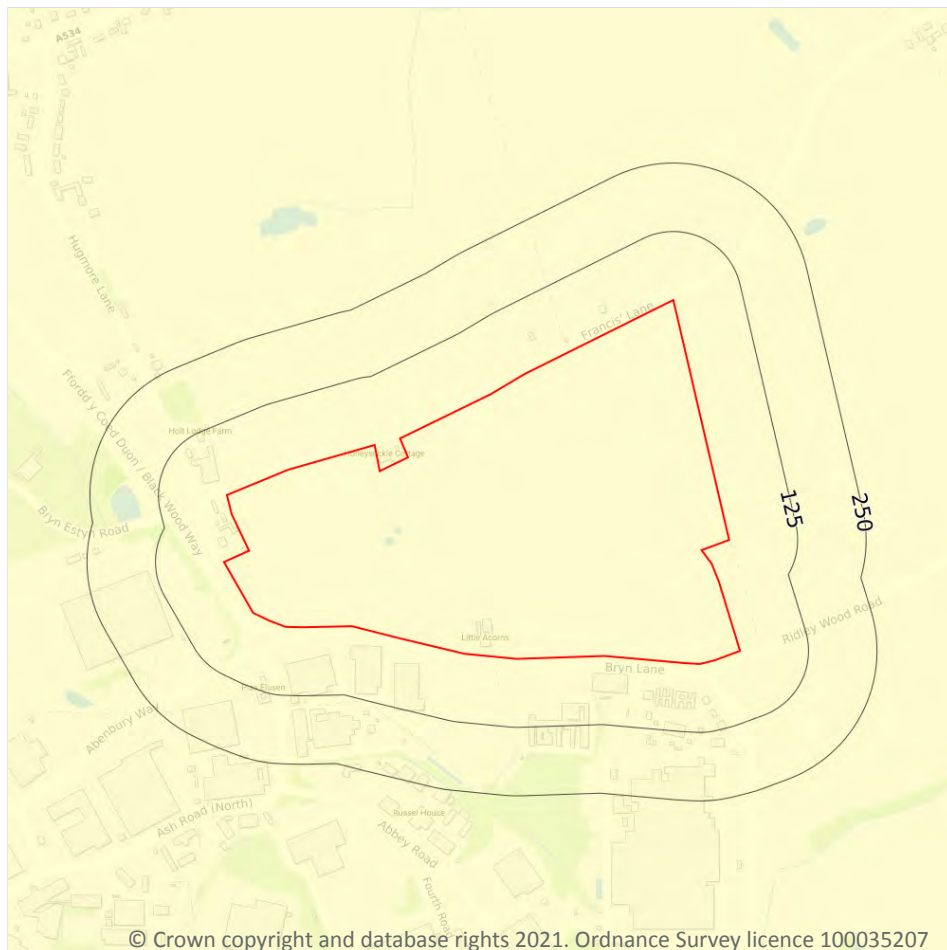
Features are displayed on the Natural ground subsidence - Landslides map on **page 106**

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

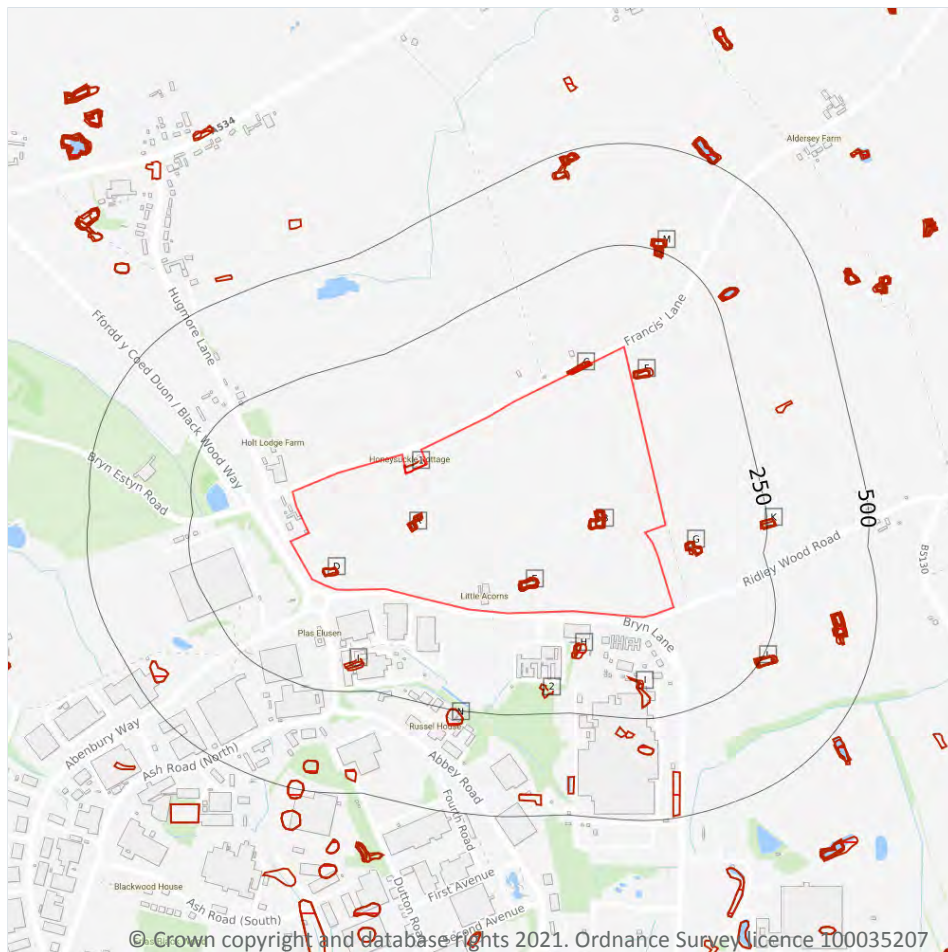
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 107**

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

72

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 109**

ID	Location	Land Use	Year of mapping	Mapping scale
1	On site	Pond	1914	1:10560
A	On site	Ponds	1992	1:10000
A	On site	Ponds	1982	1:10000
A	On site	Ponds	1960	1:10560
A	On site	Ponds	1968	1:10560
A	On site	Ponds	1900	1:10560
A	On site	Ponds	1914	1:10560
B	On site	Ponds	1982	1:10000
B	On site	Ponds	1960	1:10560
B	On site	Ponds	1968	1:10560
B	On site	Ponds	1900	1:10560
B	On site	Ponds	1914	1:10560
B	On site	Ponds	1949	1:10560
B	On site	Ponds	1872	1:10560
C	On site	Pond	1982	1:10000
C	On site	Pond	1960	1:10560
C	On site	Pond	1968	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
C	On site	Pond	1872	1:10560
D	On site	Pond	1982	1:10000
D	On site	Pond	1960	1:10560
D	On site	Pond	1968	1:10560
D	On site	Pond	1900	1:10560
E	On site	Pond	1982	1:10000
E	On site	Pond	1960	1:10560
E	On site	Pond	1968	1:10560
E	On site	Pond	1900	1:10560
E	On site	Pond	1914	1:10560
E	On site	Pond	1949	1:10560
E	On site	Pond	1872	1:10560
C	0m NW	Pond	1914	1:10560
F	6m E	Ponds	1900	1:10560
F	8m E	Ponds	1960	1:10560
F	8m E	Ponds	1968	1:10560
F	9m E	Ponds	1914	1:10560
F	15m E	Ponds	1982	1:10000
G	67m SE	Pond	1914	1:10560
G	68m SE	Pond	1982	1:10000
G	68m SE	Pond	1960	1:10560
G	68m SE	Pond	1968	1:10560
G	70m SE	Pond	1949	1:10560
G	74m SE	Ponds	1872	1:10560
H	77m S	Pond	1914	1:10560
H	78m S	Pond	1992	1:10000
H	80m S	Pond	1949	1:10560
I	150m S	Pond	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
I	163m S	Ponds	1960	1:10560
I	163m S	Ponds	1968	1:10560
J	170m S	Ponds	1900	1:10560
J	176m S	Ponds	1872	1:10560
2	177m S	Ponds	1872	1:10560
K	234m E	Pond	1914	1:10560
K	235m E	Pond	1982	1:10000
K	235m E	Pond	1960	1:10560
K	235m E	Pond	1968	1:10560
L	235m SE	Ponds	1900	1:10560
M	237m NE	Ponds	1949	1:10560
M	237m N	Ponds	1900	1:10560
K	238m E	Pond	1872	1:10560
M	238m N	Ponds	1982	1:10000
M	238m N	Ponds	1960	1:10560
M	238m N	Ponds	1968	1:10560
M	239m N	Ponds	1914	1:10560
L	240m SE	Ponds	1914	1:10560
L	240m SE	Ponds	1949	1:10560
M	241m NE	Ponds	1872	1:10560
L	245m SE	Ponds	1872	1:10560
L	246m SE	Ponds	1992	1:10000
L	246m SE	Ponds	1982	1:10000
L	246m SE	Ponds	1960	1:10560
L	246m SE	Ponds	1968	1:10560
N	247m S	Unspecified Heap	1960	1:10560
N	247m S	Unspecified Heap	1968	1:10560

This is data is sourced from Ordnance Survey/Groundsure.



18.4 Underground workings

Records within 1000m**0**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m**0**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m**0**

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m**0**

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site**0**

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.



18.9 Coal mining

Records on site	1
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Areas which could be affected by past, current or future coal mining.

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0
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The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

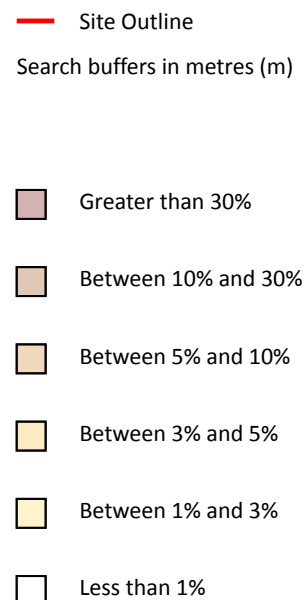
Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).



19 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 115**

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

13

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
4m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
23m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.



20.2 BGS Estimated Urban Soil Chemistry

Records within 50m**0**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m**0**

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.



This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

4

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 118**

Location	Land Use	Year of mapping	Mapping scale
197m S	Mineral Railway Sidings	1960	2500
225m S	Railway Sidings	1960	10560
225m S	Railway Sidings	1968	10560
230m S	Railway Sidings	1949	10560

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.



21.6 Historical railways

Records within 250m**0**

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m**0**

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m**0**

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <https://www.groundsure.com/terms-and-conditions-jan-2020/>.



APPENDIX I - PREVIOUS SITE INVESTIGATION REPORT (AVAILABLE AS A SEPARATE DOCUMENT)



PRELIMINARY RISK ASSESSMENT REPORT BRYN LANE WREXHAM

TE1624-TE-00-XX-RP-GE-001-V03

VERSION 3

19 JUNE 2023

FINAL

Prepared for:

Net World Sports

Prepared by: Spyridon Theodoridis

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DOCUMENT CONTROL

Report No. :	TE1624-TE-00-XX-RP-GE-001-V03
Report Status:	FINAL
Version No.:	3
Project Engineer:	Spyridon Theodoridis
Date of Issue:	19/06/2023

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Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed By	Approved By
1	FINAL	10/01/2021	Spyridon Theodoridis	Adrian Read	Sean Lee
2	Updated regarding proposed development and River Dee SAC	08/06/2023	Sean Lee	Sean Lee	Sean Lee
3	Update regarding phosphates	19/06/2023	Sean Lee	Sean Lee	Sean Lee



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EXECUTIVE SUMMARY

Introduction	Tier Environmental was commissioned by Net World Sports to undertake a desk study and Phase I Preliminary Risk Assessment for the proposed commercial development at Bryn Lane, Wrexham. The purpose of this investigation was to establish land use history and review the available information to determine the geoenvironmental setting of the Site and develop a preliminary conceptual site model with due consideration of potential soil and groundwater contamination, hazardous ground gases and mining.
Proposed land use	The proposals comprise a commercial development, including industrial and distribution, and ancillary retail/hotel floorspace.
Site location and surrounding land uses	The site is located at Bryn Lane, Wrexham, nearest post code LL13 9XW. To the north and east of the site the area is agricultural with a few residential houses and Wrexham Industrial Park to the west and south of the site and the Clays Golf Driving Range and golf Course is west of the site. There are no nearby significant current land uses in the vicinity of the Site.
Site history	The Site was historically agricultural with approximately 3 No. wells identified in the southern part of the Site. Pond locations and sizes are shown to vary over time indicating the potential for some of them to have been potentially infilled. Ridley View (shown in the present day location of Little Acorns) was developed in the south by 1992 (residential / farm). Pertinent surrounding land uses include farms, the Royal Ordnance Factory (Wrexham) to the south of the Site (as close as 20m south) and associated buildings and tanks etc, a clothing factory to the south (60m south), Wrexham Industrial Estate (25m south at its closest point). Given that the Site itself did not form part of the ROF Wrexham site it is not considered that there are any risks from explosives at the Site.
Geology, Hydrogeology and Hydrology	No previous ground investigation reports have been provided to Tier Environmental; however, available BGS information does not indicate the presence of any artificial ground on the Site (although land immediately south is shown to comprise 'Landscaped Ground'). Localised Made Ground within the Little Acorns farm/residential property area and potentially within historically infilled ponds may be anticipated. Superficial deposits comprise a Secondary Undifferentiated Aquifer associated with Devensian Till – Diamicton which has been proven in BGS logs to comprise cohesive materials locally to depths of Circa 26 to 38m bgl which is considered sufficient to provide protection of the underlying bedrock aquifers from any vertical migration of potential contaminants of concern. Bedrock comprises a Principal Aquifer associated with Kinnerton Sandstone Formation in the western/northern parts of the Site and a Secondary A Aquifer associated with the Salop Formation comprising mudstone in the southern / southeastern part of the Site. There is a inferred fault located beneath the site orientated from southwest to northeast associated with these two bedrock formations. There is a Source Protection Zone Total Catchment 3 located beneath the Site associated with the Principal Aquifer; however, the thickness of cohesive Till above this is considered to provide sufficient protection from any shallow contaminants of concern. The nearest surface water receptor comprises an underground water course 110m west. There are no potable or non-potable water abstractions located within 1km of the Site. On this basis the controlled waters sensitivity is considered to be low. The Site is located within the phosphate sensitive freshwater catchment of the River Dee and Bala Lake Special Area of Conservation (SAC).
Ground Gases	There are no landfills located within 250m of the Site. The only viable potential source of ground gases is therefore on-site localised Made Ground / potentially infilled ponds and off-site Made Ground.
Radon Requirements	The Site is not located within a high risk radon area and therefore basic radon protection measures are not currently required for the proposed development. Testing existing buildings and fitting radon prevention in new buildings might still be considered, particularly if there is a high risk location such as a routinely occupied basement.
Ecological Sensitivity	The Site does not lie within an ecologically sensitive area.
Potential contaminative features	There are 4 No unspecified tanks south of the Site within 250m. A farm is located in the southern part of the Site. Numerous potentially infilled ponds have been identified within the site.
Mining and quarrying	The Site is not located within a mining area or an area subject to historic quarrying.
Previous investigations	Tier Environmental is not aware of any previous intrusion ground investigations within the site.
Phosphates	The Site is located within the River Dee and Bala Lake Designated Special Area of Conservation (SAC). The drainage strategy/design for the proposed development should therefore incorporate appropriate on-site and/or off-site mitigation measures which should be agreed with the regulatory authorities.
Unexploded Ordnance	The UXO risk is considered to be low based on publicly available maps; however, given the proximity of the former Royal Ordnance Factory, Wrexham immediately south of the Site it is recommended that a detailed UXO desk study is carried out for the Site.



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Preliminary Conceptual Site Model Summary	Moderate / low to moderate risks have been identified for human health receptors and low risks have been identified for the controlled waters environment from inorganic, organic and asbestos impacts within any localised Made Ground associated with the former agricultural land use and farm in the south of the Site and any potentially infilled ponds. Moderate / low risks to human health have been identified from the off-site former ROF Wrexham located immediately south of the Site. Moderate to moderate / low risks have been identified associated with hazardous ground gases generated from on-site localised Made Ground / potentially infilled ponds and off-site Made Ground. Low risk has been identified with regard to phosphates within treated wastewater affecting the River Dee and Bala Lake SAC.
Waste Soils Classification	Based on the history of the Site and the anticipated potential contaminants of concern, it is unlikely that significant quantities of hazardous waste soil materials will be encountered; however, some may be locally present beneath some areas of the Site (potential infilled ponds and asbestos containing materials within demolition rubble at gate entrances). This will be subject to confirmatory investigation, sampling, laboratory analysis and waste classification in accordance with the Guidance on the Classification and Assessment of Waste (WM3).
Materials re-use	Subject to volumetric fill requirements and a future assessment of suitability of re-use (both chemically and geotechnically), some materials <i>may</i> be considered for potential re-use in line with an appropriate end-of-waste protocol such as WRAP Quality Protocol for Aggregates from Inert Waste, U1 Exemption or a Materials Management Plan in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP).
Further works	An intrusive ground investigation is currently underway that will further refine the preliminary conceptual site model and confirm the baseline phosphate concentrations across the site. It is recommended that a full UXO desk study is carried out for the Site.



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1. INTRODUCTION

Tier Environmental was commissioned by Net World Sports to undertake a Land Contamination Risk Management (LCRM) Preliminary Risk Assessment for an area of land referred to as Bryn Lane, Wrexham, located at Bryn Lane, Wrexham, nearest post code LL13 9XW (the "Site").

The proposals comprise a commercial development, including industrial and distribution, and ancillary retail/hotel floorspace. The description of development as it appears on the hybrid planning application is as follows:

"Hybrid planning application seeking:

- Full planning permission for the severable and phased construction of employment floorspace (Use Class B1c/B2/B8) and the provision of associated infrastructure including earthworks, sub-station, parking, landscaping, access from Industrial Estate Road roundabout and internal estate road; and,*
- Outline planning permission for the severable and phased construction of employment floorspace (Use Class B1c/B2/B8) with ancillary (integral) office floorspace (Use Class B1a), ancillary retail and drive thru facilities, a hotel and petrol filling station (A1, A3, C1, sui generis) and associated infrastructure including access and internal estate road, parking, and landscaping (all matters are reserved for future determination)."*

This Phase I Preliminary Risk Assessment has been designed in order to review the current Site use, the Site history and the environmental setting in order to develop a preliminary conceptual model and define a strategy and proposed scope for a Phase II Site Investigation to further assess any potential contamination risks beneath the Site.

The full title of this report, a 'Stage 1 - LCRM Tier 1 Preliminary Risk Assessment Report', is in accordance with that described in the Land Contamination Risk Management guidance (available at <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>) which has superseded CLR 11.

1.1. Proposed Development

Under current proposals the development will comprise commercial development, including industrial and distribution and ancillary retail/hotel, as presented in Appendix A. As such, in accordance with the 'Updated technical background to the CLEA model' (Environment Agency, 2009) and 'Suitable 4 Use Levels' (LQM / CIEH 2015) the proposed generic land use for this development is commercial/industrial.

1.2. Previous Reports

No previous pertinent reports pertaining to this Site have been made available.

1.3. Objectives

Taking into account the proposed development of the Site, the objectives of this appraisal were:

- To determine the historical and current land use.
- To establish the environmental setting of the Site.
- To evaluate whether past mining or other extractive industries could have an influence on the Site.



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- To determine likely ground and groundwater conditions.
- To determine the potential risks to human health and the wider environment.
- To determine potential risks posed to the Site from hazardous ground gases and / or vapours.
- To derive a Preliminary Conceptual Site Model.

1.4. Assumptions

The following assumptions are made in this report:

- It is assumed that ground levels will not change significantly from those described in this report or as shown on proposed development drawings. If this is not the case, then amendments to the recommendations made in this report may be required.
- Any references to observations of suspected asbestos-containing materials are for information only and should be verified by a suitably qualified asbestos specialist and/or confirmed by laboratory analysis.
- The use of the term 'Topsoil' within this report is based on a visual identification only and that these materials have not been classified in accordance with BS3882:2015.
- The use of the terms 'shallow' and 'deep' within this report assume *typically* between ground level to circa 5.00m below ground level (bgl) for 'shallow' and greater than 5.00m bgl regarded as 'deep';
- The comments and opinions presented in this report are based on the findings of the desk study, performed by Tier Environmental. There may be other conditions prevailing on the Site which have not been revealed by this investigation and which have not been taken into account by this report at this stage.
- Responsibility cannot be accepted for any conditions not revealed by this investigation. Any diagram or opinion on the possible configuration of the findings is conjectural and given for guidance only. Confirmation of ground conditions should be undertaken if deemed necessary.

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2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Land north of Bryn Lane
Site address	Bryn Lane, Wrexham, nearest post code LL13 9XW. A site location plan is included as Drawing No. TE1624-TE-00-XX-DR-GE-001-V01 within Appendix A.
National Grid Reference (NGR)	338541 351126
Approximate Site area	38.93 ha
Site shape	Approximately rectangular.
Current land use on the Site	Predominantly agricultural with a residential / farm property (Little Acorns) located in the southern extent of the Site. The agricultural fields are delineated by localised copses of trees and hedgerows. The majority of the Site is grass covered grass with the exception of the area at the Little Acorns where some localised hardstanding is anticipated. Little Acorns appear to include barns and areas of equipment potentially associated with agricultural use (including a possibly horse walker). Ponds appear to be located in the western and southern parts of the Site. Underground service drawings have not been provided to Tier Environmental; however, there remains a potential for such features to be present beneath the Site.
Surrounding land uses	To the north and east of the site the area is agricultural with a few residential houses and to the south and west the area is commercial. The Wrexham Industrial Park is south of the site and the Clays Golf Driving Range and golf Course is located further west of the site.
General topography and ground levels	The land slopes from approximately 40m AOD in the west to between 27 and 31m AOD in the east and northeast which follows the general topographical trend in the surrounding area.

An aerial photograph (from the Groundsure report) of the Site and site boundary is shown below. Relevant Site photographs are presented in Appendix B.

Figure 2.1 Recent Aerial Photograph from Groundsure





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3. SITE HISTORY

3.1. Site History Review

Extracts of Ordnance Survey (OS) plans dated from 1872 to 2021 were reviewed. These were obtained as part of the Groundsure report for the Site, which is presented in Appendix C.

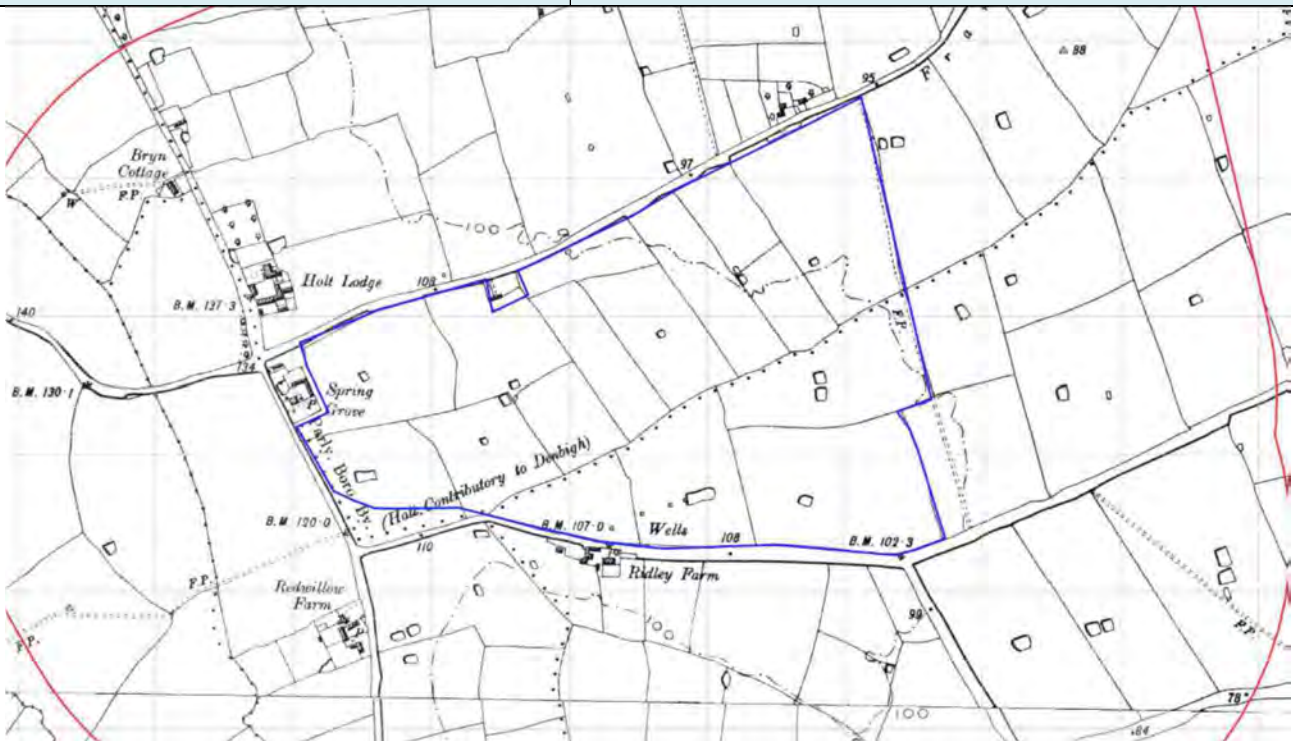
Table 3.1 below presents a summary of the main aspects of the Site relevant to the current and proposed future end uses. It is not the intention of this report to describe in detail all of the changes that have occurred on or adjacent to the Site, where these are not relevant to the land use.



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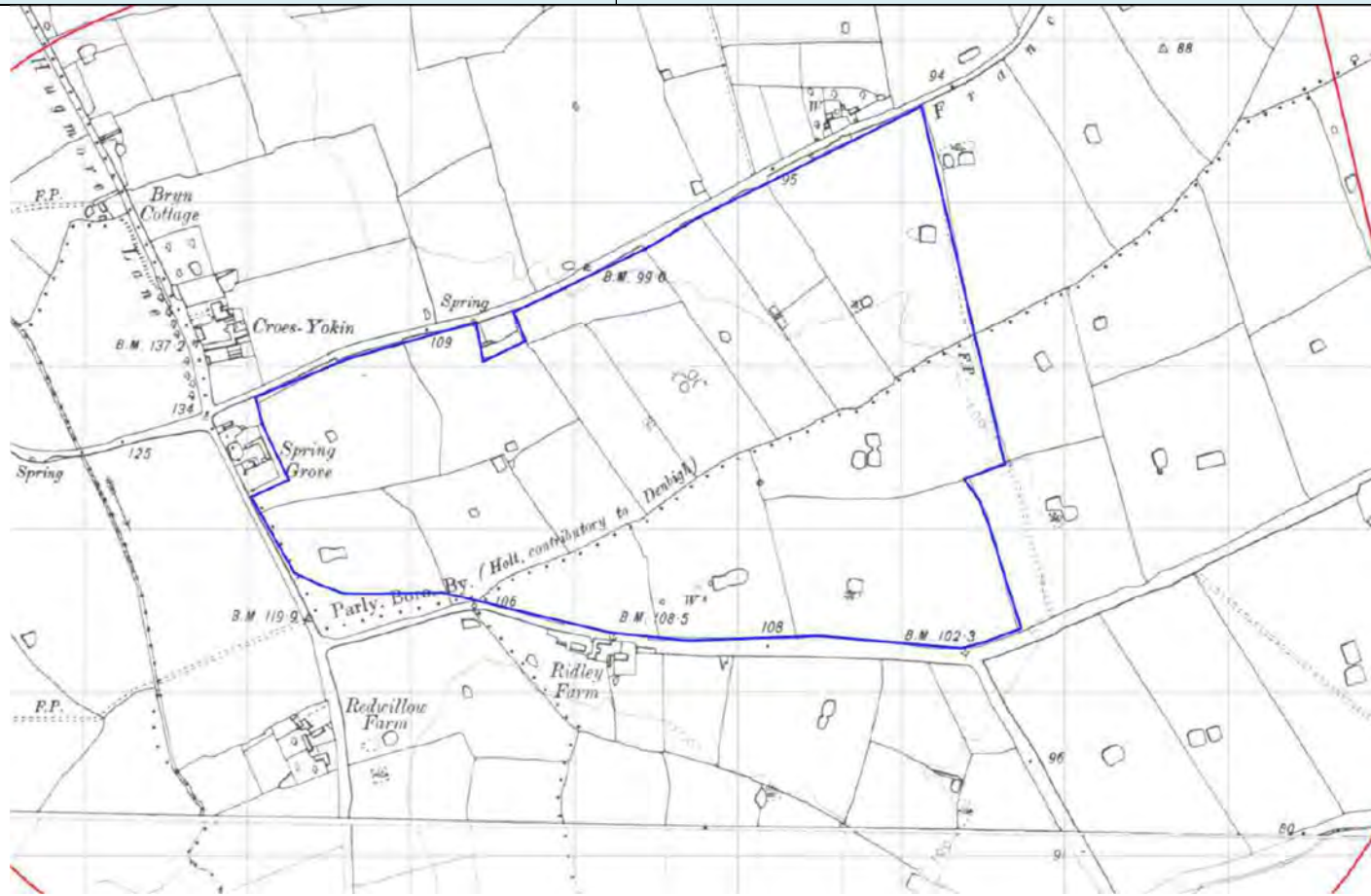
Table 3.1 Site History.

Time Period	On-Site features	Off-Site features
Pre-1900	 1872	
	- The Site comprises agricultural land with numerous ponds shown. - Wells are annotated in the southern area of the Site.	Farms and potentially residential buildings are located to the north, south and west. The closest of them to the Site is the Spring Grove located immediately west of the Site and Ridley Farm located immediately south.



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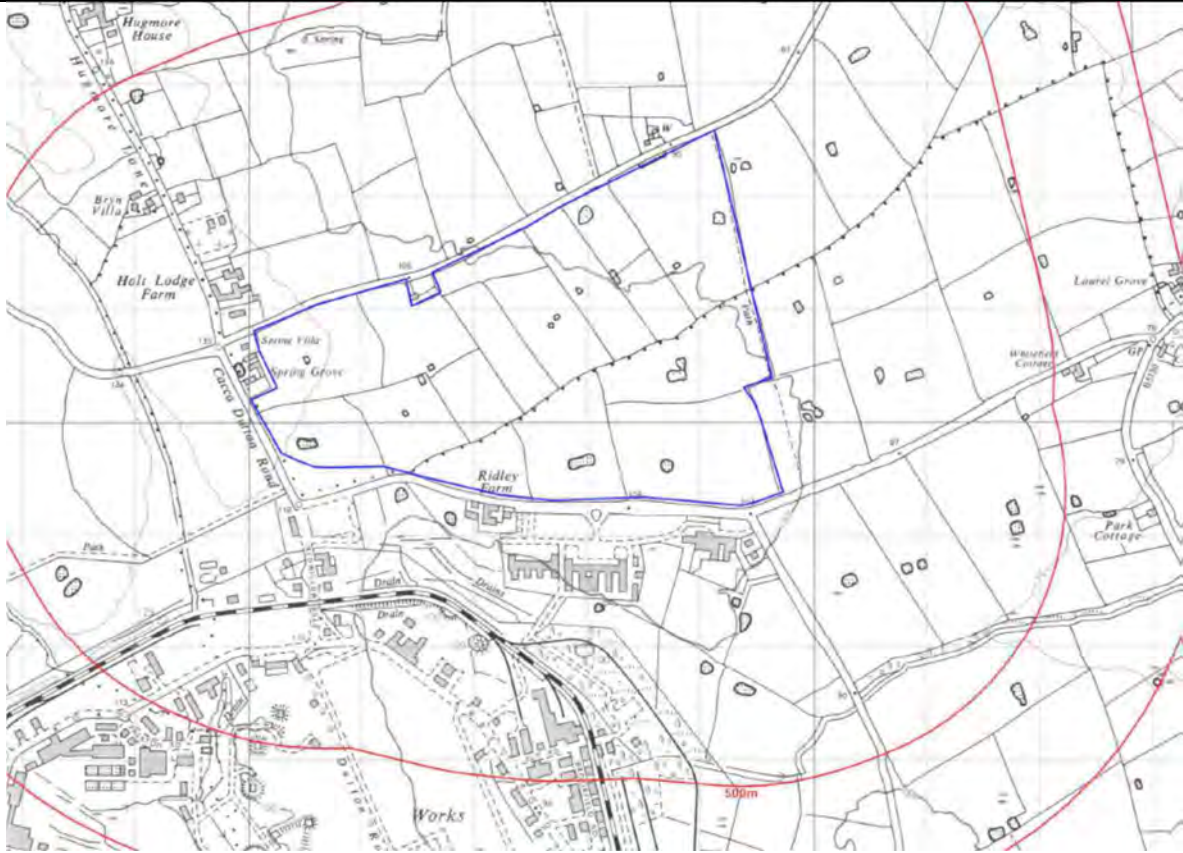
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Time Period	On-Site features	Off-Site features
1900 to 1939 (Pre-war period)	 1914	
	More pond features are shown.	No significant change
1939 – 1945 (World War II period)	There are no Historical Maps for this period; however, it is understood that Royal Ordnance Factory Wrexham was developed on land to the southwest during the outbreak of World War II in 1939. The factory made cordite, an explosive propellant for shells.	



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Time Period	On-Site features	Off-Site features
1945-1980 (Post war period)	 1968	
	A number of the ponds are no longer shown and potentially have been infilled.	- South of the Site the Works area is shown and the closest building south of the Site is 20m from the Site. It is understood that many of the structures shown to the southwest comprised buildings associated with the former cordite production works on ROF Wrexham. - By 1974, a clothing factory is shown 60m south.



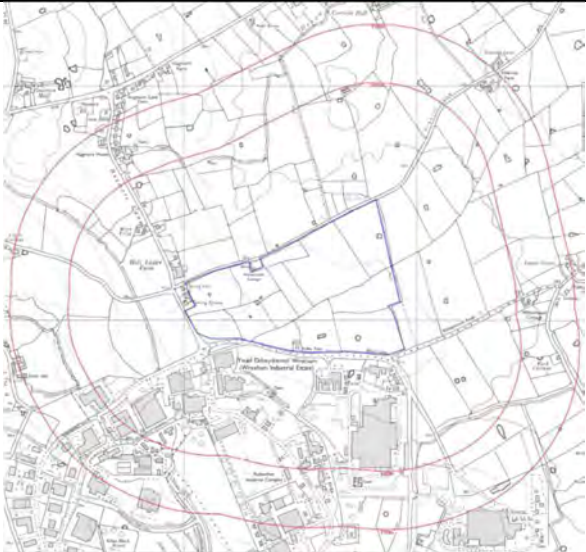
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Time Period	On-Site features	Off-Site features
1980 – 2000 (Late 20th century period)	 <u>1992</u>	
	• Ridley View (shown in the present day location of Little Acorns) has been developed by 1992. • Numerous on-site ponds are no longer shown and have been potentially infilled.	• The Wrexham Industrial Estate has been developed south of the site approximately 25m to 40m south of the Site at its closest.



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Time Period	On-Site features	Off-Site features
2000 to 2020 (Modern day period)	 2021	
	No significant change	Some redevelopments of the industrial estate but broadly there has been no significant changes.



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3.2. Preliminary Unexploded Ordnance Risk Assessment

Publicly available maps from the Zetica website indicates that the Site is located within a Low Risk from UXO; however, from the historical and anecdotal evidence, the site lies to the immediate north of the former Royal Ordnance Factory, Wrexham. The land surrounding the Site may therefore have been a target for bombing during World War II.

It is therefore recommended that a UXO Desk Study is completed for the Site.



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4. ENVIRONMENTAL SETTING

4.1. Geology

Table 4.1 Geological Summary.

Maps and publications referenced	Groundsure, BGS Map sheets 121 and 122
Made ground / artificial ground	The Site isn't shown to be located within an area of artificial ground according to the Groundsure report. Given the history of development on part the Site and potential for historically infilled ponds, the presence of localised Made Ground is anticipated. Land immediately south of the Site is shown to comprise 'Landscaped Ground' according to GroundSure.
Drift geology	The Site is shown to be underlain by superficial deposits of Devensian Till – Diamicton. Cable percussion boreholes completed by Tier on the Net World Sports site immediately south of Ridley Wood Road encountered cohesive Till to greater 10m bgl. Nearby BGS logs to the southeast indicate that the Till may be circa 38m bgl whilst BGS logs to the northwest indicate the Clay extends to a depth of circa 26m bgl.
Solid geology	The western and northern/northwestern parts of the Site are shown to be underlain by the Kinnerton Sandstone Formation. The eastern and southeastern parts of the Site are shown to be underlain by the Salop Formation comprising mudstone.
Dip of solid strata	Unknown.
Faults	An inferred fault is located beneath the site orientated from southwest to northeast.
Coal seams	None shown to outcrop or subcrop on or in the immediate vicinity of the Site.

4.2. Mining and Quarrying

Table 4.2 Coal Mining Activities.

	Yes/No	Comments
Is the Site in an area of potential shallow coal workings?	No	The site does not lie within the potential zone of influence of any recorded underground coal workings. Part of the site is located within a coal mining reporting area. However a CON29M report for the site has not identified any risk from coal mining workings.
Is the Site in a high risk development area?	No	
Are there any known shafts, adits, tips, lagoons, or opencast workings likely to affect the Site?	No	No coal mine shafts and adits are recorded to lie within 20 metres of the site.
Is exploratory work required to investigate the potential risk from shallow mining or quarrying?	No	



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Table 4.3 Other Extractive Industries.

	Yes/No	Comments
Superficial drift deposits		
Evidence of extraction on or within 250 m of the Site?	Yes	Historic map from 1872 indicate the presence of 20 No ponds on Site. The most up to dated map indicate the presence of 2 ponds. In this case it is considered that 18 No ponds are potentially infilled.
Action required?	Yes	Further investigation is required to determine if any materials have been used to refill the former ponds and assess potential ground gas source potential
Solid Strata		
Any evidence of mineral extraction on or within 250 m of the Site?	No	
Action required?	No	

Other, undocumented mineral workings on or close to the Site cannot be completely dismissed.

4.3. Hydrogeology

Table 4.4 Groundwater Occurrence and Abstraction.

	Presence/location	Comments
Environment Agency aquifer designation – Superficial Deposits	On Site	Devensian Till – Diamicton: Secondary (Undifferentiated) Aquifer
Environment Agency aquifer designation – Bedrock	On Site	Principal Aquifer associated with the Kinnerton Sandstone Formation.
	On Site	Secondary A Aquifer associated with the Salop Sandstone Formation.
Groundwater vulnerability	On Site	Low Vulnerability associated with the Secondary (Undifferentiated) Aquifer, Low Vulnerability associated with the Principal Aquifer and Low Vulnerability associated with the Secondary A Aquifer.
Anticipated groundwater depth(s)	Potentially artesian	Nearby BGS borehole log SJ35SE227 approximately 110m northwest of the indicates that potentially artesian groundwater is present; however, this is likely to be associated with the underlying bedrock.
Direction of flow	Unknown	Anticipated shallow groundwater flow may be to the northeast / east following the local topography. Deeper bedrock groundwater / regional groundwater flow may be to the south towards the River Clywedog.
Current licensed abstractions – potable	NR within 2km	
Current licensed abstractions – non-potable	NR within 1km	



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	Presence/location	Comments
Private wells	Yes	1 No pump was observed on a Historical Map from 1899 415m south-west of the Site. 3 No wells were observed on a historical Map from 1900 and a Historical Map from 1912 Historical Maps on site.
Source Protection Zones	On Site	Source Protection Zone 3 Total Catchment Area located across the central, western and northern parts of the Site
Springs	10m north	1 No spring identified on the 1949 Historical Map.
	130m west	1 No spring identified on the 1949 Historical Map.
	460m north.	1 No spring identified on the 1968, 1982 and 1992 Historical Maps.

NR - none recorded.

For definition of Source Protection Zones, see Appendix F.

4.4. Hydrology

Table 4.5 Surface Water Features.

	Presence/location	Comments
Nearest surface water feature	110m west	Underground watercourse (Inland river not influenced by normal tidal action).
Other surface water features	135m to 225 south. 235m to 245m south-west.	On ground surface watercourses.
Canals, ponds, lakes, etc.	West, north and north-east within 500m. At the western part of the site.	Pond features are shown on the map.
Water Framework Directive (WFD) Surface Water Bodies	NR within 500m	
Licensed surface water abstractions	NR within 250m	
Surface run-off and Site drainage	Precise extent is unknown.	
River Dee Designated Special Area of Conservation (SAC)	River Dee 3km to the east	The Site is located within the phosphate sensitive freshwater catchment of the River Dee and Bala Lake Special Area of Conservation (SAC). Due consideration during the production of the drainage strategy and detailed design should be given with respect to this designation and any mitigation avoidance measures.

NR - none recorded. Environment Agency GQA assessments: A = very good to E = poor

4.5. Flood Risk Summary

Table 4.6 below represents a summary of the flood risk data contained within the Groundsure report obtained for the Site.

Table 4.6 Flood Risk Summary

	Presence/location	Comments
Risk of Flooding from Rivers and Sea (RoFRaS)	NR within 250m	
Historical Flood Events	NR within 250m	



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	Presence/location	Comments
Flood Defences	NR within 250m	
Areas Benefiting from Flood Defences	NR within 250m	
Flood Storage Areas	NR within 250m	
Records of Flood Zone 2	NR within 50m	
Records of Flood Zone 3	NR within 50m.	
Surface water flooding	On site	1 in 30 year, 0.3 to 1.0m
	Within 50m	
Groundwater flooding	On site	Low risk.
	Within 50m	

NR - none recorded

4.6. Environmental Designations

Table 4.7 Summary of Environmental Designations.

	Presence/location	Comments
Sites of Special Scientific Interest (SSSI)	NR within 250m	
Conserved wetland sites (Ramsar sites)	NR within 250m	
Special Areas of Conservation (SAC)	NR within 250m in the Groundsure report obtained on 25.10.2021	It is now understood that the Site is located within the phosphate sensitive freshwater catchment of the River Dee and Bala Lake Special Area of Conservation (SAC). Due consideration during the production of the drainage strategy and detailed design should be given with respect to this designation and any mitigation avoidance measures.
Special Protection Areas (SPA)	NR within 250m	
National Nature Reserves (NNR)	NR within 250m	
Local Nature Reserves (LNR)	NR within 250m	
Designated Ancient Woodland	NR within 250m	
Biosphere Reserves	NR within 250m	
Forest Parks	NR within 250m	
Marine Conservation Zones	NR within 250m	
Green Belt	NR within 250m	
Proposed Ramsar sites	NR within 250m	
Possible Special Areas of Conservation (pSAC)	NR within 250m	
Potential Special Protection Areas (pSPA)	NR within 250m	
Nitrate Sensitive Areas	NR within 250m	
Nitrate Vulnerable Zones	NR within 250m	



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	Presence/location	Comments
SSSI Units	NR within 250m	

NR - none recorded

4.7. Landfill and Waste Management Activity

Table 4.8 Waste Management Activities.

	Presence/location	Comments
Active or recent landfill	NR within 250m	
Historical landfill (BGS records)	NR within 250m	
Historical landfill (LA/mapping records)	NR within 500m	
Historical landfill (EA/NRW records)	NR within 500m	
Historical waste sites	NR within 500m	
Licensed waste sites	125m south	Name of site: Bryn Lane Composting Facility. Issue Date: 27/11/2007 Modified: 22/08/2012
	130m south	9 No entries associated with Bryn Lane Waste Recycling and Composting Facility. Issue Date 27/11/2007 Modified: 16/04/2009 Modified: 05/05/2011 Modified: 22/08/2012
Waste exemptions	245m south	Storing waste exemption. Not on a farm. Storage of waste in secure containers.
	250 south	Storing waste exemption; using waste exemption; storing waste exemption. Not on a farm; waste exemption – Agricultural; waster exemption – Non-Agricultural. Storage of waste in secure containers; use of waste derived biodiesel as fuel; storage of sludge.
Evidence of other landfilling or potential infilling on or within 250m of Site	On Site and within 250m of Site.	Numerous historical ponds that may have been potentially infilled.
Walkover evidence of fly-tipping on Site?		NR. However, it is possible to have some areas of fly tipping on site.
Is a landfill/ground gas risk assessment required?	Yes	Consideration of potential low ground gas risk should be undertaken based on the Site and surrounding land industrial history.

NR - none recorded

4.8. Local Industrial Land Uses

Other potentially contaminative activities are shown in Table 4.9 below with those features considered pertinent to the conceptual site model highlighted in **bold**. The entries relate to activities within *circa* 250 m of the Site, with the exception of COMAH facilities where the assessment is extended to a distance of *circa* 500m from the Site.



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Table 4.9 Other Potentially Contaminative Processes in the Locality

	Location	Comments
Recent and historic industrial land uses	25m south, 135m west	Electricity substation (given the low mobility of PCBs in the environment, it is not considered that this presents a risk to the site).
	55m south and 110m south	Electrical and Electronic Engineers
	95m south, 160m south and 180m to 250m south	Unspecified tanks
	100m south	Industrial Engineers and Aviation Engineers
	100m south, 150m south	Telephone exchange
	115m south	Recycling, Reclamation and Disposal
	130m south	Gas governor
	140m south	General Purpose Machinery
	180m south	Chimneys
	225m to 230m south	Railway sidings
	225m south	J C B Drivetrain Systems - Engines
	245m south	Textiles, Fabrics, Silk and Machinery
	250m south	Unspecified heap
Current or recent petrol stations	NR within 250m	
Electricity cables	NR within 500m	
Gas pipelines	NR within 500m	
Sites determined as Contaminated Land	NR within 500m	
Control of Major Accident Hazards (COMAH)	NR within 500m	
Regulated explosive sites	NR within 500m	
Hazardous substance storage/usage	NR within 500m	
Historical licensed industrial activities (IPC)	NR within 250m	
Lic Ltensed industrial activities (Part A(1))	60m south	4 No entries associated with Kellogg Company of Great Britain Ltd Date Issue: 09/11/2005 Process: Animal vegetable and food, treating etc vegetable raw materials form food. Status: Superseded Date Issue: 09/11/2005 Process: Combustion Status: Superseded Date Issue: 09/11/2005 Process: Other waste disposal, non-hazardous waste by biological treatment. Status: Superseded Date Issue: - Process: Other waste disposal; on site effluent treatment plant discharging $\geq 300\text{m}^3$. Status: Determination



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	Location	Comments
Licensed pollutant release (Part A(2)/B)	65m south	Orchid Laundry & Dry Cleaning Ltd Process: Dry Cleaning Status: Current Permit Permit Type: Part B
Radioactive Substance Authorisations	NR within 500m	
Licensed Discharges to controlled waters	NR within 250m	
Pollutant release to surface waters (Red List)	NR within 500m	
Pollutant release to public sewer	NR within 500m	
List 1 Dangerous Substances	NR within 500m	
List 2 Dangerous Substances	NR within 250m	
Pollution Incidents (EA/NRW)	180m south	Incident Date: 30/04/2015 Pollutant: Oils and Fuel Pollutant Description: Diesel Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
	200m south	Incident Date: 19/12/2013 Pollutant: Inorganic Chemicals/Products Pollutant Description: Other Inorganic Chemical or Product Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
Pollution inventory substances	NR within 500m	
Pollution inventory waste transfers	NR within 500m	
Pollution inventory radioactive waste	NR within 500m	

NR - none recorded

COMAH – Control of Major Accident Hazards (regulations); NIHHS – Notification of Installations Handling Hazardous Substances (regulations)



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4.9. Radon Risk

Table 4.10 Radon Risk Status.

	Comments
Estimated properties affected	Less than 1% of properties above the Action Level across the majority of the site. Between 1% and 3% of properties above the Action Level across the southern area of the site, likely to be associated with the Salop Formation – Mudstone, Sandstone and Conglomerate. Based on the anticipated depth of low permeability Till across the site, it is considered at this stage that radon from the bedrock strata would affect the proposed development. Testing existing buildings and fitting radon prevention in new buildings might still be considered, particularly if there is a high risk location such as a routinely occupied basement.
Radon Protection Measures required?	No



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4.10. Waste Classification and Materials Re-Use

If the Site is to be redeveloped and materials are disposed off Site, the material exported from the Site to Landfill should be hauled by a register waste character in accordance with Duty of Care Regulations 1991 and the Hazardous Waste Regulations 2005.

Based on the history of the Site and the anticipated potential contaminants of concern, it is considered unlikely that significant quantities of hazardous waste soil materials will be present, but they may be present locally beneath some areas of the Site; however, this will be subject to confirmatory investigation, sampling, laboratory analysis and waste classification in accordance with the Guidance on the Classification and Assessment of Waste (WM3).

It will be necessary to register the Site in advance of the intended reclamation works with Natural Resources Wales before disposal to landfill can take place. There will be requirement for the waste producer to provide appropriate Waste Acceptance Criteria (WAC) testing of the Soils for disposal to ensure that the soils are appropriately classified and that the landfill is licensed to receive such soils. A consignment note shall be completed, signed and retained by all parties involved. The consignment note shall state the volume of waste, a physical description of the material and statement of its chemical composition. The waste consignment notes shall be kept by the contractor for a period of at least two years.

Subject to volumetric fill requirements and a future assessment of suitability of re-use (both chemically and geotechnically), some materials *may* be considered for potential re-use in line with an appropriate end-of-waste protocol such as WRAP Quality Protocol for Aggregates from Inert Waste, U1 Exemption or a Materials Management Plan in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP).



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5. PREVIOUS INVESTIGATION FINDINGS

No previous desk study or site investigation reports pertaining to this Site have been made available.



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6. PRELIMINARY CONCEPTUAL SITE MODEL

Based on the information provided in the previous sections of this report a combined preliminary conceptual site model and conceptual exposure model has been developed for the proposed future land use. This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors. In assessing the likely contaminants of concern present at the Site, reference has also been made to Defra and Environment Agency supporting documentation. A preliminary qualitative risk assessment has also been made of the likelihood of the linkage operating and its potential significance in accordance with CIRIA C552.

The potential pollutant linkages identified and the qualitative risk assessment for these are presented in Table 6.1 below. The terms used in the preliminary qualitative risk assessment are defined in Appendix E.

In addition to Table 6.1, it should be noted that the Site is located within the River Dee and Bala Lake Designated Special Area of Conservation (SAC). The drainage strategy/design for the proposed development should therefore incorporate appropriate on-site and/or off-site mitigation measures which should be agreed with the regulatory authorities.

6.1. Uncertainties

The following uncertainties exist in the preliminary conceptual model:

- The presence of any features unrecorded by the historic maps.
- Any unrecorded geological features.
- Any unrecorded pollution events during the Site's history.



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Table 6.1 Preliminary Assessment of Potential Pollutant Linkages.

Justification / Comments* A1:H16A2A1:F16A1:G16A2A1:F16A1:K16A1:I16A1:H16A1:H17A2A1: F16A1:H18A1:H16	Source	Potential Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Qualitative Risk Assessment
- Currently, the Site comprises predominantly agricultural use with a residential / farm property (Little Acorns) located in the southern extent of the Site. The agricultural fields are delineated by localised copses of trees and hedgerows. The majority of the Site is grass covered grass with the exception of the area at the Little Acorns where some localised hardstanding is anticipated. Little Acorns appear to include barns and areas of equipment potentially associated with agricultural use (including a possibly horse walker). Ponds appear to be located in the western and southern parts of the Site. - The Site was historically agricultural with approximately 3 No. wells identified in the southern part of the Site. Pond locations and sizes are shown to vary over time indicating the potential for some of them to have been potentially infilled. Ridley View (shown in the present day location of Little Acorns) was developed in the south by 1992 (residential / farm). - Pertinent surrounding land uses include farms, the Royal Ordnance Factory (Wrexham) to the south of the Site (as close as 20m south) and associated buildings and tanks etc, a clothing factory to the south (60m south), Wrexham Industrial Estate (25m south at its closest point). Given that the Site itself did not form part of the ROF Wrexham site it is not considered that there are any risks from explosives at the Site.	Localised Made Ground associated with the former agricultural land use and farm in the south of the Site and any potentially infilled ponds.	Possible, metal, PAH, phenol, sulphate, TPH, asbestos contamination of on-Site Made Ground .	Dermal contact, ingestion and inhalation of contaminants including contaminated dust migration during construction.	Future site users (commercial)	Medium	Likely	Moderate risk
				Adjacent site users (commercial / residential)	Medium	Low Likelihood	Moderate / low risk
			Migration via water pipes.	Construction, site investigation, demolition and future maintenance workers	Medium	Likely	Moderate risk
				Adjacent site users (commercial / residential)	Medium	Low Likelihood	Moderate / low risk
			Lateral and/or vertical migration of mobile contaminants.	Secondary Undifferentiated Aquifers	Mild	Low Likelihood	Low risk
				Secondary A and Principal Aquifer at depth	Medium	Unlikely	Low risk
				Underground watercourse located 110m west	Mild	Low Likelihood	Low risk
- No previous ground investigation reports have been provided to Tier Environmental; however, available BGS information does not indicate the presence of any artificial ground on the Site (although land immediately south is shown to comprise 'Landscaped Ground'). Localised Made Ground within the Little Acorns farm/residential property area and potentially within historically infilled ponds may be anticipated. - Superficial deposits comprise a Secondary Undifferentiated Aquifer associated with Devensian Till – Diamicton which has been proven in BGS logs to comprise cohesive materials locally to depths of Circa 26 to 38m bgl which is considered sufficient to provide protection of the underlying bedrock aquifers from any vertical migration of potential contaminants of concern. Bedrock comprises a Principal Aquifer associated with Kinnerton Sandstone Formation in the western/northern parts of the Site and a Secondary A Aquifer associated with the Salop Formation comprising mudstone in the southern / southeastern part of the Site. There is a inferred fault located beneath the site orientated from southwest to northeast associated with these two bedrock formations. - There is a Source Protection Zone Total Catchment 3 located beneath the Site associated with the Principal Aquifer; however, the thickness of cohesive Till above this is considered to provide sufficient protection from any shallow contaminants of concern. The nearest surface water receptor comprises an underground water course 110m west. There are no potable or non-potable water abstractions located within 1km of the Site. On this basis the controlled waters sensitivity is considered to be low. - There are no landfills located within 250m of the Site and the Site is not located within a high risk radon affected area. The only viable potential source of ground gases is therefore on-site localised Made Ground / potentially infilled ponds and off-site Made Ground. - The Site is located within the phosphate sensitive freshwater catchment of the River Dee and Bala Lake Special Area of Conservation (SAC). The proposed development will involve covering the site mostly in buildings and hardstanding and demolishing the farm buildings at Little Acorns. Not only will this act to inhibit infiltration into the ground, it will also largely remove the source of agricultural phosphate from the site. The site won topsoil will be reused within the development within screening bunds and soft landscaping, but agricultural fertilisers and manure will no longer be used on the site. Wastewater drainage from the proposed development will be either via the on-site combined sewer and the Five Fords WwTW or on-site wastewater treatment and discharge to the on-site surface water drainage system.	Former ROF Wrexham and associated tanks	Petroleum hydrocarbons / VOCs/SVOCs	Dermal contact, ingestion and inhalation of contaminants including contaminated dust migration during construction.	Future site users (commercial)	Medium	Low Likelihood	Moderate / low risk
				Construction, site investigation, demolition and future maintenance workers	Medium	Low Likelihood	Moderate / low risk
	On-site localised Made Ground / potentially infilled ponds and off-site Made Ground.	Hazardous ground gasses (methane, carbon dioxide, hydrogen sulphide and depleted oxygen)	Inhalation (indoor and outdoor)	Future site users (commercial)	Severe	Low Likelihood	Moderate risk
				Adjacent site users (commercial / residential)	Severe	Unlikely	Moderate / low risk
				Construction, site investigation, demolition and future maintenance workers	Severe	Low Likelihood	Moderate risk
			Migration of ground gas / explosion	Buildings and services	Severe	Unlikely	Moderate / low risk
	Phosphates from the proposed development from staff wastewater discharges containing human excreta and detergents.	Phosphates	Discharge of treated wastewater into the River Dee or tributaries	River Dee and Bala Lake SAC	Medium	Unlikely	Low risk

For definition of the terms used in the qualitative risk assessment, please see Appendix E.



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7. REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of this preliminary risk assessment. However, these cannot be guaranteed to gain regulatory approval and, therefore, the report should be passed to the appropriate regulatory authorities and/or other organisations for their comment and approval prior to undertaking any works on site.

It is recommended that conditions placed on any planning permission are discharged prior to commencement of site works.



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9. GLOSSARY OF TERMS

ACEC	Aggressive Chemical Environment for Concrete (classification)
aOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national or international legislation. A potential ecological receptor to be considered as part of the assessment of land contamination. Example designated locations include SSSIs (q.v.), SACs (q.v.), national nature reserves, Ramsar sites and bird special protection areas.
DQA	Data Quality Assessment
DQO	Data Quality Objective
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
K _{ow}	Octanol-water partition coefficient
LEL	Lower Explosive Limit
LL	Liquid Limit
LoD	Limit of Detection (analytical)
LoQ	Limit of Quantification (analytical)
Mean Value Test	Statistical test (described in the CIEH Guidance) to estimate the mean value of a normally distributed population of data at a given level of confidence. Normally for contaminated land assessment, the 95th percentile (referred to as the 95%UCL or US95) is applied as a reasonable but conservative estimate of the mean concentration for comparison with the relevant assessment criteria.
Maximum Value Test	Statistical test (described in the CIEH Guidance) to identify whether an elevated concentration within a normally distributed data set forms part of the underlying population from which it has been sampled or whether it is an outlier (such as a localised area of contamination) that merits further consideration.
MC	Moisture Content
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
PI	Plasticity Index
PID	Photoionisation Detector
PL	Plastic Limit
ppm	Parts per million
ppmv	Parts per million by volume
QA	Quality Assurance
QC	Quality Control
SAC	Special Area of Conservation
SOM	Soil Organic Matter



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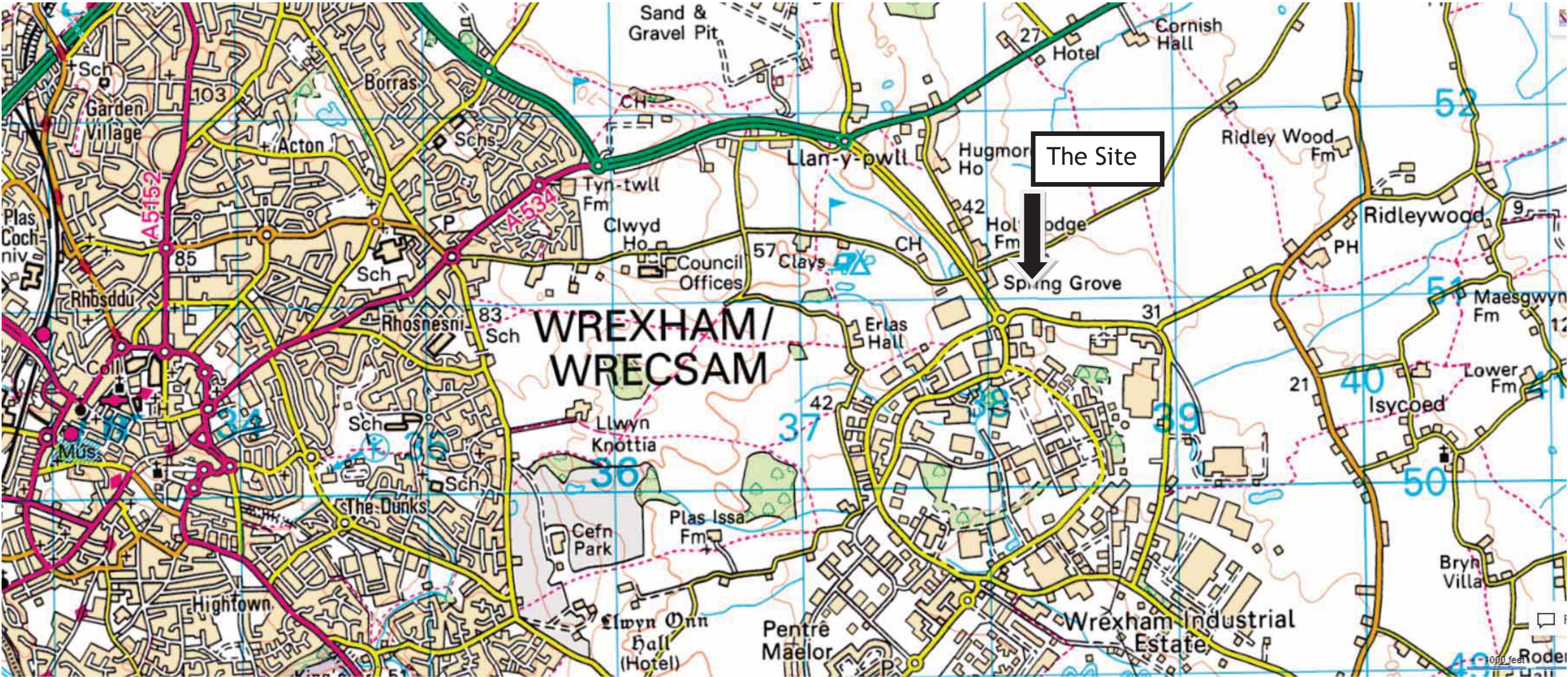
SPT	Standard Penetration Test
SPZ	Source Protection Zone (see Appendix F)
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest
SVOC	Semi-Volatile Organic Compound
TEF	Toxicity Equivalent Factor
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
US95	95 th percentile estimate of the true mean value of a data population (also known as 95%UCL).
VOC	Volatile Organic Compound

APPENDIX A - DRAWINGS



Site Location Plan

Contract Number	TE1624
Contract	Bryn Lane, Wrexham
Client	Net World Sports



Scale	NTS	
Drawn by	AR	Approved AR
Drawing Number	TE1624-TE-00-XX-DR-GE-001-V01	

KEY

 SITE BOUNDARY



SITE LOCATOIN PLAN

LAND AT BRYN LANE, WREXHAM

CLIENT:NET WORLD SPORTS DRAWN: TR CHECKED: MT APPROVED: MK

SCALE: 1:2500 @A2 DATE: 23/11/21 DRAWING NO:UG_1331_UD_DRG_SLP_02

APPENDIX B - PHOTOGRAPHS

Photograph 1:



Photograph 2:



Photograph 3:



Photograph 4: Little Acorns far / residential property



Photograph 5:



Photograph 6:



APPENDIX C - GROUNDSURE REPORT

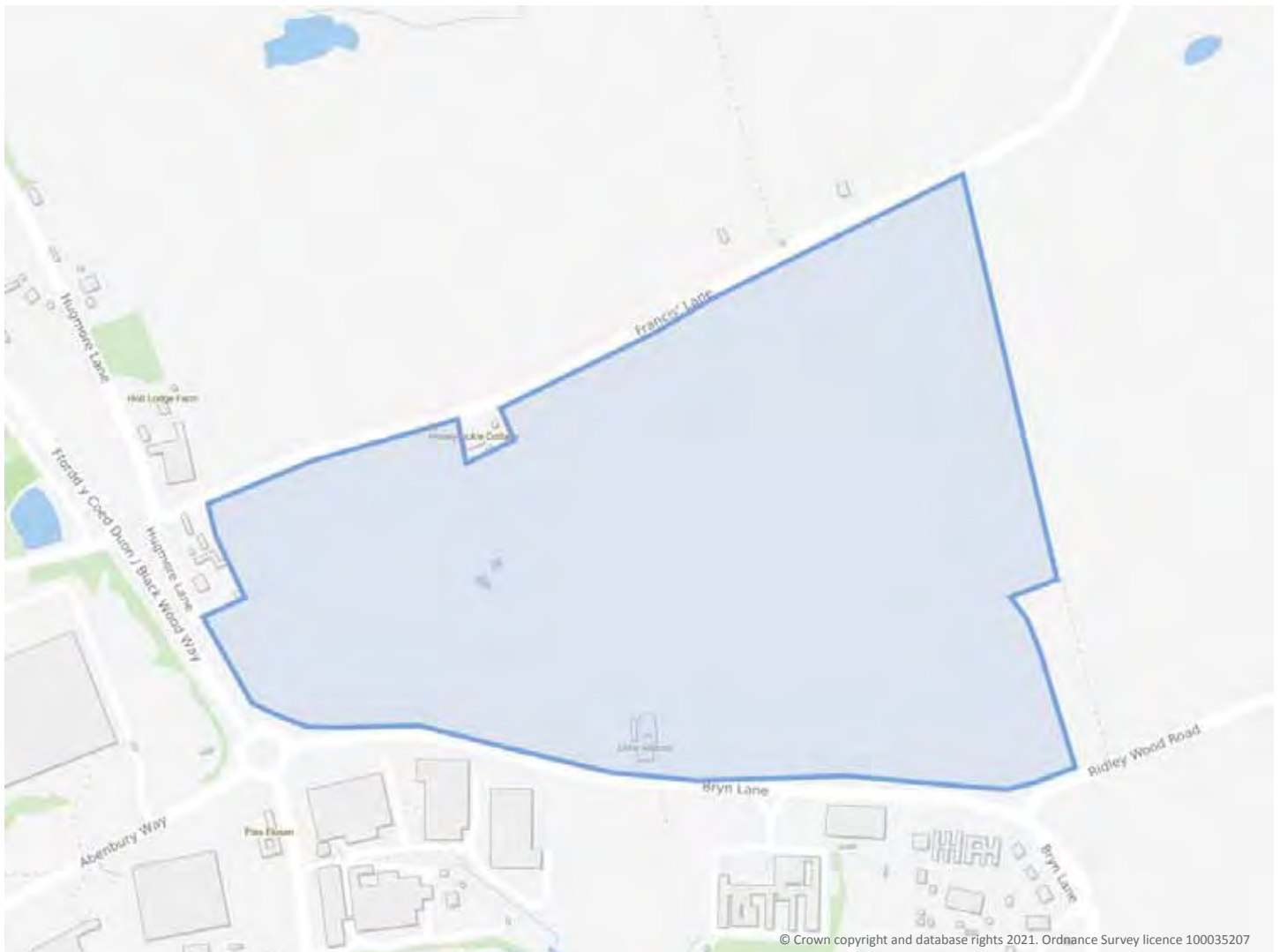
LAND NORTH OF BRYN LANE, WREXHAM INDUSTRIAL ESTATE, WREXHAM, LL13 9UT

Order Details

Date: 25/10/2021
Your ref: 1779_TE1624
Our Ref: GS-8287503
Client: Tier Environmental

Site Details

Location: 338541 351126
Area: 38.93 ha
Authority: [Wrexham - Wrexham County Borough Council](#)



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Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

N/A: >10ha

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>13</u>	<u>1.1</u>	<u>Historical industrial land uses</u>	0	0	7	9	-
<u>14</u>	<u>1.2</u>	<u>Historical tanks</u>	0	0	16	14	-
<u>16</u>	<u>1.3</u>	<u>Historical energy features</u>	0	0	0	12	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	0	0	-
<u>17</u>	<u>1.6</u>	<u>Historical military land</u>	0	0	1	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
<u>18</u>	<u>2.1</u>	<u>Historical industrial land uses</u>	0	0	12	16	-
<u>20</u>	<u>2.2</u>	<u>Historical tanks</u>	0	0	61	31	-
<u>23</u>	<u>2.3</u>	<u>Historical energy features</u>	0	0	0	33	-
25	2.4	Historical petrol stations	0	0	0	0	-
25	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
26	3.1	Active or recent landfill	0	0	0	0	-
26	3.2	Historical landfill (BGS records)	0	0	0	0	-
27	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
27	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
27	3.5	Historical waste sites	0	0	0	0	-
<u>27</u>	<u>3.6</u>	<u>Licensed waste sites</u>	0	0	10	7	-
<u>32</u>	<u>3.7</u>	<u>Waste exemptions</u>	0	0	4	7	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>34</u>	<u>4.1</u>	<u>Recent industrial land uses</u>	0	1	23	-	-
<u>36</u>	<u>4.2</u>	<u>Current or recent petrol stations</u>	0	0	0	1	-
36	4.3	Electricity cables	0	0	0	0	-
37	4.4	Gas pipelines	0	0	0	0	-
37	4.5	Sites determined as Contaminated Land	0	0	0	0	-



37	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
37	4.7	Regulated explosive sites	0	0	0	0	-
37	4.8	Hazardous substance storage/usage	0	0	0	0	-
38	4.9	<u>Historical licensed industrial activities (IPC)</u>	0	0	0	5	-
38	4.10	<u>Licensed industrial activities (Part A(1))</u>	0	0	4	30	-
44	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	1	9	-
46	4.12	Radioactive Substance Authorisations	0	0	0	0	-
46	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	0	9	-
47	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
47	4.15	Pollutant release to public sewer	0	0	0	0	-
48	4.16	List 1 Dangerous Substances	0	0	0	0	-
48	4.17	<u>List 2 Dangerous Substances</u>	0	0	0	1	-
48	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	2	3	-
49	4.19	Pollution inventory substances	0	0	0	0	-
49	4.20	Pollution inventory waste transfers	0	0	0	0	-
49	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
50	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
51	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
53	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
55	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
55	5.5	Groundwater vulnerability- local information	None (within 0m)				
56	5.6	<u>Groundwater abstractions</u>	0	0	1	0	15
60	5.7	<u>Surface water abstractions</u>	0	0	0	0	1
60	5.8	Potable abstractions	0	0	0	0	0
61	5.9	<u>Source Protection Zones</u>	2	0	0	0	-
61	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
62	6.1	<u>Water Network (OS MasterMap)</u>	0	0	11	-	-



63	6.2	<u>Surface water features</u>	1	0	9	-	-
64	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
64	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
65	6.5	<u>WFD Groundwater bodies</u>	2	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
66	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
66	7.2	Historical Flood Events	0	0	0	-	-
66	7.3	Flood Defences	0	0	0	-	-
67	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
67	7.5	Flood Storage Areas	0	0	0	-	-
68	7.6	Flood Zone 2	None (within 50m)				
68	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
69	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
71	9.1	<u>Groundwater flooding</u>	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
72	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
73	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
73	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
73	10.4	Special Protection Areas (SPA)	0	0	0	0	0
73	10.5	National Nature Reserves (NNR)	0	0	0	0	0
74	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
74	10.7	<u>Designated Ancient Woodland</u>	0	0	0	0	14
75	10.8	Biosphere Reserves	0	0	0	0	0
75	10.9	Forest Parks	0	0	0	0	0
75	10.10	Marine Conservation Zones	0	0	0	0	0
75	10.11	Green Belt	0	0	0	0	0
75	10.12	Proposed Ramsar sites	0	0	0	0	0



76	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
76	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
76	10.15	Nitrate Sensitive Areas	0	0	0	0	0
76	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
77	<u>10.17</u>	<u>SSSI Impact Risk Zones</u>	2	-	-	-	-
78	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
79	11.1	World Heritage Sites	0	0	0	-	-
80	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
80	11.3	National Parks	0	0	0	-	-
80	<u>11.4</u>	<u>Listed Buildings</u>	0	0	1	-	-
81	11.5	Conservation Areas	0	0	0	-	-
81	11.6	Scheduled Ancient Monuments	0	0	0	-	-
81	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
82	<u>12.1</u>	<u>Agricultural Land Classification</u>	Grade 3a (within 250m)				
83	12.2	Open Access Land	0	0	0	-	-
83	12.3	Tree Felling Licences	0	0	0	-	-
83	12.4	Environmental Stewardship Schemes	0	0	0	-	-
83	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
84	13.1	Priority Habitat Inventory	0	0	0	-	-
84	13.2	Habitat Networks	0	0	0	-	-
84	13.3	Open Mosaic Habitat	0	0	0	-	-
84	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
85	<u>14.1</u>	<u>10k Availability</u>	Identified (within 500m)				
86	<u>14.2</u>	<u>Artificial and made ground (10k)</u>	0	1	1	1	-
87	<u>14.3</u>	<u>Superficial geology (10k)</u>	1	0	0	0	-

88	14.4	Landslip (10k)	0	0	0	0	-
89	14.5	<u>Bedrock geology (10k)</u>	2	0	1	0	-
90	14.6	<u>Bedrock faults and other linear features (10k)</u>	1	0	1	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
91	15.1	<u>50k Availability</u>	Identified (within 500m)				
92	15.2	<u>Artificial and made ground (50k)</u>	1	0	0	1	-
93	15.3	<u>Artificial ground permeability (50k)</u>	1	0	-	-	-
94	15.4	<u>Superficial geology (50k)</u>	2	0	0	0	-
95	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
95	15.6	Landslip (50k)	0	0	0	0	-
95	15.7	Landslip permeability (50k)	None (within 50m)				
96	15.8	<u>Bedrock geology (50k)</u>	4	0	1	0	-
97	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
97	15.10	<u>Bedrock faults and other linear features (50k)</u>	2	0	1	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
98	16.1	<u>BGS Boreholes</u>	0	5	25	-	-
Page	Section	Natural ground subsidence					
101	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
102	17.2	<u>Running sands</u>	Very low (within 50m)				
104	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
105	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
106	17.5	<u>Landslides</u>	Very low (within 50m)				
107	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
109	18.1	Natural cavities	0	0	0	0	-
110	18.2	BritPits	0	0	0	0	-
110	18.3	<u>Surface ground workings</u>	29	6	37	-	-
113	18.4	Underground workings	0	0	0	0	0
113	18.5	Historical Mineral Planning Areas	0	0	0	0	-



113	18.6	Non-coal mining	0	0	0	0	0
113	18.7	Mining cavities	0	0	0	0	0
113	18.8	JPB mining areas	None (within 0m)				
114	18.9	<u>Coal mining</u>	Identified (within 0m)				
114	18.10	Brine areas	None (within 0m)				
114	18.11	Gypsum areas	None (within 0m)				
114	18.12	Tin mining	None (within 0m)				
114	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
115	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
116	20.1	<u>BGS Estimated Background Soil Chemistry</u>	11	2	-	-	-
117	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
117	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
118	21.1	Underground railways (London)	0	0	0	-	-
118	21.2	Underground railways (Non-London)	0	0	0	-	-
119	21.3	Railway tunnels	0	0	0	-	-
119	21.4	<u>Historical railway and tunnel features</u>	0	0	4	-	-
119	21.5	Royal Mail tunnels	0	0	0	-	-
120	21.6	Historical railways	0	0	0	-	-
120	21.7	Railways	0	0	0	-	-
120	21.8	Crossrail 1	0	0	0	0	-
120	21.9	Crossrail 2	0	0	0	0	-
120	21.10	HS2	0	0	0	0	-

Recent aerial photograph



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Capture Date: 10/04/2020

Site Area: 38.93ha



Recent site history - 2017 aerial photograph



Capture Date: 07/05/2017

Site Area: 38.93ha



Recent site history - 2009 aerial photograph



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Capture Date: 11/05/2009

Site Area: 38.93ha



Recent site history - 2003 aerial photograph



Capture Date: 04/08/2003

Site Area: 38.93ha



Recent site history - 2000 aerial photograph



Capture Date: 04/09/2000

Site Area: 38.93ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical military land

1.1 Historical industrial land uses

Records within 500m

16

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	94m S	Unspecified Tanks	1982 - 1992	966840



ID	Location	Land use	Dates present	Group ID
1	102m S	Telecomm Exchange	1982 - 1992	933845
C	173m S	Unspecified Tanks	1982 - 1992	875572
D	225m S	Railway Sidings	1960 - 1968	935833
D	230m S	Railway Sidings	1949	880775
4	246m SW	Unspecified Tanks	1949	814860
5	247m S	Unspecified Heap	1960 - 1968	958224
6	279m SW	Railway Sidings	1949	870067
7	318m SW	Railway Sidings	1960 - 1968	945208
8	318m S	Industrial Estate	1982	844626
9	356m S	Unspecified Commercial/Industrial	1949	796408
D	408m S	Railway Buildings	1960 - 1968	984437
D	423m S	Railway Building	1960 - 1968	913474
11	425m S	Unspecified Pit	1960 - 1982	914267
D	438m S	Unspecified Tanks	1992	814864
16	479m S	Unspecified Heap	1960 - 1982	900352

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

30

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	94m S	Tanks	1982 - 1991	125438
A	95m S	Tanks	1993 - 1995	128131
A	97m S	Tanks	1989	104984



ID	Location	Land use	Dates present	Group ID
B	160m S	Unspecified Tank	1982 - 1990	146089
B	160m S	Unspecified Tank	1974 - 1991	132233
B	161m S	Unspecified Tank	1993 - 1995	127145
C	170m S	Tanks	1982 - 1990	128028
C	170m S	Tanks	1993 - 1995	138886
C	171m S	Unspecified Tank	1974 - 1991	122911
C	180m S	Tanks	1982 - 1990	138225
C	185m S	Tanks	1991	126604
C	195m S	Tanks	1993 - 1995	127752
C	195m S	Tanks	1982 - 1991	144889
3	218m S	Tanks	1987	104983
E	248m S	Unspecified Tank	1974 - 1991	130673
E	249m S	Unspecified Tank	1993 - 1995	136940
E	263m S	Tanks	1989	140200
F	394m S	Tanks	1960	104982
F	400m S	Tanks	1960	104981
D	426m S	Tanks	1987 - 1989	138288
D	431m S	Tanks	1989 - 1990	148016
D	432m S	Tanks	1991	148576
D	432m S	Tanks	1993 - 1995	146317
12	436m SW	Unspecified Tank	1982 - 1999	147396
D	442m S	Tanks	1991	147597
D	450m S	Tanks	1991	128946
D	463m S	Unspecified Tank	1982	110678
D	463m S	Tanks	1993 - 1995	124731
D	464m S	Tanks	1991	142622
D	465m S	Tanks	1993 - 1995	136561

This data is sourced from Ordnance Survey / Groundsure.



1.3 Historical energy features

Records within 500m

12

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
10	375m S	Electricity Substation	1991 - 1995	84681
13	452m S	Electricity Substation	1974 - 1995	68827
14	469m SW	Electricity Substation	1982 - 1988	81255
15	476m SW	Electricity Substation	1982 - 1999	67486
D	491m S	Electricity Substation	1989	78303
D	492m S	Electricity Substation	1990	67055
D	492m S	Electricity Substation	1990	74971
D	492m S	Electricity Substation	1989	76207
D	498m S	Electricity Substation	1982 - 1987	66128
D	498m S	Electricity Substation	1993	67655
D	498m S	Electricity Substation	1995	75403
D	498m S	Electricity Substation	1994	83333

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



1.5 Historical garages

Records within 500m

0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

1

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

Features are displayed on the Past land use map on **page 13**

ID	Location	Site Name	Date of Operation	Activities
2	190m S	ROF Wrexham	c.1938 - 1988	c. WW2: Produced cordite;; post WW2: Cordite production ceased in 1945 and the area was used as an industrial estate by the Welsh Development Agency to boost the local economy; Explosives Factory

This data is sourced from Ordnance Survey / Groundsure / other sources.



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

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2.1 Historical industrial land uses

Records within 500m

28

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	94m S	Unspecified Tanks	1992	966840
A	94m S	Unspecified Tanks	1982	966840
B	102m S	Telecomm Exchange	1992	933845



ID	Location	Land Use	Date	Group ID
B	102m S	Telecomm Exchange	1982	933845
D	173m S	Unspecified Tanks	1992	875572
D	173m S	Unspecified Tanks	1982	875572
E	225m S	Railway Sidings	1960	935833
E	225m S	Railway Sidings	1968	935833
E	230m S	Railway Sidings	1949	880775
2	246m SW	Unspecified Tanks	1949	814860
F	247m S	Unspecified Heap	1960	958224
F	247m S	Unspecified Heap	1968	958224
3	279m SW	Railway Sidings	1949	870067
H	318m SW	Railway Sidings	1960	945208
H	318m SW	Railway Sidings	1968	945208
4	318m S	Industrial Estate	1982	844626
5	356m S	Unspecified Commercial/Industrial	1949	796408
E	408m S	Railway Buildings	1960	984437
E	408m S	Railway Buildings	1968	984437
E	423m S	Railway Building	1960	913474
E	423m S	Railway Building	1968	913474
K	425m S	Unspecified Pit	1982	914267
K	425m S	Unspecified Pit	1960	914267
K	425m S	Unspecified Pit	1968	914267
E	438m S	Unspecified Tanks	1992	814864
P	479m S	Unspecified Heap	1982	900352
P	479m S	Unspecified Heap	1960	900352
P	479m S	Unspecified Heap	1968	900352

This data is sourced from Ordnance Survey / Groundsure.



2.2 Historical tanks

Records within 500m

92

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
A	94m S	Tanks	1982	125438
A	94m S	Tanks	1987	125438
A	94m S	Tanks	1989	125438
A	94m S	Tanks	1990	125438
A	94m S	Tanks	1990	125438
A	95m S	Tanks	1991	125438
A	95m S	Tanks	1993	128131
A	95m S	Tanks	1995	128131
A	95m S	Tanks	1994	128131
A	97m S	Tanks	1989	104984
C	160m S	Unspecified Tank	1982	146089
C	160m S	Unspecified Tank	1987	146089
C	160m S	Unspecified Tank	1989	146089
C	160m S	Unspecified Tank	1989	146089
C	160m S	Unspecified Tank	1990	146089
C	160m S	Unspecified Tank	1990	146089
C	160m S	Unspecified Tank	1991	132233
C	160m S	Unspecified Tank	1974	132233
C	161m S	Unspecified Tank	1993	127145
C	161m S	Unspecified Tank	1995	127145
C	161m S	Unspecified Tank	1994	127145
D	170m S	Tanks	1982	128028
D	170m S	Tanks	1987	128028



ID	Location	Land Use	Date	Group ID
D	170m S	Tanks	1989	128028
D	170m S	Tanks	1989	128028
D	170m S	Tanks	1990	128028
D	170m S	Tanks	1990	128028
D	170m S	Tanks	1993	138886
D	170m S	Tanks	1995	138886
D	170m S	Tanks	1994	138886
D	171m S	Unspecified Tank	1991	122911
D	171m S	Unspecified Tank	1974	122911
D	180m S	Tanks	1982	138225
D	180m S	Tanks	1987	138225
D	180m S	Tanks	1989	138225
D	180m S	Tanks	1989	138225
D	180m S	Tanks	1990	138225
D	180m S	Tanks	1990	138225
D	185m S	Tanks	1991	126604
D	195m S	Tanks	1993	127752
D	195m S	Tanks	1995	127752
D	195m S	Tanks	1994	127752
D	195m S	Tanks	1982	144889
D	195m S	Tanks	1987	144889
D	195m S	Tanks	1989	144889
D	195m S	Tanks	1989	144889
D	195m S	Tanks	1990	144889
D	195m S	Tanks	1990	144889
D	196m S	Tanks	1991	144889
1	218m S	Tanks	1987	104983
G	248m S	Unspecified Tank	1982	130673

ID	Location	Land Use	Date	Group ID
G	248m S	Unspecified Tank	1987	130673
G	248m S	Unspecified Tank	1989	130673
G	248m S	Unspecified Tank	1989	130673
G	248m S	Unspecified Tank	1990	130673
G	248m S	Unspecified Tank	1990	130673
G	249m S	Unspecified Tank	1991	130673
G	249m S	Unspecified Tank	1974	130673
G	249m S	Unspecified Tank	1993	136940
G	249m S	Unspecified Tank	1995	136940
G	249m S	Unspecified Tank	1994	136940
G	263m S	Tanks	1989	140200
G	263m S	Tanks	1989	140200
J	394m S	Tanks	1960	104982
J	400m S	Tanks	1960	104981
E	426m S	Tanks	1987	138288
E	426m S	Tanks	1989	138288
E	431m S	Tanks	1989	148016
E	431m S	Tanks	1990	148016
E	431m S	Tanks	1990	148016
E	432m S	Tanks	1991	148576
E	432m S	Tanks	1993	146317
E	432m S	Tanks	1995	146317
E	432m S	Tanks	1994	146317
L	436m SW	Unspecified Tank	1994	147396
L	436m SW	Unspecified Tank	1999	147396
L	436m SW	Unspecified Tank	1995	147396
L	436m SW	Unspecified Tank	1995	147396
L	437m SW	Unspecified Tank	1982	147396



ID	Location	Land Use	Date	Group ID
L	437m SW	Unspecified Tank	1988	147396
L	437m SW	Unspecified Tank	1990	147396
L	437m SW	Unspecified Tank	1990	147396
E	442m S	Tanks	1991	147597
E	450m S	Tanks	1991	128946
E	463m S	Unspecified Tank	1982	110678
E	463m S	Tanks	1993	124731
E	463m S	Tanks	1995	124731
E	463m S	Tanks	1994	124731
E	464m S	Tanks	1991	142622
E	465m S	Tanks	1993	136561
E	465m S	Tanks	1995	136561
E	465m S	Tanks	1994	136561

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

33

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
I	375m S	Electricity Substation	1991	84681
I	376m S	Electricity Substation	1993	84681
I	376m S	Electricity Substation	1995	84681
I	376m S	Electricity Substation	1994	84681
M	452m S	Electricity Substation	1993	68827
M	452m S	Electricity Substation	1995	68827
M	452m S	Electricity Substation	1994	68827



ID	Location	Land Use	Date	Group ID
M	452m S	Electricity Substation	1991	68827
M	452m S	Electricity Substation	1974	68827
M	453m S	Electricity Substation	1982	68827
M	453m S	Electricity Substation	1987	68827
M	453m S	Electricity Substation	1989	68827
M	453m S	Electricity Substation	1989	68827
M	453m S	Electricity Substation	1990	68827
N	469m SW	Electricity Substation	1982	81255
N	469m SW	Electricity Substation	1988	81255
O	476m SW	Electricity Substation	1994	67486
O	476m SW	Electricity Substation	1999	67486
O	476m SW	Electricity Substation	1995	67486
O	476m SW	Electricity Substation	1995	67486
O	478m SW	Electricity Substation	1982	67486
O	478m SW	Electricity Substation	1988	67486
O	478m SW	Electricity Substation	1990	67486
O	478m SW	Electricity Substation	1990	67486
E	491m S	Electricity Substation	1989	78303
E	492m S	Electricity Substation	1989	76207
E	492m S	Electricity Substation	1990	74971
E	492m S	Electricity Substation	1990	67055
E	498m S	Electricity Substation	1982	66128
E	498m S	Electricity Substation	1987	66128
E	498m S	Electricity Substation	1993	67655
E	498m S	Electricity Substation	1995	75403
E	498m S	Electricity Substation	1994	83333

This data is sourced from Ordnance Survey / Groundsure.



2.4 Historical petrol stations

Records within 500m**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m**0**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Licensed waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m

0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m

0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m

17

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 26**

ID	Location	Details		
A	127m S	Site Name: Bryn Lane Composting Facility Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Composting Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: ZP3795ER/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 22/08/2012 Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Modified

ID	Location	Details		
A	128m S	Site Name: Bryn Lane Waste Recycling And Composting Facility Site Address: Land/ Premises At, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: EA/EPR/ZP3795ER/V004 Operator: Waste Recycling Ltd Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 05/05/2011 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Wrexham, LL13 9UT Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 0 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	128m S	Site Name: Bryn Lane Waste Recycling And Composting Facility Site Address: Land/ Premises At, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: ZP3795ER/V002 Operator: Waste Recycling Group Ltd Waste Management licence No: 100079 Annual Tonnage: 0	Issue Date: 27/11/2007 Effective Date: - Modified: 16/04/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
A	128m S	Site Name: Bryn Lane Composting Facility Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: ZP3795ER/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 22/08/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified



ID	Location	Details		
A	128m S	Site Name: Bryn Lane Composting Facility Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAS023 EPR reference: EA/EPR/ZP3795ER/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: - Modified: 22/08/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: - Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: -	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Clwyd, Wrexham, Wrexham, LL13 9UT Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective



ID	Location	Details		
A	128m S	Site Name: - Site Address: Bryn Lane Composting Facility, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT Correspondence Address: -	Type of Site: Material Recycling Treatment Facility Size: - Environmental Permitting Regulations (Waste) Licence Number: ZP3795ER EPR reference: - Operator: F C C Recycling (U K) Limited Waste Management licence No: 100079 Annual Tonnage: 81444	Issue Date: 27/11/2007 Effective Date: 27/11/2007 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: Clays Site Site Address: Clays Site, Bryn Estyn Road, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: LEW037 EPR reference: XP3691EG/A001 Operator: Clays Farm Golf Centre Limited Waste Management licence No: 102738 Annual Tonnage: 0	Issue Date: 05/10/2011 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued
D	367m W	Site Name: Clays Site Site Address: Clays Site, Bryn Estyn Road, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LEW037 EPR reference: EA/EPR/XP3691EG/A001 Operator: Clays Farm Golf Centre Limited Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/10/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Wrexham, Wrexham, LL13 9UB Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: Clays Farm Golf Centre Limited Waste Management licence No: 0 Annual Tonnage: 99999	Issue Date: 05/10/2011 Effective Date: 05/10/2011 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective



ID	Location	Details		
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: - Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/01/2018 Effective Date: 05/01/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: - Site Address: Clays Site, Bryn Estyn Rd, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Deposit of waste to land as a recovery operation Size: - Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: William Lewis Waste Management licence No: 102738 Annual Tonnage: -	Issue Date: 21/02/2019 Effective Date: 21/02/2019 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Clwyd, Wrexham, Wrexham, LL13 9UB Correspondence Address: -	Type of Site: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: William Lewis Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/01/2018 Effective Date: 05/01/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective
D	367m W	Site Name: - Site Address: Clays Site, Llan -y- Pwll, Wrexham, Clwyd, LL13 9UB Correspondence Address: -	Type of Site: Use of waste in construction 100,000 tps Size: - Environmental Permitting Regulations (Waste) Licence Number: XP3691EG EPR reference: - Operator: William Lewis Waste Management licence No: 102738 Annual Tonnage: 99999	Issue Date: 05/01/2018 Effective Date: 05/01/2018 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Effective

This data is sourced from the Environment Agency and Natural Resources Wales.



3.7 Waste exemptions

Records within 500m

11

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 26**

ID	Location	Site	Reference	Category	Sub-Category	Description
B	244m S	DRAGON HYDRAULICS, Unit 3 Abbey Road North, Wrexham Industrial Estate, WREXHAM, LL13 9RX	WEX125151	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	250m S	-	WEX264851	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	250m S	Rodens Hall, Isycoed, Wrexham, Wrecsam, LL13 9RX	NRW-WME001936	Using waste exemption	Waste Exemption - Agricultural	Use of waste derived biodiesel as fuel
B	250m S	Rodens Hall, Isycoed, Wrexham, Wrecsam, LL13 9RX	NRW-WME001936	Storing waste exemption	Waste Exemption - Non-Agricultural	Storage of sludge
1	297m S	Trans Continental A C UK Ltd, Ash Road North, Wrexham Industrial Estate, Wrexham, Wrecsam, LL13 9UF	NRW-WME046393	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
C	358m S	Allied Fire Alarms & Escapes Co Ltd, Allied House Bryn Lane, Wrexham Industrial Estate, WREXHAM, Wrexham, LL13 9UT	NRW-WME046506	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	358m S	Allied Fire Alarms & Escapes Co Ltd, Allied House Bryn Lane, Wrexham Industrial Estate, WREXHAM, Wrexham, LL13 9UT	NRW-WME046506	Storing waste exemption	Not on a farm	Storage of waste in secure containers
E	394m S	AST Plastic Containers UK LLP, Unit 1, Abbey Road, Wrexham Industrial Estate, Wrexham, Wrecsam, LL13 9RF	NRW-WME061390	Storing waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Storage of waste in a secure place

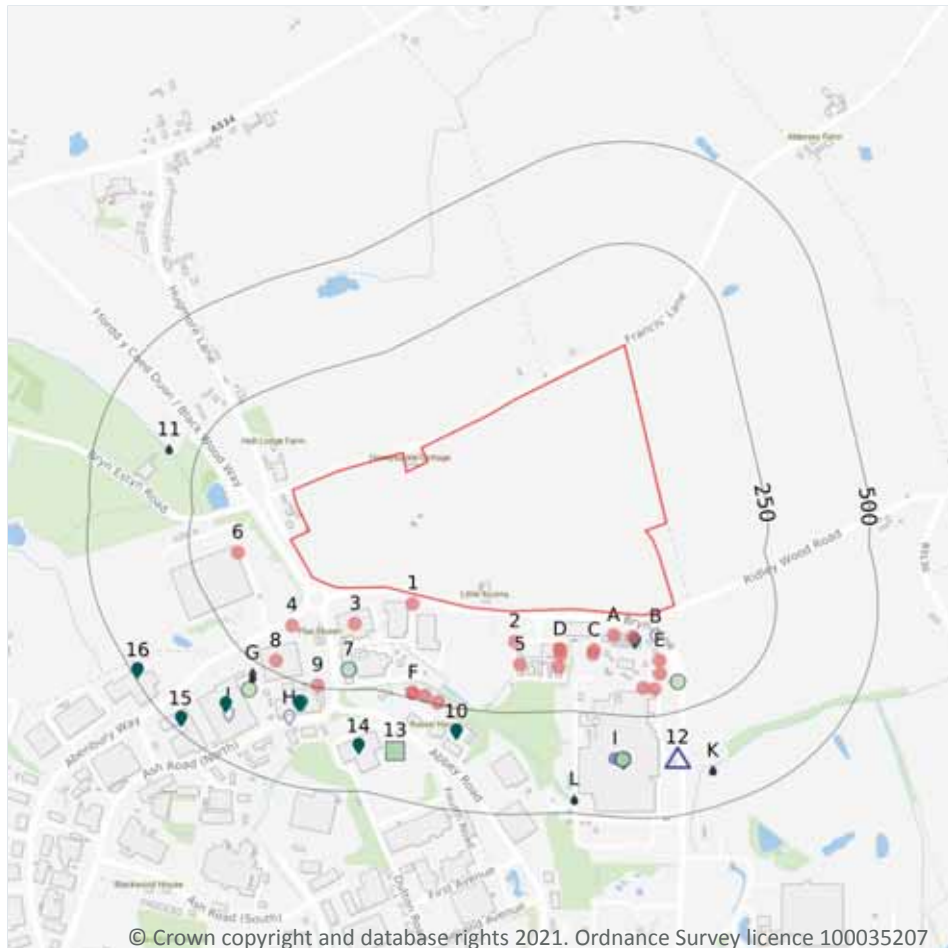


ID	Location	Site	Reference	Category	Sub-Category	Description
E	394m S	AST Plastic Containers UK LLP, Unit 1, Abbey Road, Wrexham Industrial Estate, Wrexham, Wreccsam, LL13 9RF	NRW-WME061390	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Cleaning, washing, spraying or coating relevant waste
E	394m S	AST Plastic Containers UK LLP, Unit 1, Abbey Road, Wrexham Industrial Estate, Wrexham, Wreccsam, LL13 9RF	NRW-WME061390	Treating waste exemption	Waste Exemption - Agricultural and Non-Agricultural	Preparatory treatments (baling, sorting, shredding etc)
2	443m NW	DCWW, Rodens Hall Farm, Bowling Bank, Wrexham, Wreccsam, LL13 9RS	NRW-WME054232	Storing waste exemption	Not on a farm	Storage of sludge

This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Historical licensed industrial activities
- ◇ Part A(1) industrial activities
- Licensed pollutant release (Part A(2)/B)
- Licensed Discharges to controlled waters
- List 2 Dangerous Substances
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

24

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Activity	Category
1	23m S	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
A	56m S	Main Man Supplies	Unit 1 Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Special Purpose Machinery and Equipment	Industrial Products

ID	Location	Company	Address	Activity	Category
A	56m S	Electromec Ltd	Unit 5 Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Electrical and Electronic Engineers	Engineering Services
2	75m S	Bryn Business Centre	Clwyd, LL13	Business Parks and Industrial Estates	Industrial Features
3	89m S	Wockhardt UK Ltd	ASH ROAD NORTH, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UF	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
C	96m S	Tank	Clwyd, LL13	Tanks (Generic)	Industrial Features
D	98m S	Aspull Engineering	Kellogs Site Bryn Business Centre, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Industrial Engineers	Engineering Services
D	98m S	Air Covers	Unit E, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Aviation Engineers	Engineering Services
C	105m S	Tank	Clwyd, LL13	Tanks (Generic)	Industrial Features
D	112m S	Wellpecs Ltd	Unit H1 Bryn Business Centre, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Electrical and Electronic Engineers	Engineering Services
E	117m S	Grafters Ltd	Unit 6, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Recycling, Reclamation and Disposal	Recycling Services
4	128m SW	Gas Governor	Clwyd, LL13	Gas Features	Infrastructure and Facilities
5	131m S	Dacta Ltd	Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UT	Educational Equipment and Supplies	Industrial Products
6	134m W	Electricity Sub Station	Clwyd, LL13	Electrical Features	Infrastructure and Facilities
D	140m S	A M Industrial Supplies	Unit J2 Bryn Business Centre, Bryn Lane, Wrexham, Clwyd, LL13 9UT	General Purpose Machinery	Industrial Products
E	149m S	Telephone Exchange	Clwyd, LL13	Telecommunications Features	Infrastructure and Facilities
E	179m S	Chimney	Clwyd, LL13	Chimneys	Industrial Features
E	183m S	Chimney	Clwyd, LL13	Chimneys	Industrial Features



ID	Location	Company	Address	Activity	Category
8	225m SW	J C B Drivetrain Systems	Unit 1, Ash Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JT	Engines	Industrial Products
F	236m S	Relabelled	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	Office and Shop Equipment	Industrial Products
F	236m S	Kids Direct Ltd	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	Published Goods	Industrial Products
F	237m S	A & S Jones	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	General Construction Supplies	Industrial Products
9	244m S	Tank	Clwyd, LL13	Tanks (Generic)	Industrial Features
F	245m S	Jami Q's	Abbey Road North, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9RX	Textiles, Fabrics, Silk and Machinery	Industrial Products

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1
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Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	LPG	Status
12	359m S	CERTAS ENERGY	Bryn Lane, Wrexham Industrial Estate, Wrexham, Wrexham, LL13 9UT	No	Non-Retail

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0
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High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m**0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

5

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Details	
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Other Mineral Fibres Permit Number: AG1425	Original Permit Number: IPCAIRAPP Date Approved: 8-4-1993 Effective Date: 8-4-1993 Status: Superseded By Variation
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Manufacture And Use Of Organic Chemicals Permit Number: AK5407	Original Permit Number: IPCAPP Date Approved: 18-2-1994 Effective Date: 28-2-1994 Status: Superseded By Variation
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Other Mineral Fibres Permit Number: BC5539	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Manufacture And Use Of Organic Chemicals Permit Number: BC6713	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Revoked
I	357m S	Operator: Owens Corning Fiberglas (gb) Ltd Address: Bryn Lane, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9JU Process: Other Mineral Fibres Permit Number: BG0342	Original Permit Number: IPCMINVAR Date Approved: 21-9-2001 Effective Date: 15-10-2001 Status: Revoked

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m

34

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**



ID	Location	Details	
B	58m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 09/11/2005 Effective Date: 09/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	58m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 09/11/2005 Effective Date: 09/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	58m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 09/11/2005 Effective Date: 09/11/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
B	58m S	Operator: KELLOGG CO (GB) LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; ON SITE EFFLUENT TREATMENT PLANT DISCHARGING =>300 M CUBED PER DAY Permit Number: BV8016ID Original Permit Number: BV8016ID	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/04/2005 Status: DETERMINATION
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: PRODUCING PLANT HEALTH PRODUCTS OR BIOCIDES Permit Number: SP3030LZ Original Permit Number: JP3038HV	EPR Reference: - Issue Date: 19/12/2012 Effective Date: 19/12/2012 Last date noted as effective: 26/10/2020 Status: EFFECTIVE
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: - Permit Number: SP3030LZ Original Permit Number: JP3038HV	EPR Reference: - Issue Date: 19/12/2012 Effective Date: 19/12/2012 Last date noted as effective: 01/12/2016 Status: EFFECTIVE
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: PRODUCING PHARMACEUTICAL PRODUCTS Permit Number: SP3030LZ Original Permit Number: JP3038HV	EPR Reference: - Issue Date: 13/02/2019 Effective Date: 13/02/2019 Last date noted as effective: 01/07/2021 Status: EFFECTIVE



ID	Location	Details	
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL EPR/SP3030LZ Process: PLANT HEALTH AND BIOCIDES; PRODUCING PLANT HEALTH PRODUCTS/BIOCIDES Permit Number: JP3038HV Original Permit Number: SP3030LZ	EPR Reference: - Issue Date: 19/12/2012 Effective Date: 19/12/2012 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
H	341m S	Operator: IPSEN BIOPHARM LTD Installation Name: WREXHAM PHARMACEUTICAL WORKS Process: PLANT HEALTH AND BIOCIDES; PRODUCING PLANT HEALTH PRODUCTS/BIOCIDES Permit Number: SP3030LZ Original Permit Number: SP3030LZ	EPR Reference: - Issue Date: 04/12/2006 Effective Date: 04/12/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: COMBUSTION; ANY FUEL =>50MW Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING BIOLOGICAL TREATMENT Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: KP3135LW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 05/05/2006 Effective Date: 05/05/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: KP3135LW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 05/05/2006 Effective Date: 05/05/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED



ID	Location	Details	
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: KP3135LW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 05/05/2006 Effective Date: 05/05/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: VP3832KF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 23/03/2010 Effective Date: 23/03/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: VP3832KF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 23/03/2010 Effective Date: 23/03/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: VP3832KF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 23/03/2010 Effective Date: 23/03/2010 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: VP3935CF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 19/04/2012 Effective Date: 19/04/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: VP3935CF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 19/04/2012 Effective Date: 19/04/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY BIOLOGICAL TREATMENT Permit Number: VP3935CF Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 19/04/2012 Effective Date: 19/04/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW... Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE



ID	Location	Details	
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW... Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW... Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: WREXHAM, BREAKFAST CEREALS Process: CREATED BY IED - DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING BIOLOGICAL TREATMENT Permit Number: GP3031ZW Original Permit Number: BV8016ID	EPR Reference: - Issue Date: 21/03/2013 Effective Date: 21/03/2013 Last date noted as effective: 01/07/2013 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: DISPOSAL OF NON-HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 50 TONNES PER DAY (OR 100 TONNES PER DAY IF THE ONLY WASTE TREATMENT ACTIVITY IS ANAEROBIC DIGESTION) INVOLVING ONE OR MORE OF THE FOLLOWING ACTIVITIES, AND EXCLUDING ACTIVITIES COVERED BY COUNCIL DIRECTIVE 91/271/EEC CONCERNING URBAN WASTE-WATER TREATMENT(4)?BIOLOGICAL TREATMENT Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: - Permit Number: BV8016ID Original Permit Number: -	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/04/2017 Status: DULY MADE



ID	Location	Details	
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW MATERIALS, WHETHER PREVIOUSLY PROCESSED OR UNPROCESSED, INTENDED FOR THE PRODUCTION OF FOOD OR FEED (WHERE THE WEIGHT OF THE FINISHED PRODUCT EXCLUDES PACKAGING)? ONLY VEGETABLE RAW MATERIALS WITH A FINISHED PRODUCT PRODUCTION CAPACITY GREATER THAN 300 TONNES PER DAY OR 600 TONNES PER DAY WHERE THE INSTALLATION OPERATES FOR A PERIOD OF NO MORE THAN 90 CONSECUTIVE DAYS IN ANY YEAR Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
I	365m S	Operator: KELLOGG COMPANY OF GREAT BRITAIN LTD Installation Name: KELLOGGS EPR/BV8016ID Process: BURNING ANY FUEL IN AN APPLIANCE WITH A RATED THERMAL INPUT OF 50 OR MORE MEGAWATTS Permit Number: BV8016ID Original Permit Number: GP3031ZW	EPR Reference: - Issue Date: 19/10/2017 Effective Date: 19/10/2017 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: UNLESS FALLING WITHIN PART A2 OF THIS SECTION, SURFACE TREATING METALS AND PLAST... Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: UNLESS FALLING WITHIN PART A2 OF THIS SECTION, SURFACE TREATING METALS AND PLAST... Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: - Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/04/2017 Status: ISSUED



ID	Location	Details	
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: DISPOSAL OF NON-HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 50 TONNES PER DAY (OR 100 TONNES PER DAY IF THE ONLY WASTE TREATMENT ACTIVITY IS ANAEROBIC DIGESTION) INVOLVING ONE OR MORE OF THE FOLLOWING ACTIVITIES, AND EXCLUDING ACTIVITIES COVERED BY COUNCIL DIRECTIVE 91/271/EEC CONCERNING URBAN WASTE-WATER TREATMENT(4)?PHYSICO-CHEMICAL TREATMENT Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/07/2021 Status: EFFECTIVE
J	397m SW	Operator: WREXHAM WIRE LIMITED Installation Name: WREXHAM WIRE LIMITED Process: UNLESS FALLING WITHIN PART A(2) OF THIS SECTION, SURFACE TREATING METALS AND PLASTIC MATERIALS USING AN ELECTROLYTIC OR CHEMICAL PROCESS WHERE THE AGGREGATED VOLUME OF THE TREATMENT VATS IS MORE THAN 30M3 Permit Number: AB3190FW Original Permit Number: -	EPR Reference: - Issue Date: 06/05/2016 Effective Date: 06/05/2016 Last date noted as effective: 01/07/2021 Status: EFFECTIVE

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	10
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Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
A	66m S	Orchid Laundry & Dry Cleaning Ltd, Unit 6, Ridley Wood Industrial Complex, Bryn Lane, Wrexham Industrial Estate, Wrexham, LL13 9UT	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
H	296m S	Coveris, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Current Permit Permit Type: Part B/A2	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.

ID	Location	Address	Details	
H	298m S	Intelicoat Technologies, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
H	300m S	Exopack Advanced Coatings, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Historical Permit Permit Type: Part A2	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
10	307m S	Petcor Limited, Unit A4 and A6 Abbey Road, Redwither Buisness Park, Wrexham, LL13 9XG	Process: Animal Feed Compound Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
I	359m S	Kellogg Company of Great Britain Ltd, Bryn Lane, Wrexham Industrial Estate, Wrexham, LL13 9UT	Process: Combustion & Incineration Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
J	379m SW	JCB Transmissions, Unit 4, Abenbury Way, Wrexham Industrial Estate, Wrexham, LL13 9UF	Process: Coating Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
14	390m S	Hoya Lens UK Ltd, Fourth Road, Wrexham Industrial Estate, Wrexham, LL13 9UA	Process: Surface Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.
15	476m SW	Caparo Wire Ltd, PO Box 87, Ash Road North, Wrexham Industrial Estate, Wrexham, LL13 9JT	Process: Surface Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: Enforcement Notified Date of enforcement: 30/03/2006 Comment: Wood processing
16	486m SW	Waste Oil Burners, Unit 3 Abenbury Way, Wrexham Industrial Estate, Wrexham, LL13 9US	Process: Timber Manufacture Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified. Date of enforcement: No Enforcement Notified. Comment: No Enforcement Notified.

This data is sourced from Local Authority records.



4.12 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m

9

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
G	278m SW	JCB TRANSMISSIONS LTD WREXHAM IND E, JCB TRANSMISSIONS LTD WREXHAM IN, WREXHAM IND ESTATE WREXHAM, WREXHAM	Effluent Type: UNSPECIFIED Permit Number: CM0097602 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF DEE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 25/07/1984 Effective Date: 25/07/1984 Revocation Date: 14/07/1994
G	287m SW	JCB TRANSMISSIONS LTD WREXHAM IND E, JCB TRANSMISSIONS LTD WREXHAM IN, WREXHAM IND ESTATE WREXHAM, WREXHAM	Effluent Type: UNSPECIFIED Permit Number: CM0097601 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF DEE	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 25/07/1984 Effective Date: 25/07/1984 Revocation Date: 09/03/1993
11	320m W	BRYN VILLA, HUGMORE LANE, LLANYPWLL, WREXHAM, WALES, LL13 9YE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: CG0447601 Permit Version: 1 Receiving Water: UNNAMED WATERCOURSE	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY Issue date: 01/09/2006 Effective Date: 01/12/2006 Revocation Date: -
K	414m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0083601 Permit Version: 1 Receiving Water: UNNAMED TRIB OF RIVER DEE	Status: REVOKED - UNSPECIFIED Issue date: 08/02/1978 Effective Date: 08/02/1978 Revocation Date: 29/09/1985
K	414m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0083601 Permit Version: 3 Receiving Water: UNNAMED TRIB OF RIVER DEE	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 06/07/1994 Effective Date: 06/07/1994 Revocation Date: 09/11/2005



ID	Location	Address	Details	
K	414m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0083601 Permit Version: 2 Receiving Water: UNNAMED TRIB OF RIVER DEE	Status: REVOKED - UNSPECIFIED Issue date: 30/09/1985 Effective Date: 30/09/1985 Revocation Date: 05/07/1994
L	465m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: UNSPECIFIED Permit Number: CM0097401 Permit Version: 1 Receiving Water: UN-NAMED TRIB. OF DEE	Status: REVOKED - UNSPECIFIED Issue date: 16/05/1984 Effective Date: 16/05/1984 Revocation Date: 29/09/1985
L	465m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: UNSPECIFIED Permit Number: CM0097401 Permit Version: 2 Receiving Water: UN-NAMED TRIB. OF DEE	Status: REVOKED - UNSPECIFIED Issue date: 16/05/1984 Effective Date: 30/09/1985 Revocation Date: 05/07/1994
L	465m S	BRYN ROAD WREXHAM IND EST, WREXHAM IND EST, WREXHAM IN	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CM0097401 Permit Version: 3 Receiving Water: UN-NAMED TRIB. OF DEE	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV Issue date: 06/07/1994 Effective Date: 06/07/1994 Revocation Date: 09/11/2005

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.



4.16 List 1 Dangerous Substances

Records within 500m

0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m

1

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Name	Status	Receiving Water	Authorised Substances
13	385m S	Hoya Lens Uk Ltd (new Factory) Abbey Road, Wrexham Ind Est	Not Active	-	Chromium, Copper, Lead, Nickel, Zinc

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m

5

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Details	
E	179m S	Incident Date: 30/04/2015 Incident Identification: 1333634 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	201m S	Incident Date: 19/12/2013 Incident Identification: 1184930 Pollutant: Inorganic Chemicals/Products Pollutant Description: Other Inorganic Chemical or Product	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
G	317m SW	Incident Date: 25/07/2003 Incident Identification: 176604 Pollutant: Oils and Fuel Pollutant Description: Cutting Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Location	Details	
I	358m S	Incident Date: 08/01/2014 Incident Identification: 1191799 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
I	358m S	Incident Date: 07/02/2014 Incident Identification: 1202822 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0
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The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0
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The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

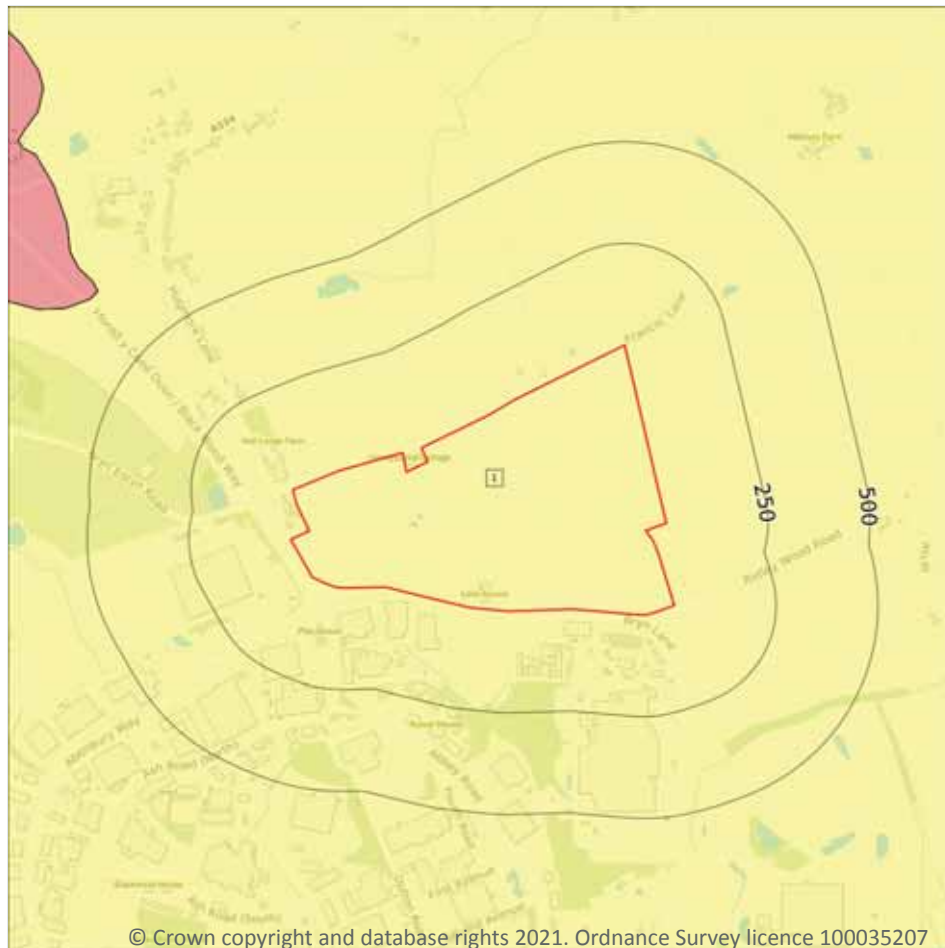
4.21 Pollution inventory radioactive waste

Records within 500m	0
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The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

1

Aquifer status of groundwater held within superficial geology.

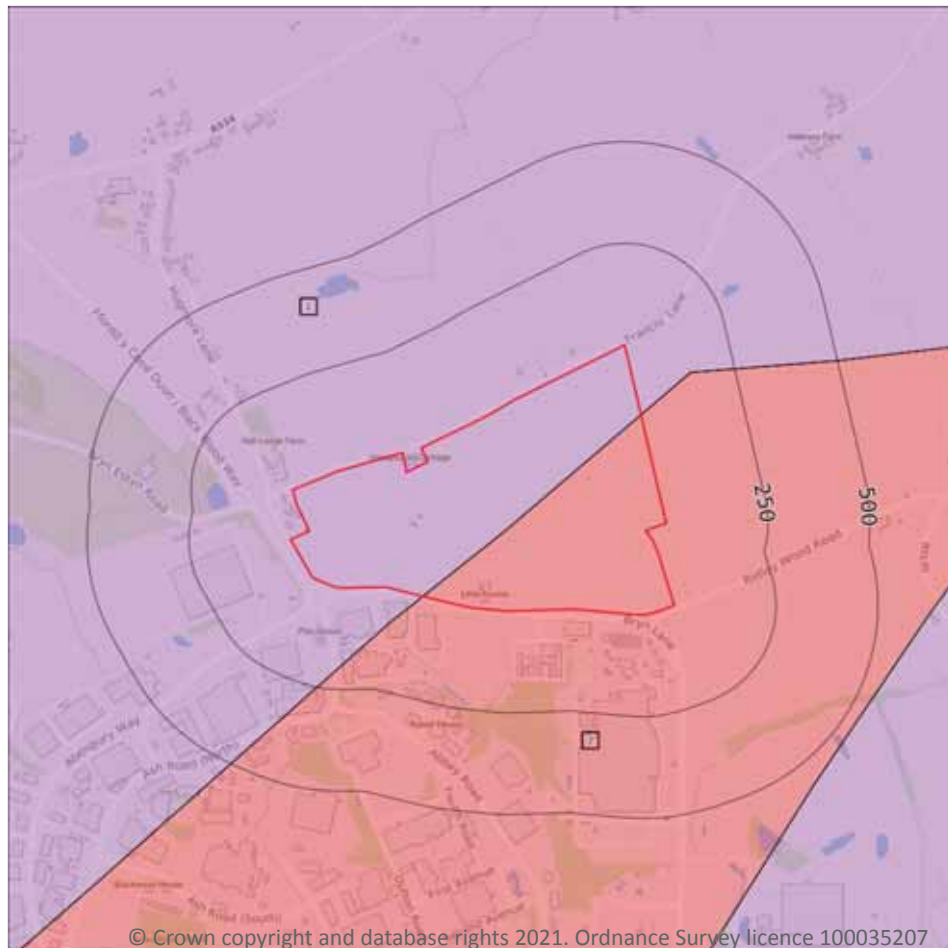
Features are displayed on the Hydrogeology map on **page 50**

ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m

2

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 51**

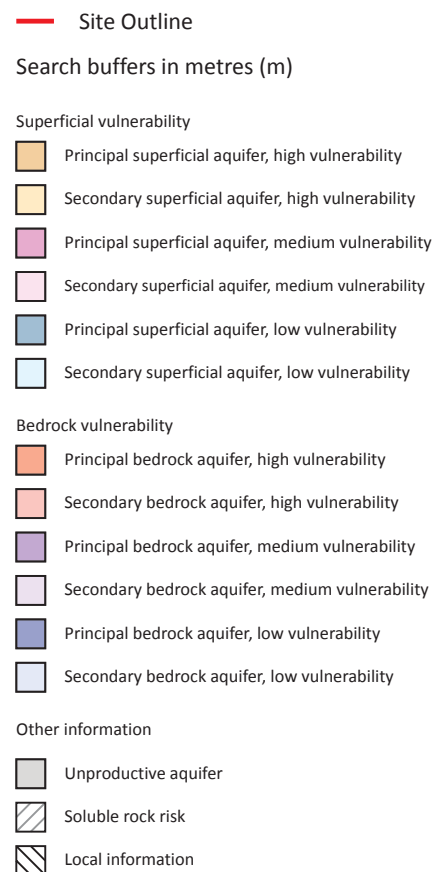
ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	On site	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



This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

6

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 53**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
5	4m W	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Intergranular
6	23m SW	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site

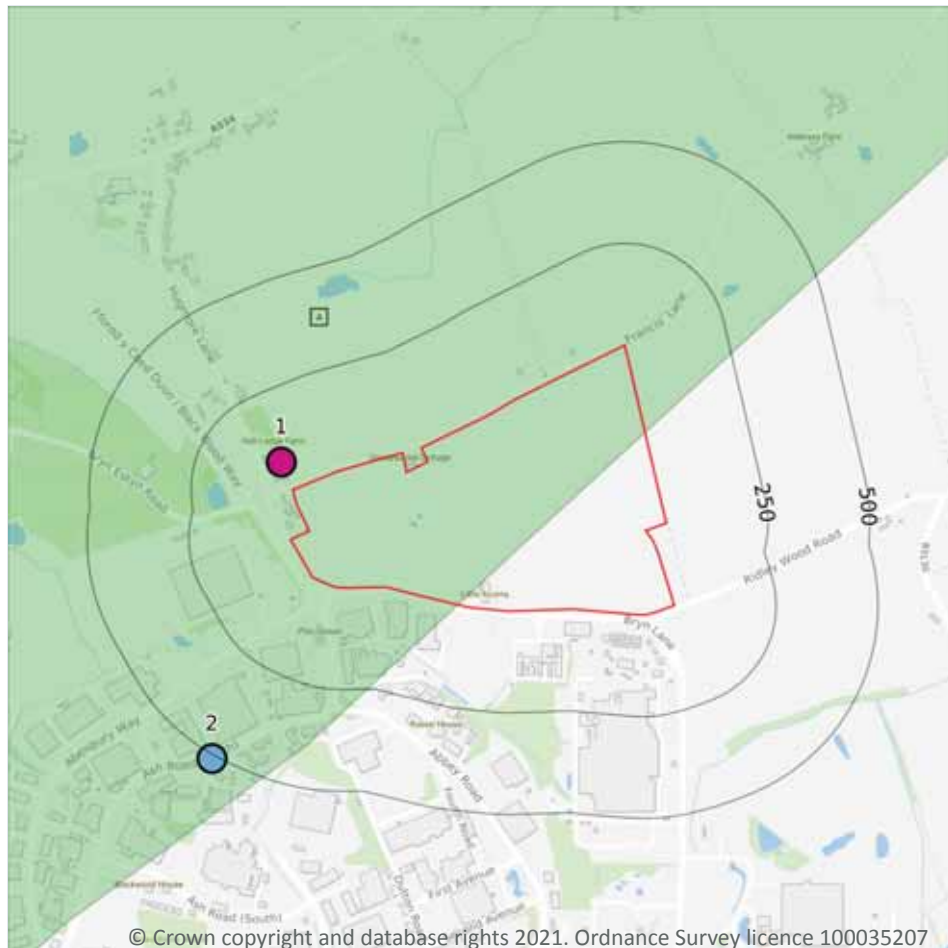
0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

16

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Details	
1	74m NW	Status: Historical Licence No: 24/67/9/0130 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL Data Type: Point Name: Taylor Easting: 337980 Northing: 351230	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 14/06/1968 Expiry Date: - Issue No: 100 Version Start Date: 14/06/1968 Version End Date: -
-	1457m NW	Status: Historical Licence No: 24/67/7/0197 Details: Mineral Washing Direct Source: EAW Groundwater Point: BOREHOLE Data Type: Point Name: Lafarge Tarmac Trading Limited Easting: 336870 Northing: 352070	Annual Volume (m ³): 195180 Max Daily Volume (m ³): 533.28 Original Application No: - Original Start Date: 25/08/1982 Expiry Date: - Issue No: 103 Version Start Date: 27/03/2014 Version End Date: -
-	1457m NW	Status: Active Licence No: 24/67/7/0197 Details: Mineral Washing - Low Direct Source: Carboniferous strata at Llan y Pwll, Wrexham Point: - Data Type: Point Name: - Easting: 336870 Northing: 352070	Annual Volume (m ³): 195,180 Max Daily Volume (m ³): 533.28 Original Application No: - Original Start Date: 2019-03-22 00:00:00.0000000 Expiry Date: - Issue No: - Version Start Date: - Version End Date: -
-	1480m E	Status: Historical Licence No: 24/67/7/0171 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: BOREHOLE Data Type: Point Name: Davies Easting: 340410 Northing: 350660	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/01/1969 Expiry Date: - Issue No: 100 Version Start Date: 31/01/1994 Version End Date: -
-	1488m E	Status: Historical Licence No: 24/67/7/0107 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: WELL Data Type: Point Name: Evans Easting: 340420 Northing: 350670	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/10/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/10/1966 Version End Date: -



ID	Location	Details	
-	1681m S	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144 M DEEP, 200MM DIA BH AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338360 Northing: 349190	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -
-	1681m S	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144 M DEEP, 200MM DIA BH AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338360 Northing: 349190	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -
-	1692m S	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: SPECTRUM BUSINESS PARK BOREHOLE AW2 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338350 Northing: 349180	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -
-	1793m S	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -
-	1793m S	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -



ID	Location	Details	
-	1793m S	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA., OB1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338240 Northing: 349090	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -
-	1947m E	Status: Historical Licence No: 24/67/7/0095 Details: General Farming & Domestic Direct Source: EAW Groundwater Point: BOREHOLE Data Type: Point Name: Rigby Easting: 340870 Northing: 350580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 25/10/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/10/1966 Version End Date: -
-	1948m S	Status: Historical Licence No: 24/67/7/0213 Details: Process water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/09/1998 Expiry Date: 10/09/2001 Issue No: 100 Version Start Date: 10/09/1998 Version End Date: -
-	1948m S	Status: Historical Licence No: 24/67/7/0222 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 10/09/2001 Expiry Date: 31/03/2012 Issue No: 1 Version Start Date: 10/09/2001 Version End Date: -
-	1948m S	Status: Historical Licence No: WA/067/0007/006 Details: Process Water Direct Source: EAW Groundwater Point: 144M DEEP, 150MM DIA. BOREHOLE AW1 Data Type: Point Name: Calypso Soft Drinks Ltd Easting: 338190 Northing: 348940	Annual Volume (m ³): 131400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2012 Expiry Date: 31/03/2022 Issue No: 1 Version Start Date: 01/04/2012 Version End Date: -



ID	Location	Details	
-	1948m S	Status: Active Licence No: WA/067/0007/006 Details: Process Water - Medium Direct Source: Underground strata Point: - Data Type: Point Name: - Easting: 338190 Northing: 348940	Annual Volume (m ³): 131,400 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 2016-10-02 00:00:00.0000000 Expiry Date: 2027-03-30 00:00:00.0000000 Issue No: - Version Start Date: - Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	1
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Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Details	
2	510m SW	Status: Historical Licence No: 24/67/7/0178 Details: Non-Evaporative Cooling Direct Source: EAW Surface Water Point: TRIBUTARY OF REDWITHER BROOK Data Type: Point Name: Caparo Wire Ltd Easting: 337810 Northing: 350500	Annual Volume (m ³): 9955.74 Max Daily Volume (m ³): 27.276 Original Application No: - Original Start Date: 12/05/1972 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2007 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0
-----------------------------	----------

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m**2**

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 56**

ID	Location	Type	Description
A	On site	3	Total catchment
A	On site	3	Total catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m**0**

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.



6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

11

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type of water feature	Ground level	Permanence	Name
3	107m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-



ID	Location	Type of water feature	Ground level	Permanence	Name
C	133m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	166m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	182m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	212m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	212m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	212m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	220m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	224m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	233m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	234m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

10

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 62**



This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River WB catchment	Dee - Chester Weir to Ceiriog	GB111067057080	Dee Lower Chester Weir to Ceiriog	Dee

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2756m NE	River	Dee - Chester Weir to Ceiriog	GB111067057080	Moderate	Fail	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.



6.5 WFD Groundwater bodies

Records on site

2

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Dee Permo-Triassic Sandstone	GB41101G202400	Good	Good	Good	2015
A	On site	Dee Permo-Triassic Sandstone	GB41101G202400	Good	Good	Good	2016

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m

0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m

0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m

0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.



7.4 Areas Benefiting from Flood Defences

Records within 250m

0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m

0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0
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Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

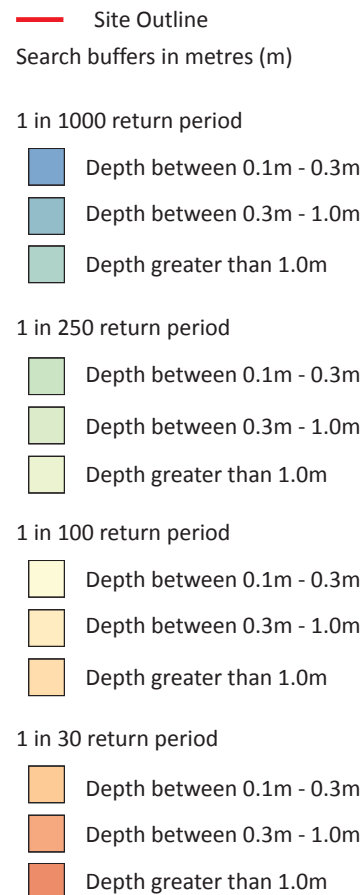
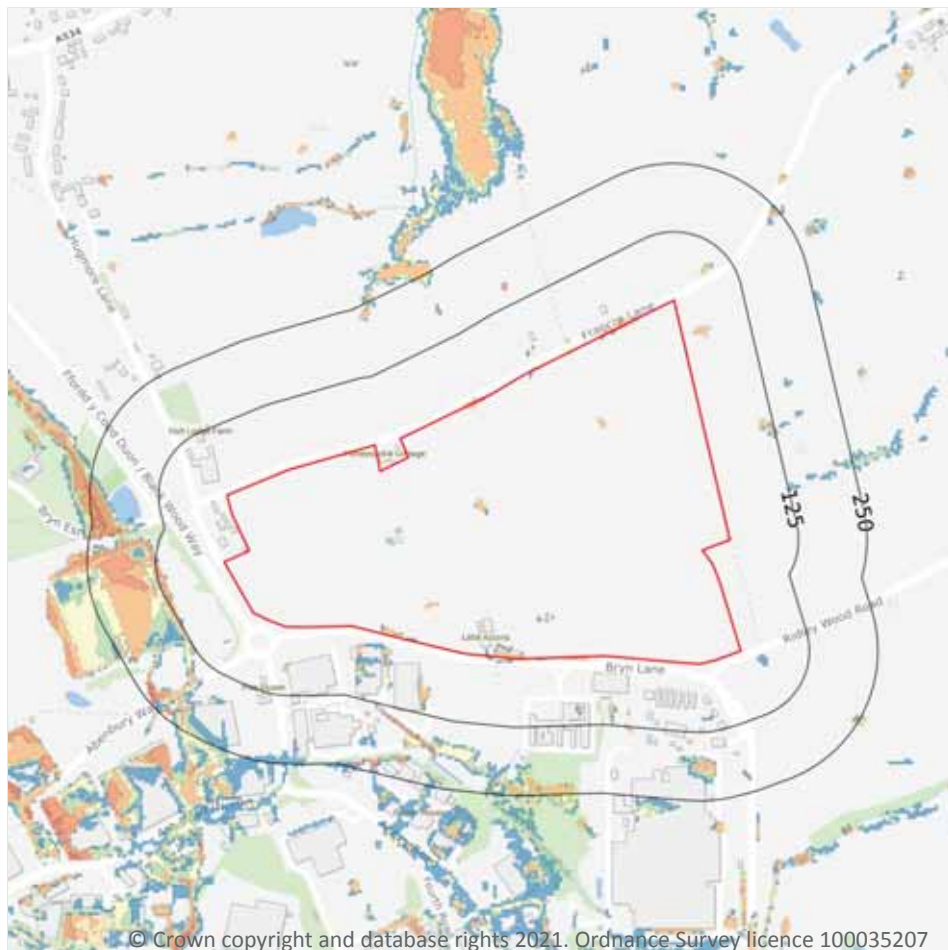
7.7 Flood Zone 3

Records within 50m	0
--------------------	---

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 69**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

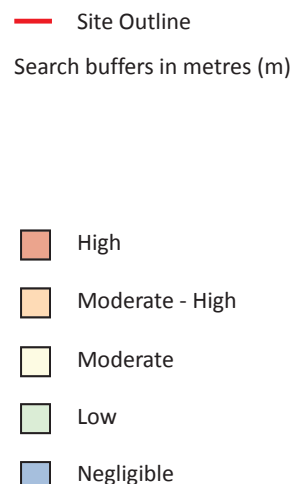
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Low

Highest risk within 50m

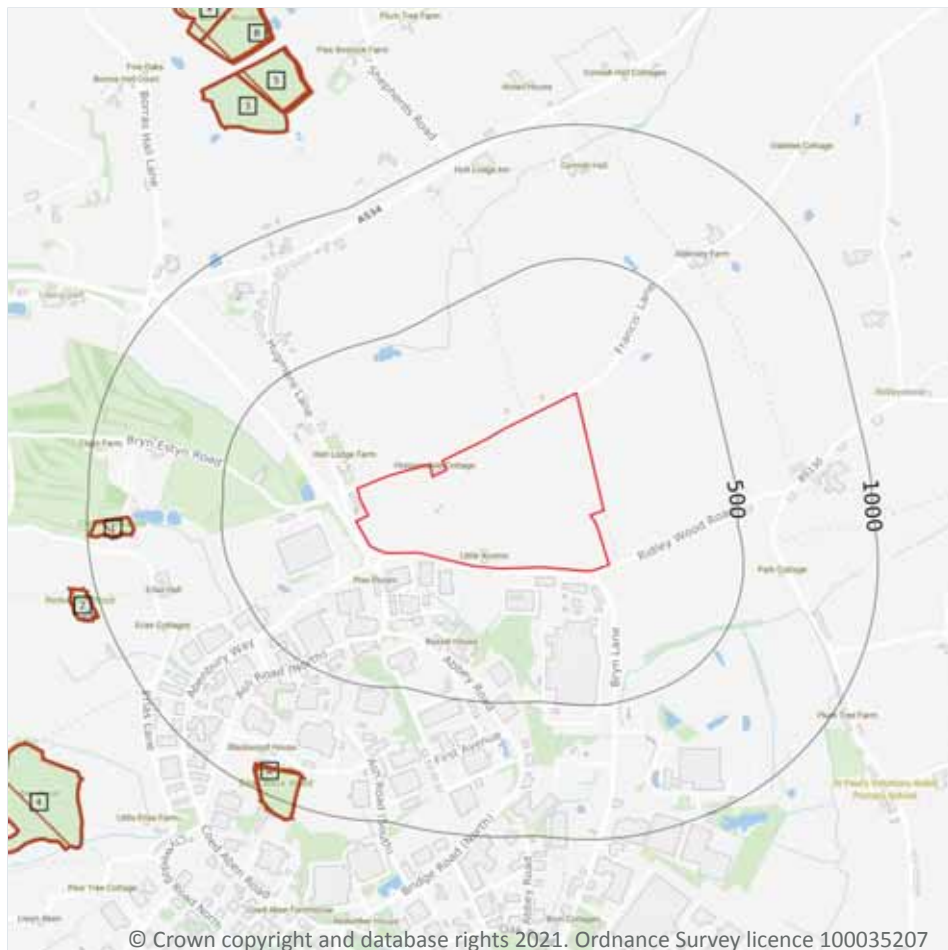
Low

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 71**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m

0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m

14

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 72**

ID	Location	Name	Woodland Type
1	826m W	Unknown	Restored Ancient Woodland Site
A	882m S	Unknown	Restored Ancient Woodland Site
A	884m S	Unknown	Restored Ancient Woodland Site
2	1023m W	Unknown	Ancient Semi Natural Woodland
3	1340m N	Unknown	Ancient Semi Natural Woodland
4	1376m SW	Unknown	Ancient Semi Natural Woodland
5	1415m N	Unknown	Ancient Semi Natural Woodland
B	1641m N	Unknown	Ancient Woodland Site of Unknown Category
-	1646m S	Unknown	Ancient Semi Natural Woodland
B	1649m N	Unknown	Ancient Woodland Site of Unknown Category
-	1691m NW	Unknown	Ancient Semi Natural Woodland
-	1755m W	Unknown	Ancient Semi Natural Woodland
9	1761m NW	Unknown	Ancient Semi Natural Woodland
-	1985m SW	Unknown	Ancient Semi Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



10.8 Biosphere Reserves

Records within 2000m**0**

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m**0**

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m**0**

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m**0**

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m**0**

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.



10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m**0**

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m**0**

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m**0**

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

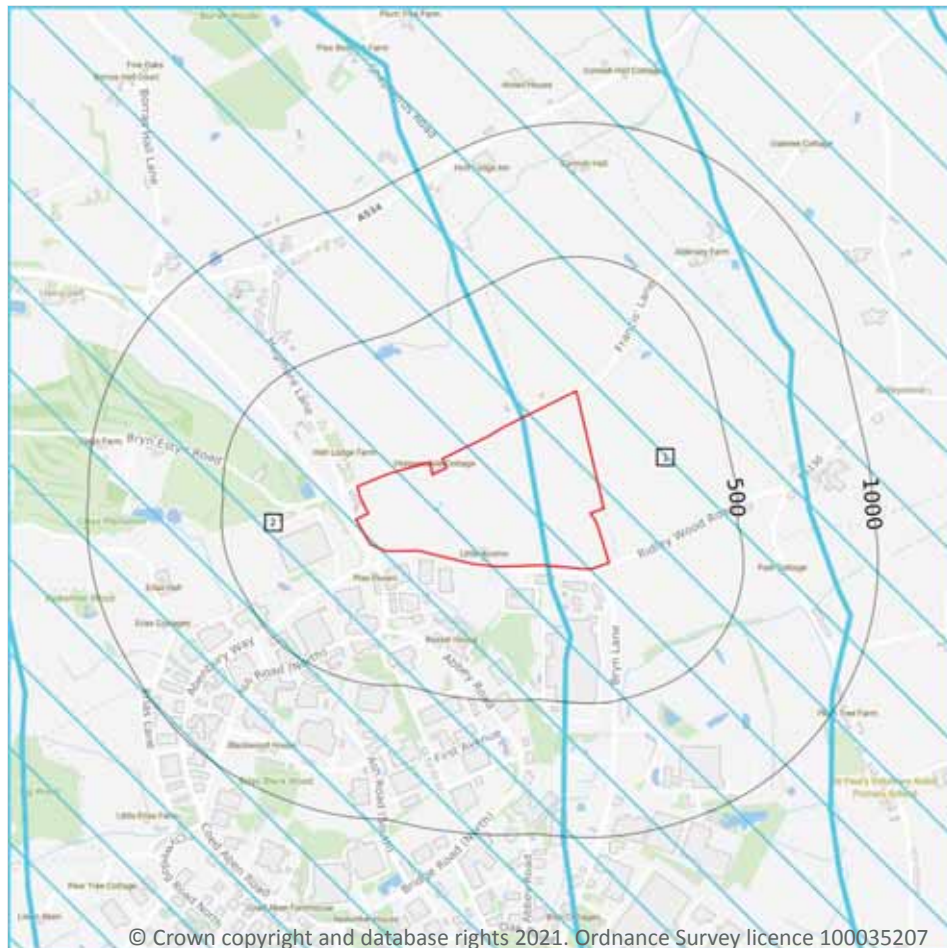
Records within 2000m**0**

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

This data is sourced from Natural England and Natural Resources Wales.



SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

2

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 77**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t) Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion
2	On site	Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t) Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
----------------------	---

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

1

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 79**

ID	Location	Name	Grade	Reference Number	Listed date
1	120m NW	New Holt Lodge Farm, Situated At Crossroads Where Hugmore Lane Meets Francis' Lane And Brynestyn Road	II	1541	09/06/1952

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

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12.1 Agricultural Land Classification

Records within 250m

2

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 82**

ID	Location	Classification	Description
2	On site	Grade 3b	Moderate quality agricultural land
3	23m SW	Grade 3a	Good to moderate quality agricultural land

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m

0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m

0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m

0

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

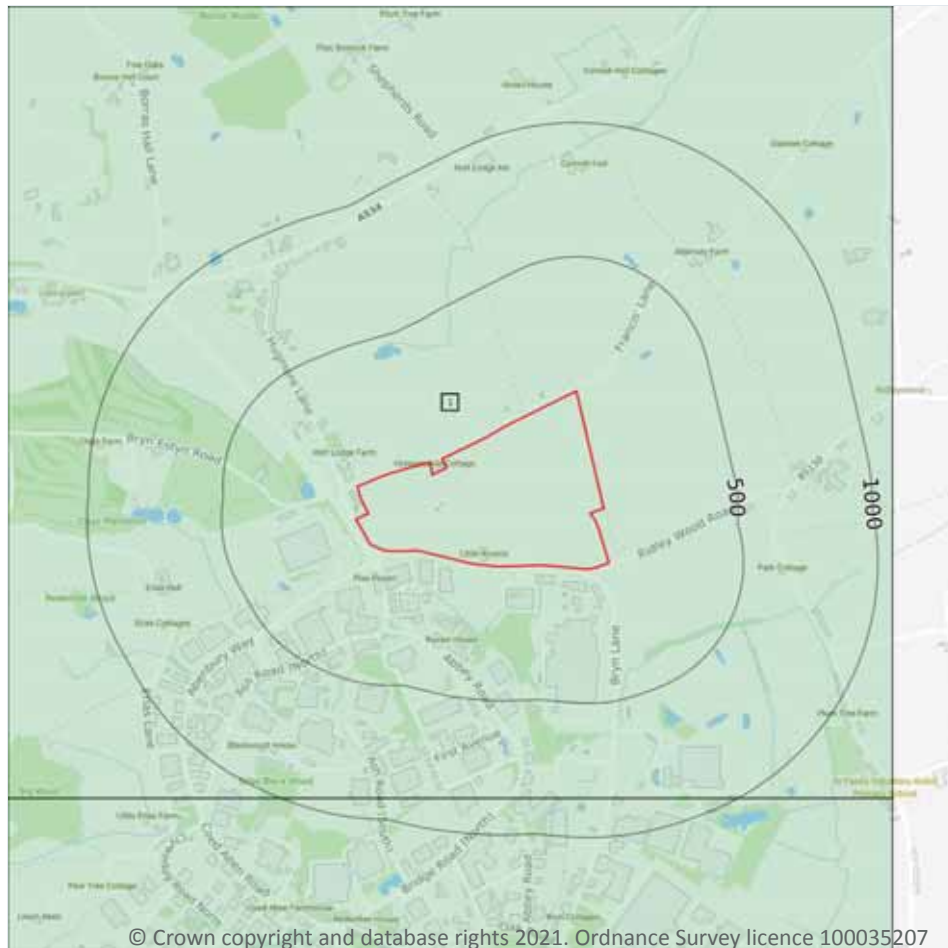
0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

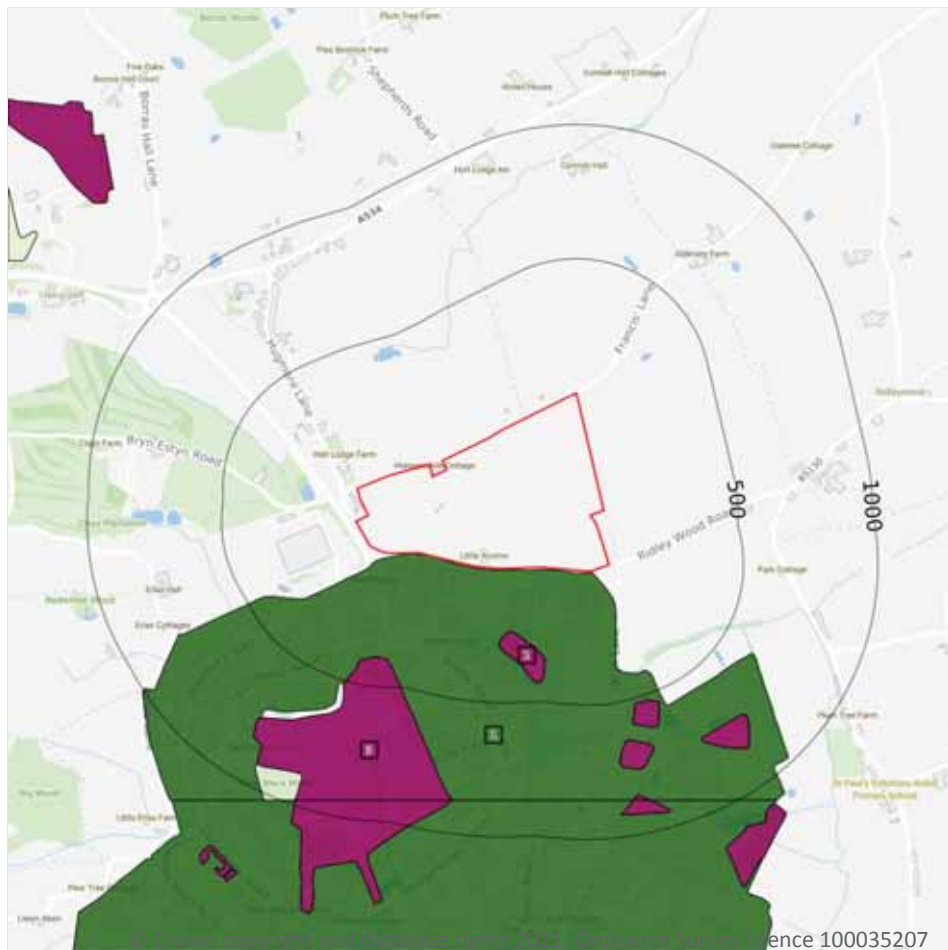
Features are displayed on the Geology 1:10,000 scale - Availability map on **page 85**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SJ35SE

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground



— Site Outline
Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

3

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

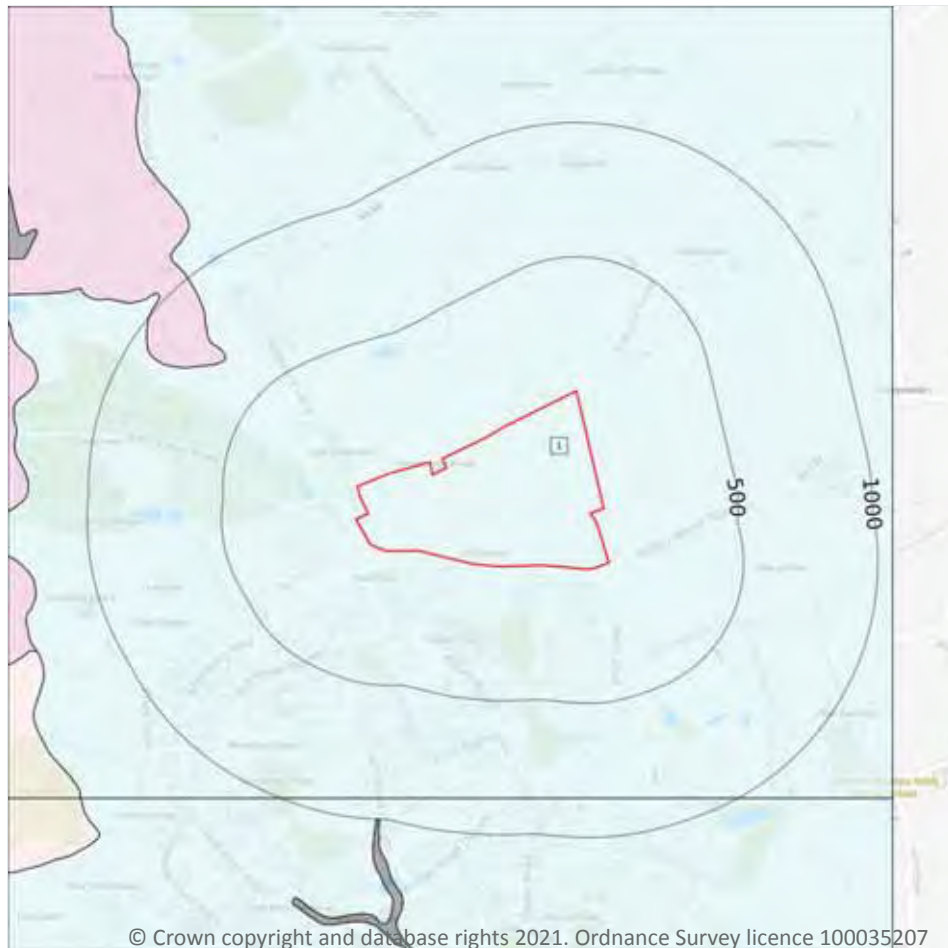
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 86**

ID	Location	LEX Code	Description	Rock description
1	1m S	LSGR-UNKNOWN	Landscaped Ground (Undivided)	Unknown/unclassified Entry
2	236m S	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
3	389m S	MGR-UNKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



— Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m

1

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 87**

ID	Location	LEX Code	Description	Rock description
1	On site	TILL-DMTN	Till - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

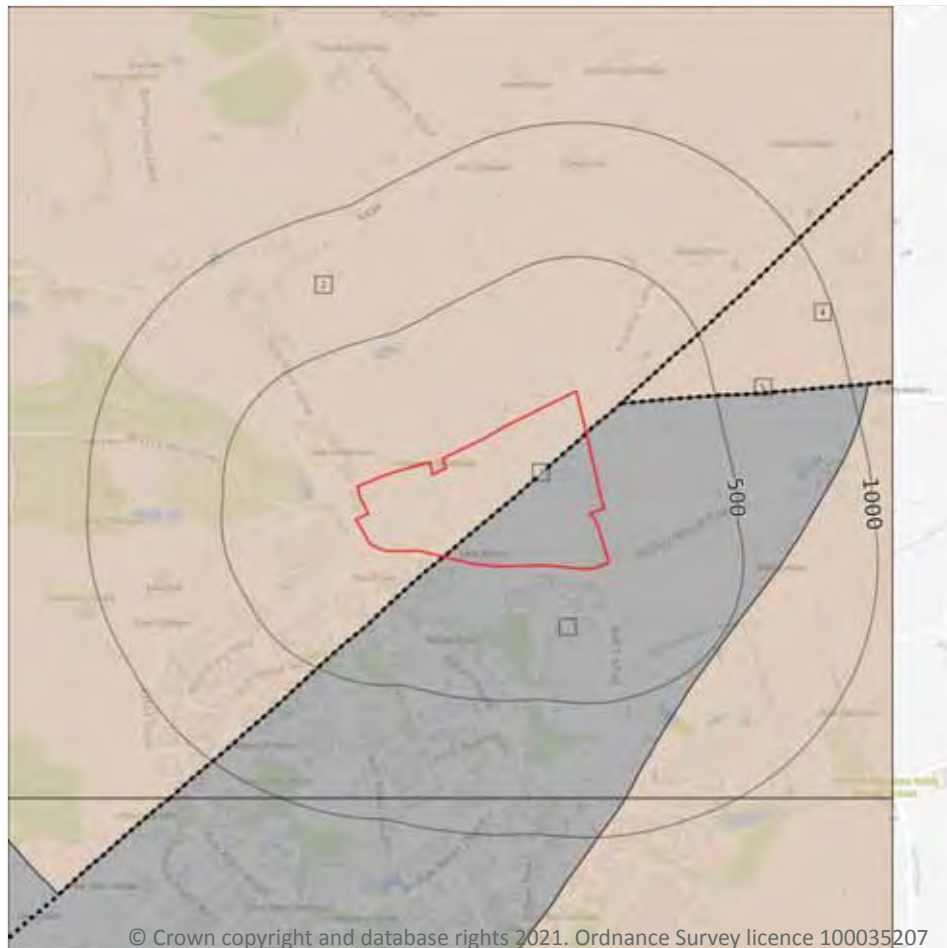
0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m

3

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 89**

ID	Location	LEX Code	Description	Rock age
1	On site	SAL-MDST	Salop Formation - Mudstone	Cisuralian Epoch - Westphalian D Sub-age
2	On site	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch
4	152m E	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

2

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 89**

ID	Location	Category	Description
3	On site	FAULT	Normal fault, inferred
5	152m E	FAULT	Normal fault, inferred

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline
Search buffers in metres (m)

☐ Geological map tile

15.1 50k Availability

Records within 500m

2

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme. Where 50k data is not available, this area has been filled in with 625k scale data.

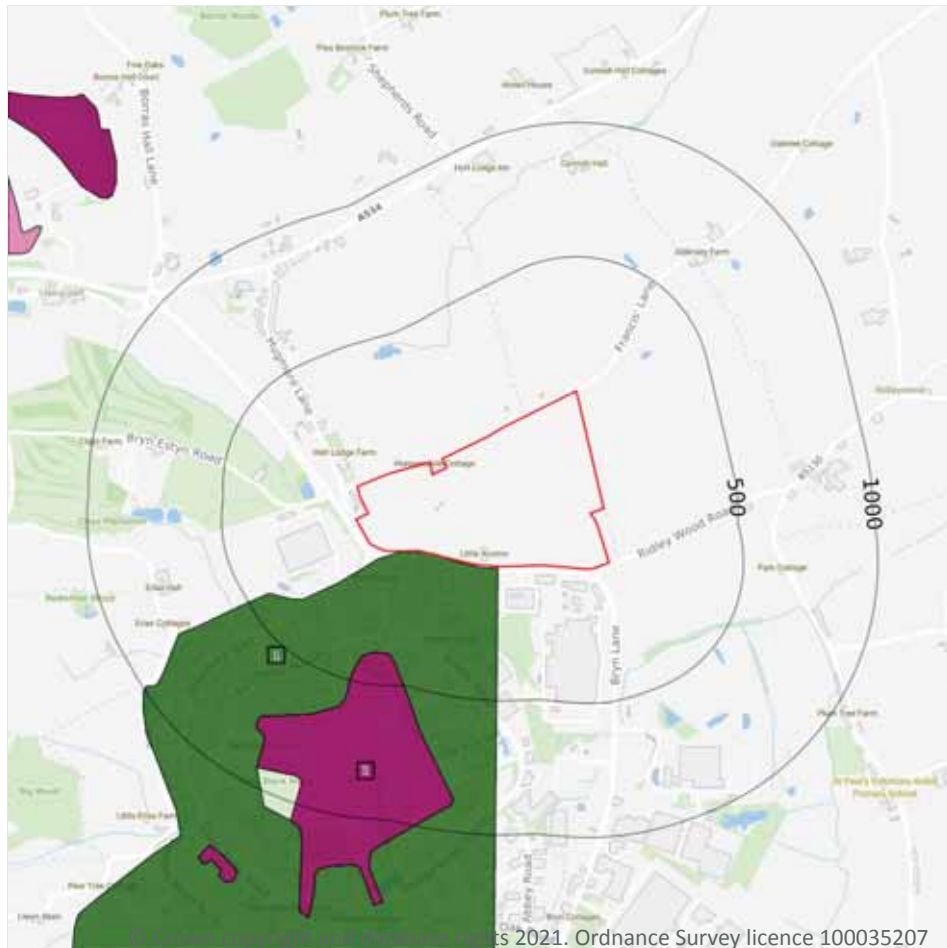
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 91**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	Full	EW122_nantwich_v4
2	On site	Full	Full	Full	Full	EW121_wrexham_v4

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Artificial and made ground



- Site Outline
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

2

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 92**

ID	Location	LEX Code	Description	Rock description
1	On site	LSGR-ARTGR	LANDSCAPED GROUND (UNDIVIDED)	ARTIFICIALLY MODIFIED GROUND
2	380m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

1

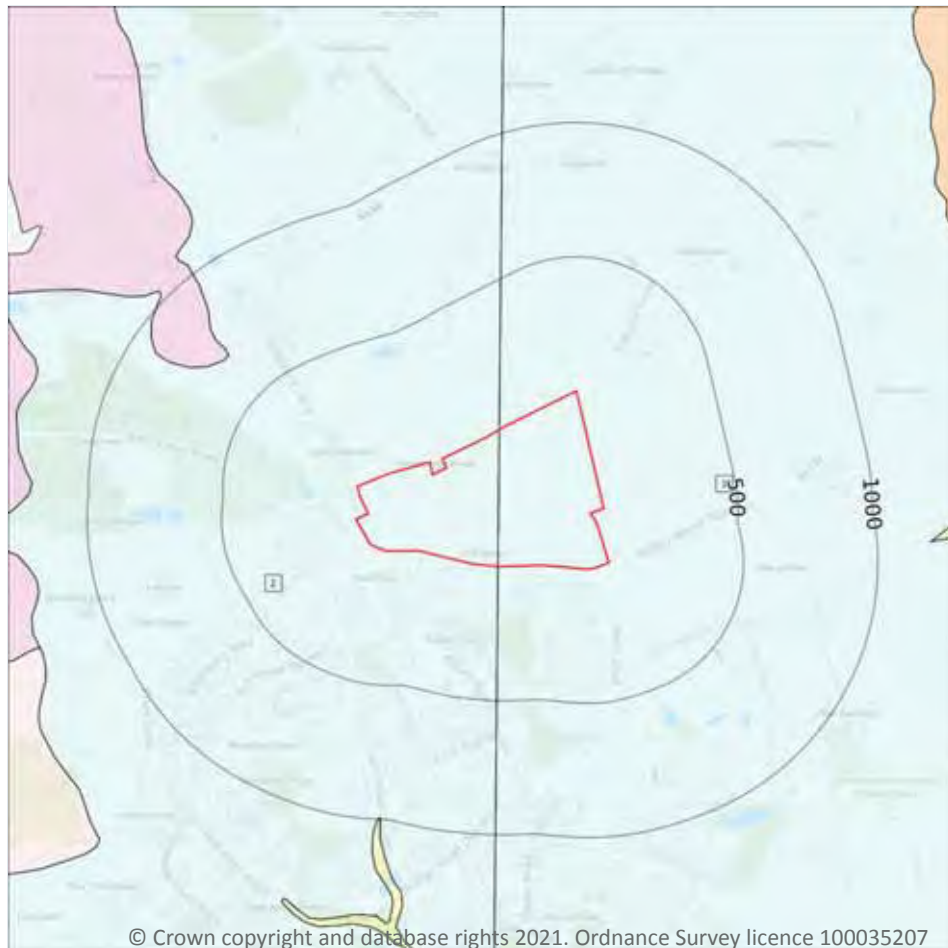
A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Very High	Low

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



— Site Outline

Search buffers in metres (m)

☑ Landslip (50k)

Superficial geology (50k)
Please see table for more details.

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15.4 Superficial geology (50k)

Records within 500m

2

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 94**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON
2	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m**1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m**0**

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

5

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 96**

ID	Location	LEX Code	Description	Rock age
1	On site	SAL-MDSC	SALOP FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
2	On site	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-
3	On site	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-

ID	Location	LEX Code	Description	Rock age
4	On site	SAL-MDSC	SALOP FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
7	142m E	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Moderate	Low
On site	Intergranular	High	High

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

3

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

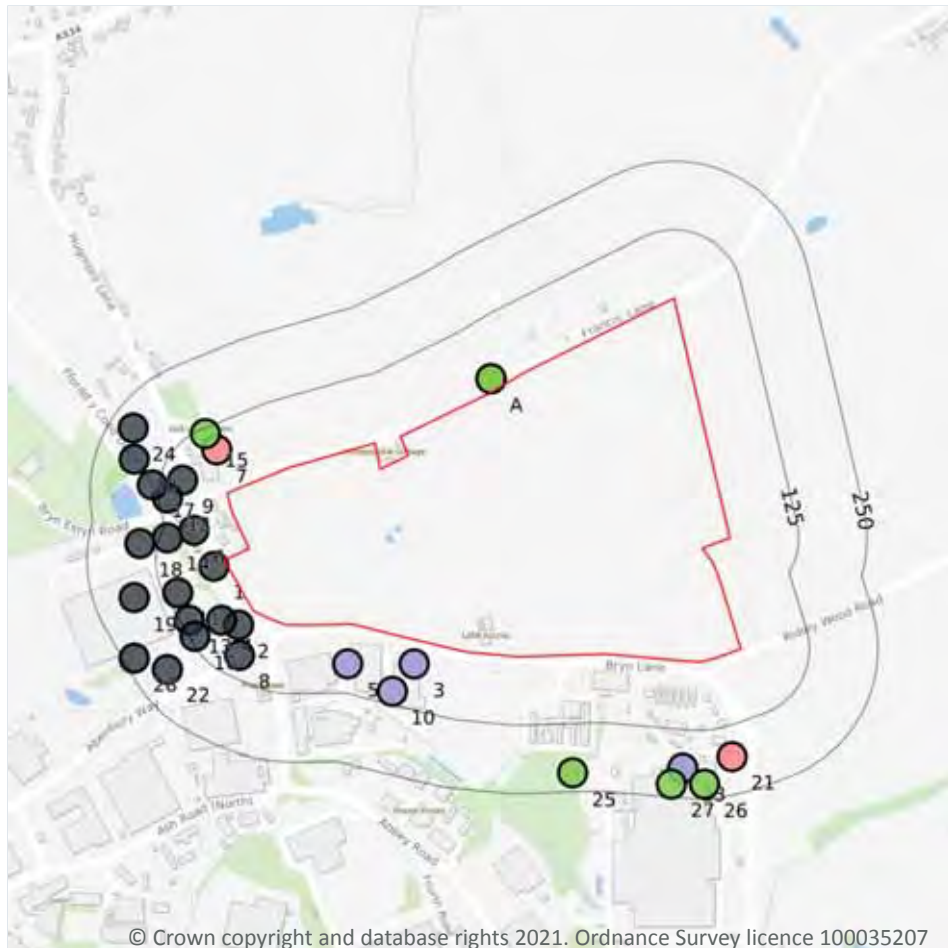
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 96**

ID	Location	Category	Description
5	On site	FAULT	Fault, inferred, displacement unknown
6	On site	FAULT	Fault, inferred, displacement unknown
8	142m E	FAULT	Fault, inferred, displacement unknown

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

30

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 98**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	21m SW	337986 351028	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD 34	-	Y	N/A
A	22m NW	338490 351370	BIESTON NO.19	18.0	N	154822
A	22m NW	338490 351370	HOLT, HOLT LODGE FARM	18.0	N	154650



ID	Location	Grid reference	Name	Length	Confidential	Web link
2	38m SW	338030 350920	WREXHAM IND EST TP 4	-	Y	N/A
3	43m S	338350 350850	RIDLEY FARM 2	5.03	N	154675
4	58m SW	338000 350930	WREXHAM IND EST 2	-	Y	N/A
5	72m S	338230 350850	RIDLEY FARM 1	4.88	N	154674
6	77m SW	337949 351093	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP37	-	Y	N/A
7	80m NW	337990 351240	COMMON WOOD FARM	61.57	N	154655
8	83m SW	338032 350866	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP40	-	Y	N/A
9	84m W	337929 351186	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP61	-	Y	N/A
10	101m S	338310 350800	RIDLEY FARM 3	5.03	N	154676
11	103m SW	337920 350980	WREXHAM IND EST TP 2	-	Y	N/A
12	109m W	337901 351152	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP36	-	Y	N/A
13	110m SW	337940 350930	WREXHAM IND EST TP 3	-	Y	N/A
14	112m W	337900 351080	WREXHAM IND EST 1	-	Y	N/A
15	115m NW	337970 351270	HOLT LODGE FARM	20.31	N	154843
16	116m SW	337950 350900	WREXHAM IND EST 3	-	Y	N/A
17	137m W	337873 351177	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD 32	-	Y	N/A
18	157m W	337850 351070	WREXHAM IND EST TP 1	-	Y	N/A
19	178m SW	337840 350970	WREXHAM IND EST 5	-	Y	N/A
20	181m W	337840 351224	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD TP35	-	Y	N/A
21	182m S	338930 350680	WREXHAM IND ESTATE KELLOGS 1	67.07	N	154667
22	190m SW	337900 350840	WREXHAM IND EST 4	-	Y	N/A
23	195m S	338840 350660	WREXHAM MAELOR TP 1	2.4	N	154808
24	209m NW	337838 351280	WREXHAM INDUSTRIAL ESTATE ACCESS ROAD 31	-	Y	N/A
25	216m S	338640 350650	WREXHAM INDUSTRIAL ESTATE 7	20.0	N	154807
26	223m S	338880 350630	WREXHAM INDUSTRIAL ESTATE 2	20.0	N	154802
27	226m S	338820 350630	WREXHAM INDUSTRIAL ESTATE 3	20.0	N	154803



ID	Location	Grid reference	Name	Length	Confidential	Web link
28	232m SW	337840 350860	WREXHAM IND EST TP 5	-	Y	N/A

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

1

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

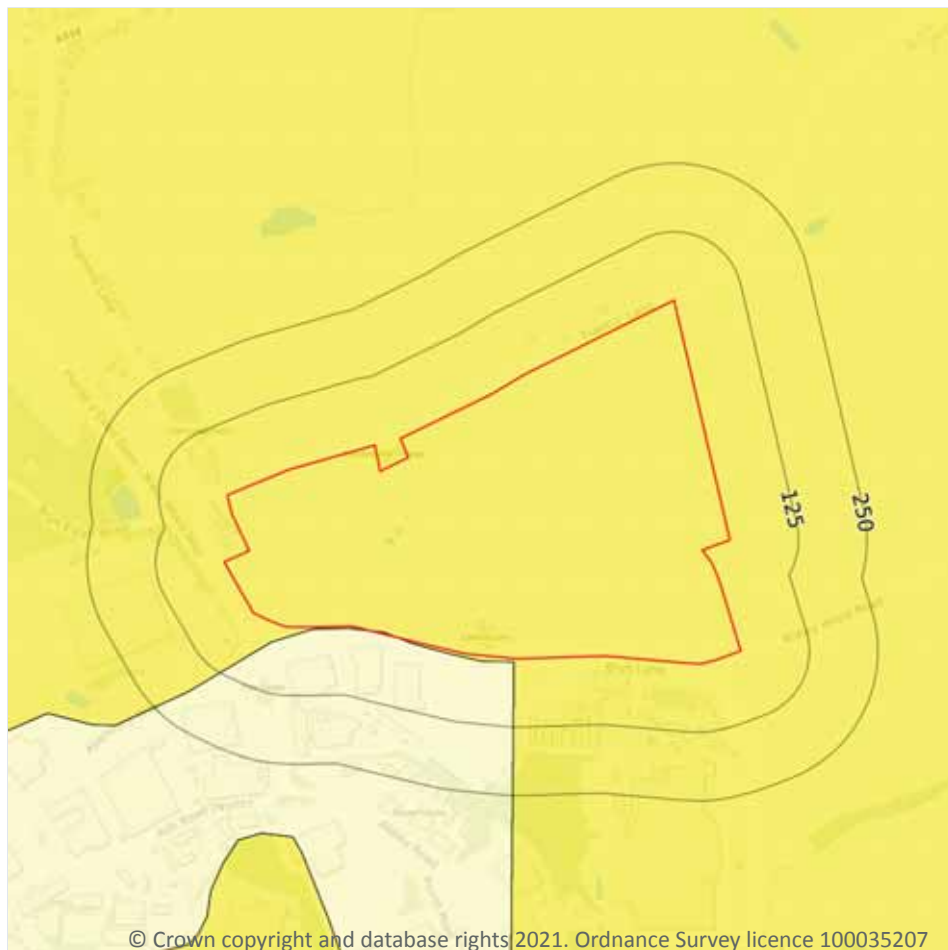
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 101**

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.2 Running sands

Records within 50m

2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 102**

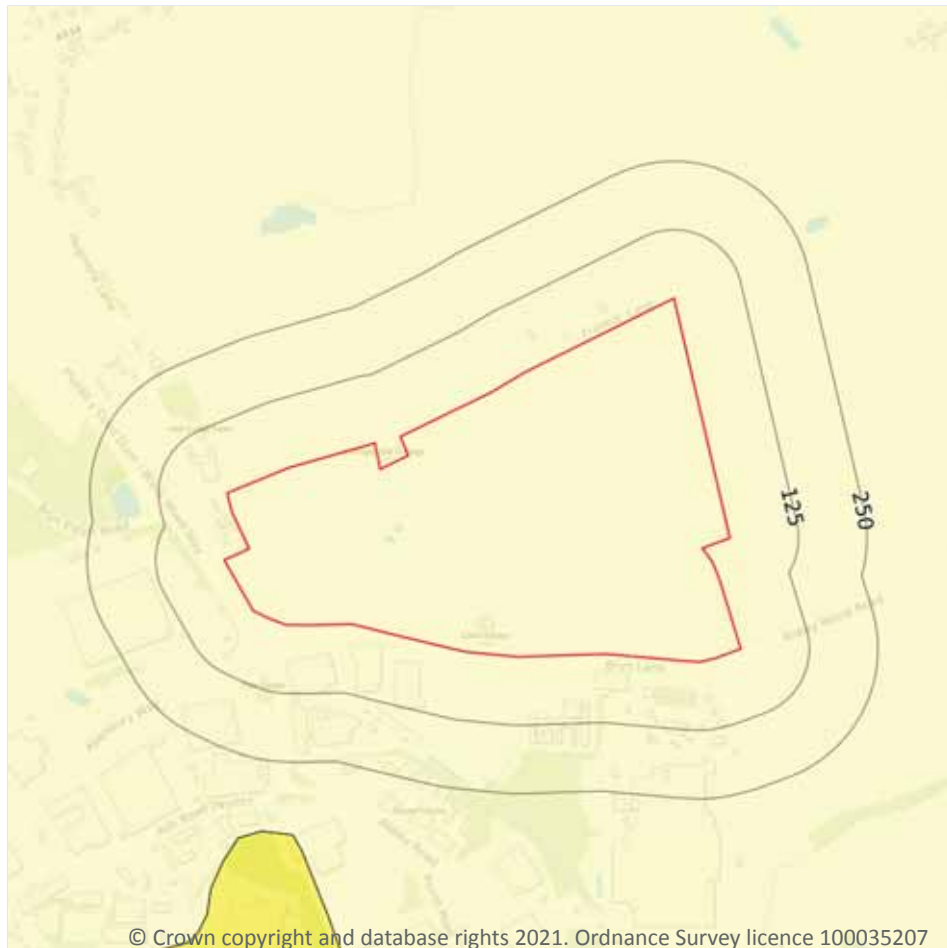
Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.3 Compressible deposits

Records within 50m

1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 104**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 105**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.5 Landslides

Records within 50m

1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

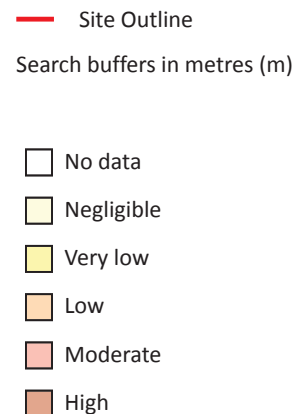
Features are displayed on the Natural ground subsidence - Landslides map on **page 106**

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

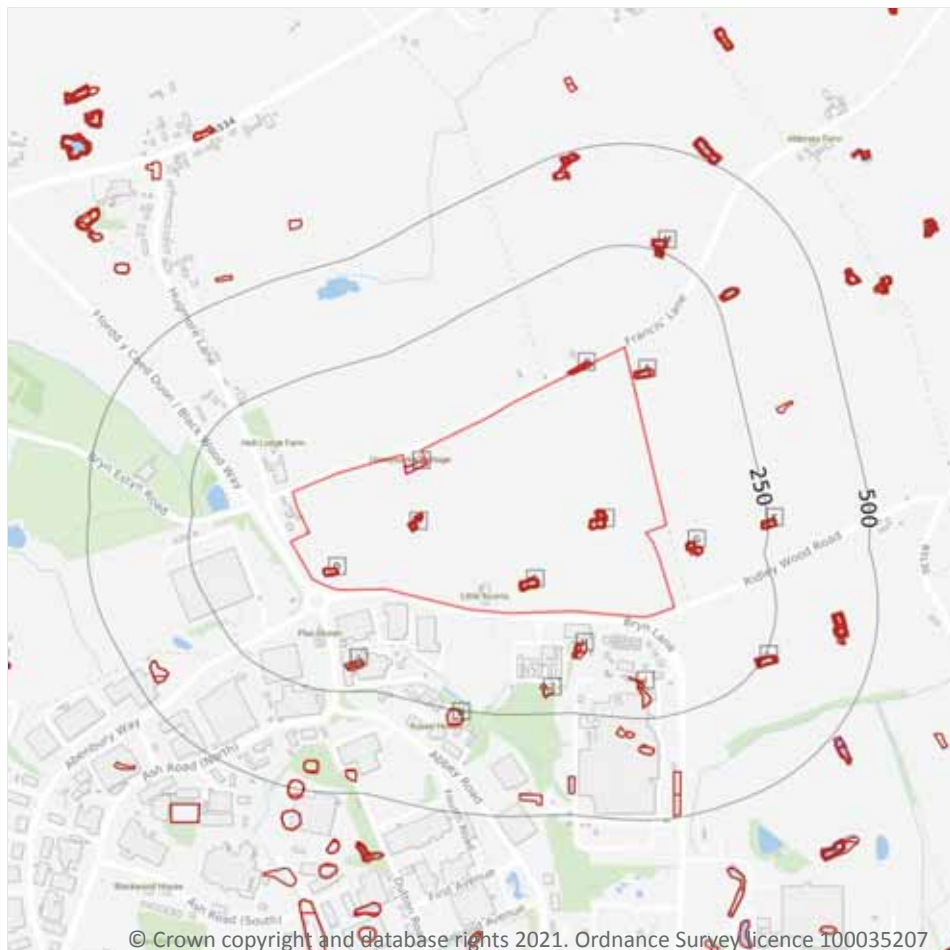
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 107**

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

72

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 109**

ID	Location	Land Use	Year of mapping	Mapping scale
1	On site	Pond	1914	1:10560
A	On site	Ponds	1992	1:10000
A	On site	Ponds	1982	1:10000
A	On site	Ponds	1960	1:10560
A	On site	Ponds	1968	1:10560
A	On site	Ponds	1900	1:10560
A	On site	Ponds	1914	1:10560
B	On site	Ponds	1982	1:10000
B	On site	Ponds	1960	1:10560
B	On site	Ponds	1968	1:10560
B	On site	Ponds	1900	1:10560
B	On site	Ponds	1914	1:10560
B	On site	Ponds	1949	1:10560
B	On site	Ponds	1872	1:10560
C	On site	Pond	1982	1:10000
C	On site	Pond	1960	1:10560
C	On site	Pond	1968	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
C	On site	Pond	1872	1:10560
D	On site	Pond	1982	1:10000
D	On site	Pond	1960	1:10560
D	On site	Pond	1968	1:10560
D	On site	Pond	1900	1:10560
E	On site	Pond	1982	1:10000
E	On site	Pond	1960	1:10560
E	On site	Pond	1968	1:10560
E	On site	Pond	1900	1:10560
E	On site	Pond	1914	1:10560
E	On site	Pond	1949	1:10560
E	On site	Pond	1872	1:10560
C	0m NW	Pond	1914	1:10560
F	6m E	Ponds	1900	1:10560
F	8m E	Ponds	1960	1:10560
F	8m E	Ponds	1968	1:10560
F	9m E	Ponds	1914	1:10560
F	15m E	Ponds	1982	1:10000
G	67m SE	Pond	1914	1:10560
G	68m SE	Pond	1982	1:10000
G	68m SE	Pond	1960	1:10560
G	68m SE	Pond	1968	1:10560
G	70m SE	Pond	1949	1:10560
G	74m SE	Ponds	1872	1:10560
H	77m S	Pond	1914	1:10560
H	78m S	Pond	1992	1:10000
H	80m S	Pond	1949	1:10560
I	150m S	Pond	1914	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
I	163m S	Ponds	1960	1:10560
I	163m S	Ponds	1968	1:10560
J	170m S	Ponds	1900	1:10560
J	176m S	Ponds	1872	1:10560
2	177m S	Ponds	1872	1:10560
K	234m E	Pond	1914	1:10560
K	235m E	Pond	1982	1:10000
K	235m E	Pond	1960	1:10560
K	235m E	Pond	1968	1:10560
L	235m SE	Ponds	1900	1:10560
M	237m NE	Ponds	1949	1:10560
M	237m N	Ponds	1900	1:10560
K	238m E	Pond	1872	1:10560
M	238m N	Ponds	1982	1:10000
M	238m N	Ponds	1960	1:10560
M	238m N	Ponds	1968	1:10560
M	239m N	Ponds	1914	1:10560
L	240m SE	Ponds	1914	1:10560
L	240m SE	Ponds	1949	1:10560
M	241m NE	Ponds	1872	1:10560
L	245m SE	Ponds	1872	1:10560
L	246m SE	Ponds	1992	1:10000
L	246m SE	Ponds	1982	1:10000
L	246m SE	Ponds	1960	1:10560
L	246m SE	Ponds	1968	1:10560
N	247m S	Unspecified Heap	1960	1:10560
N	247m S	Unspecified Heap	1968	1:10560

This is data is sourced from Ordnance Survey/Groundsure.



18.4 Underground workings

Records within 1000m**0**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m**0**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m**0**

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m**0**

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site**0**

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	1
-----------------	---

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0
-----------------	---

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.13 Clay mining

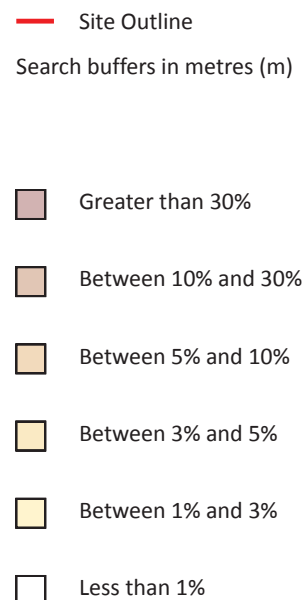
Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).



19 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 115**

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

13

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
4m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
23m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.



20.2 BGS Estimated Urban Soil Chemistry

Records within 50m**0**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m**0**

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- ... Active railways
- ... Active tunnels
- ... Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.



This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

4

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 118**

Location	Land Use	Year of mapping	Mapping scale
197m S	Mineral Railway Sidings	1960	2500
225m S	Railway Sidings	1960	10560
225m S	Railway Sidings	1968	10560
230m S	Railway Sidings	1949	10560

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.



21.6 Historical railways

Records within 250m**0**

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m**0**

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m**0**

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: County Series

Map date: 1872

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A

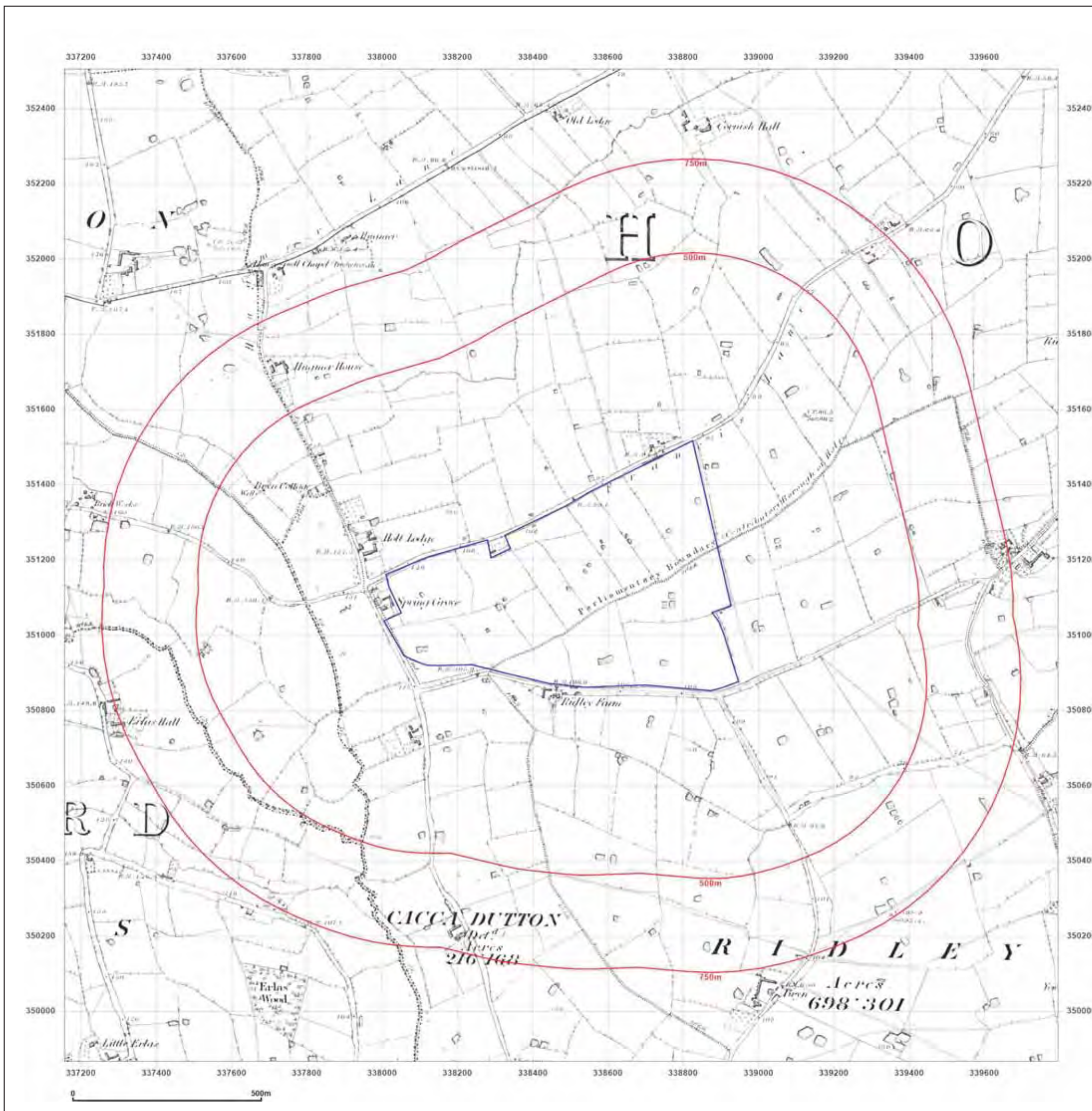


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Production date: 25 October 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: County Series

Map date: 1898-1900

Scale: 1:10,560

Printed at: 1:10,560



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

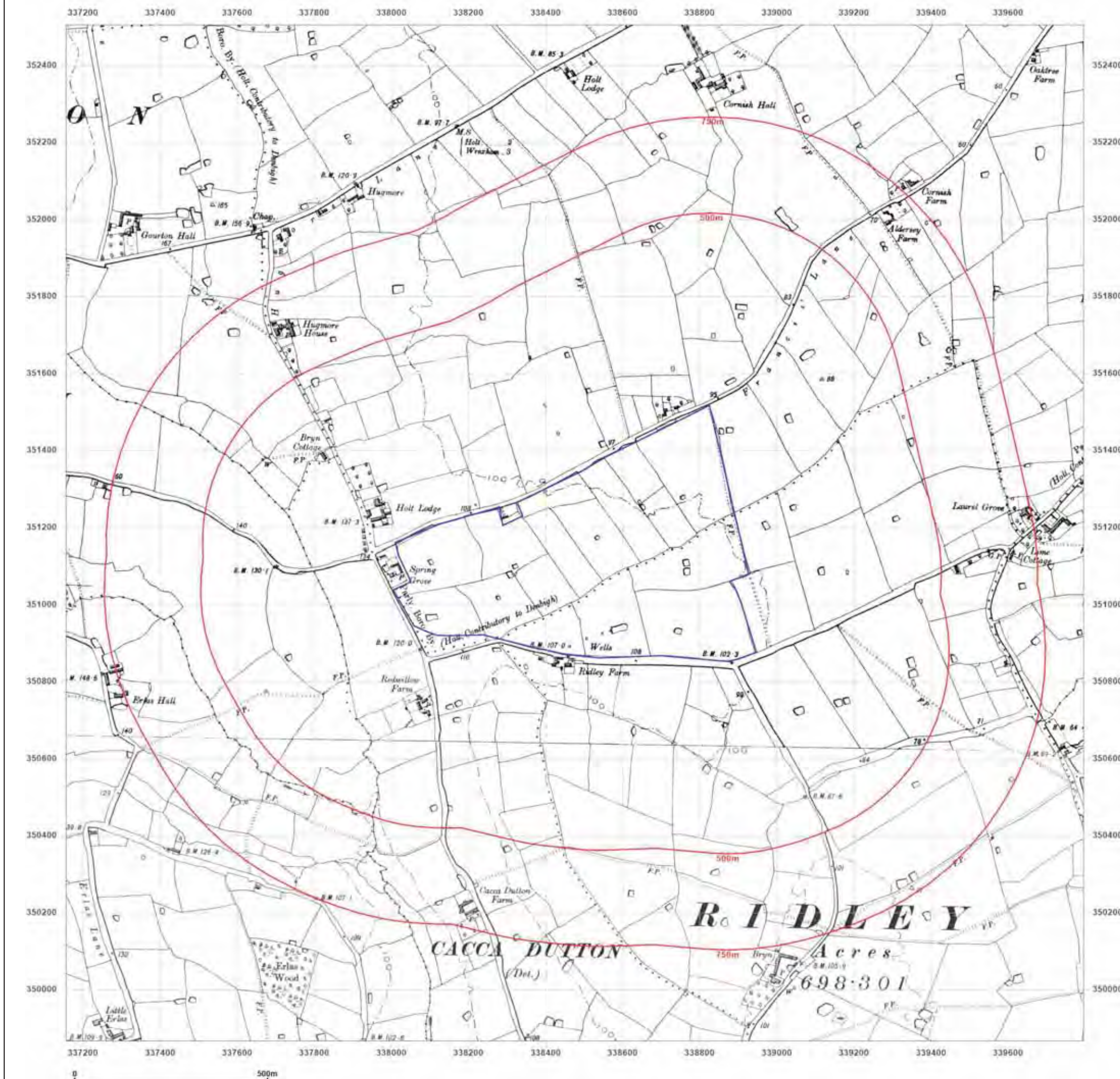


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Production date: 25 October 2021

Map legend available at:
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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: County Series

Map date: 1909-1914

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1914
Edition 1914
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A

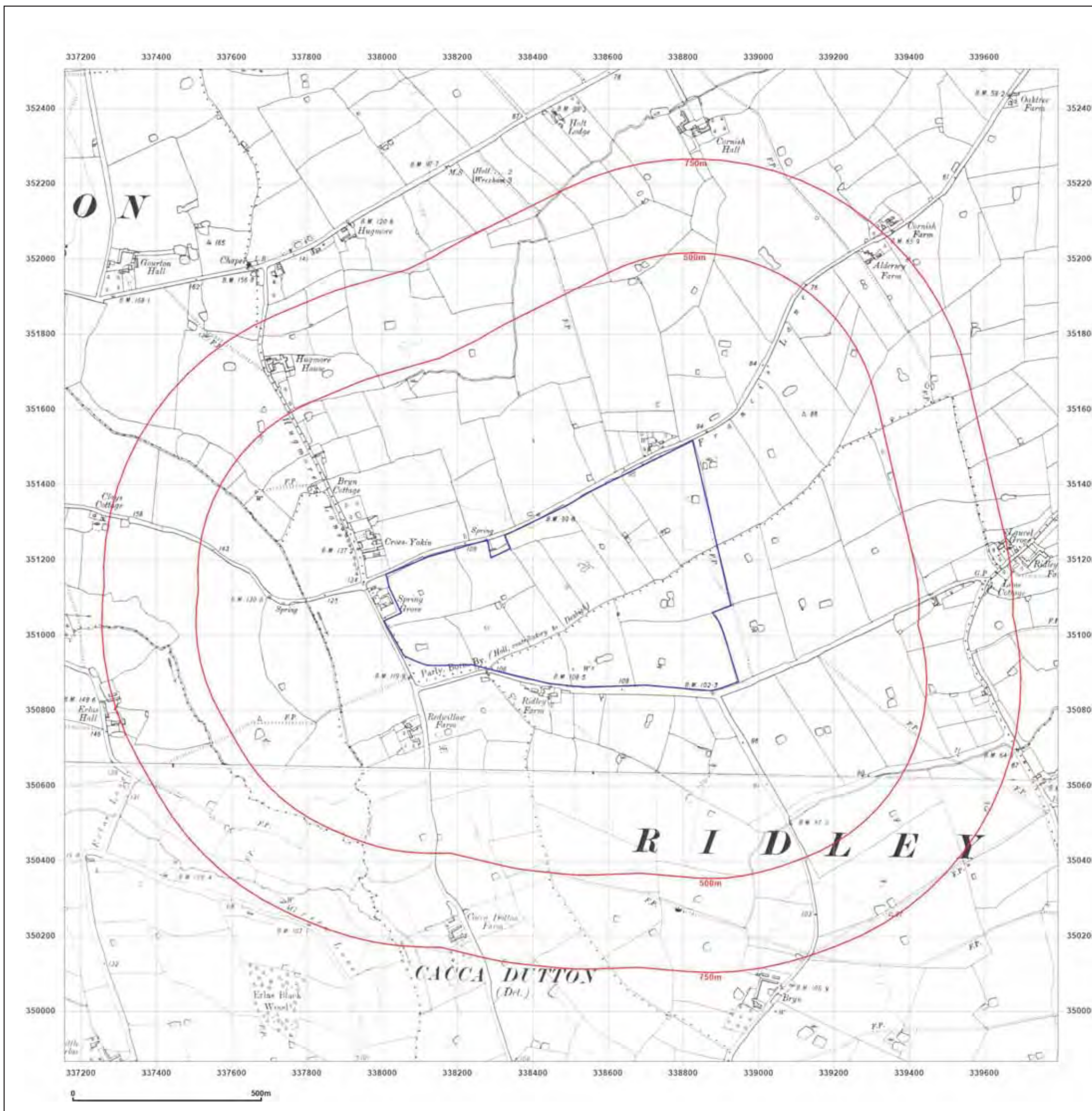


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Production date: 25 October 2021

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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1872
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

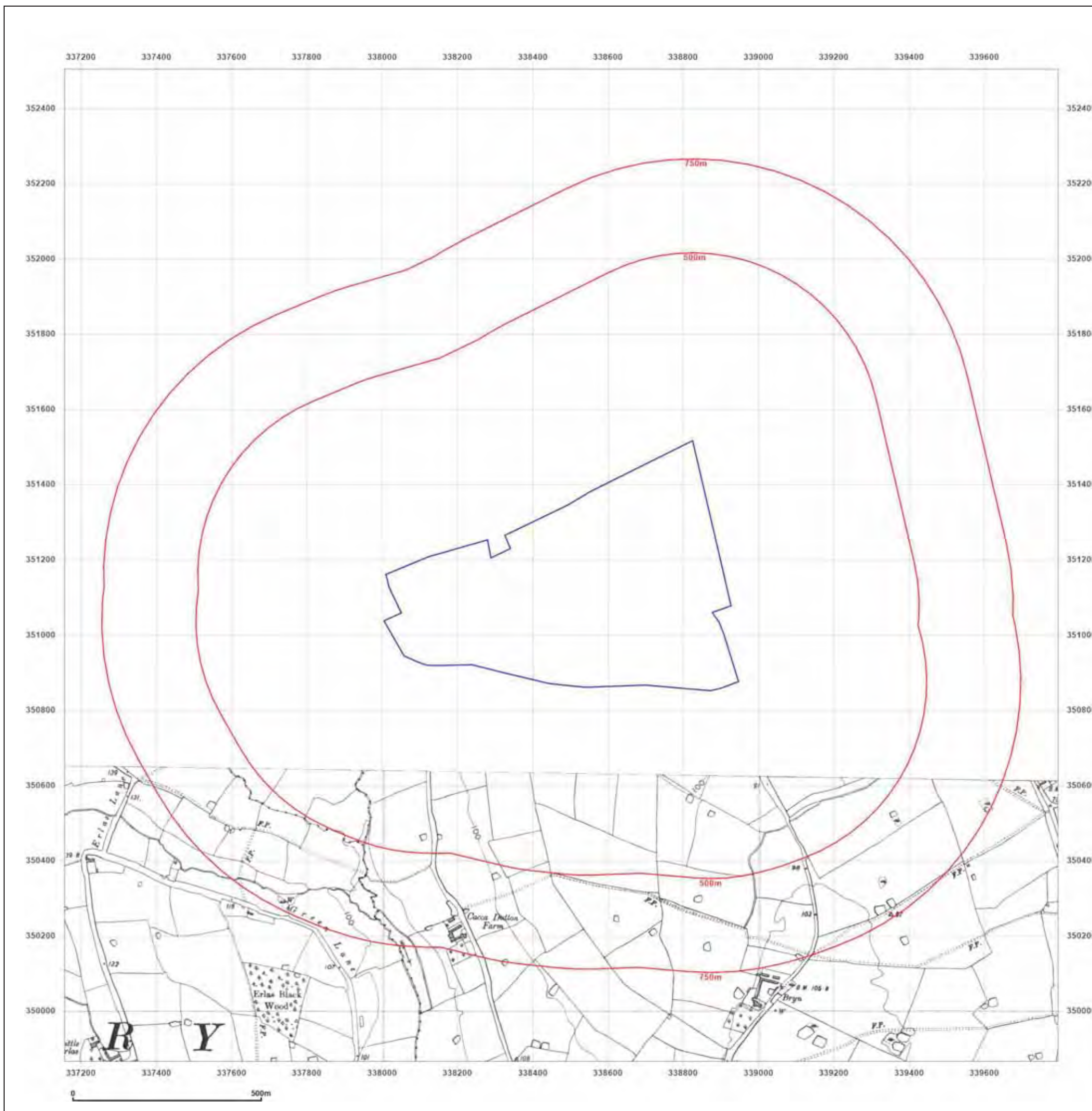


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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: County Series

Map date: 1949

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1871
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1949
Edition N/A
Copyright N/A
Levelled N/A

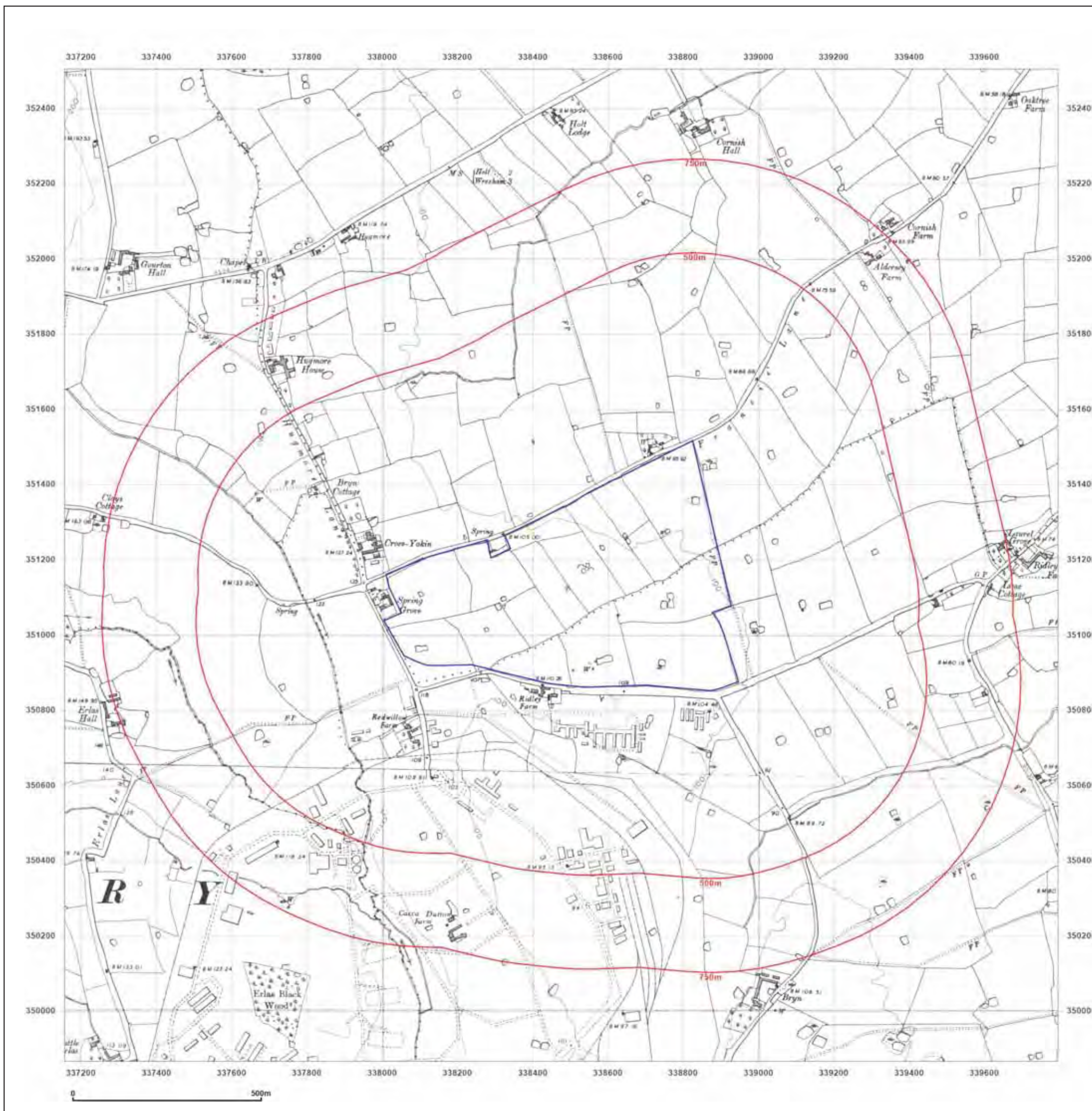


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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: Provisional

Map date: 1960-1964

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1874
Revised 1960
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1964
Revised 1964
Edition N/A
Copyright N/A
Levelled N/A

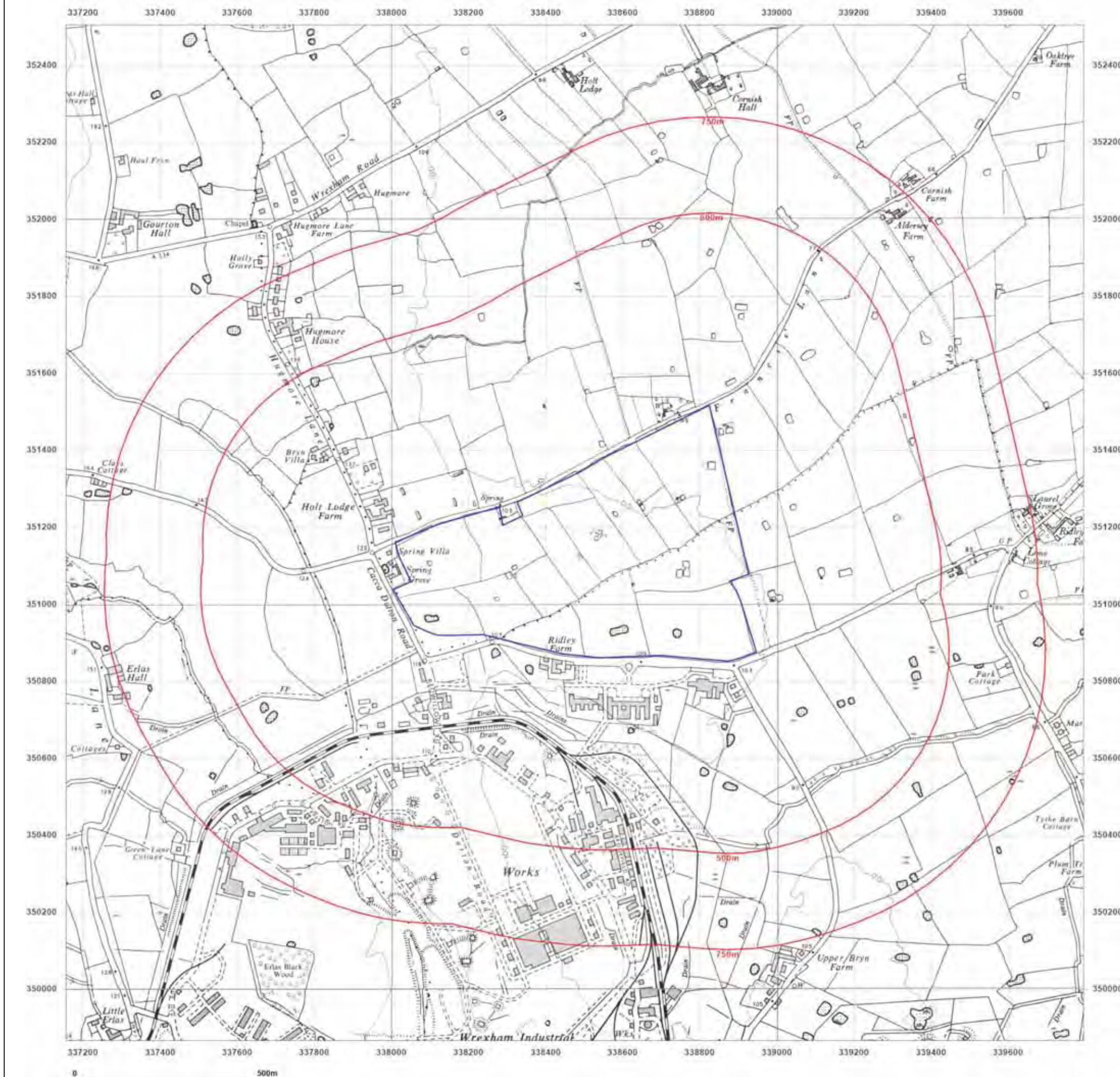


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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: National Grid

Map date: 1979-1982

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1970
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1975
Revised 1978
Edition N/A
Copyright 1979
Levelled 1969

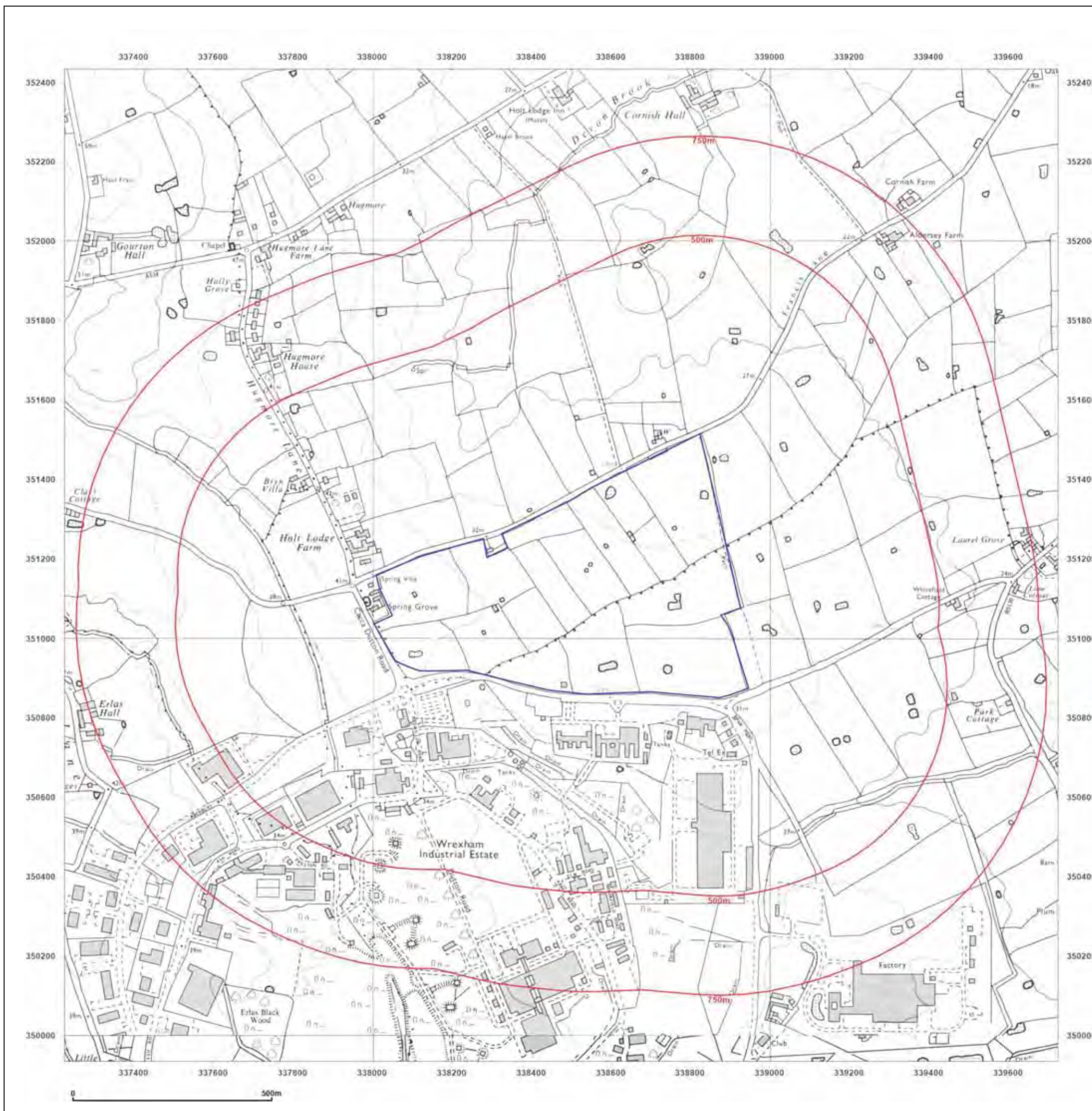


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Site Details:

LAND NORTH OF BRYN LANE,
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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: National Grid

Map date: 1992

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1990
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1983
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

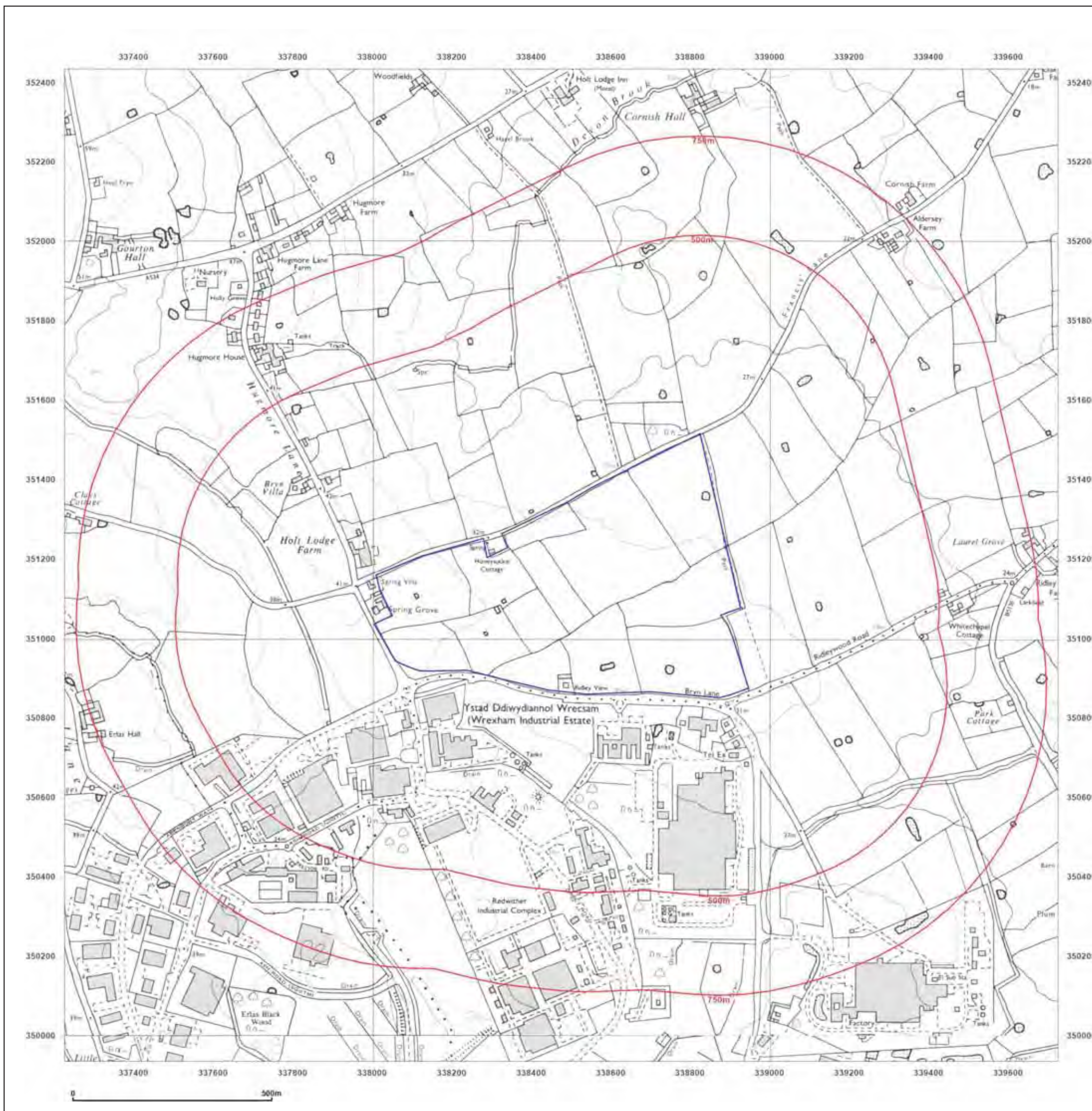


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Site Details:

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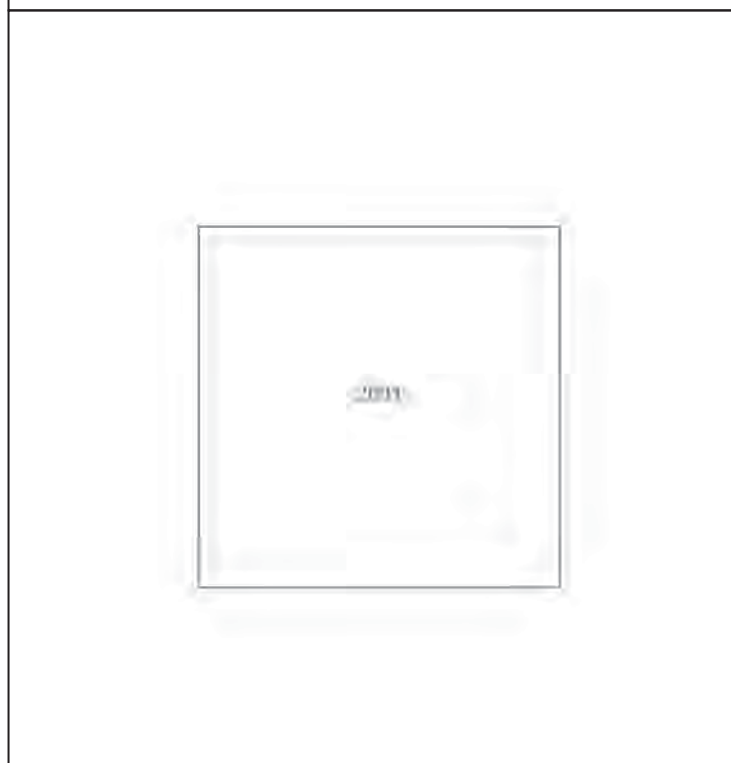
Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

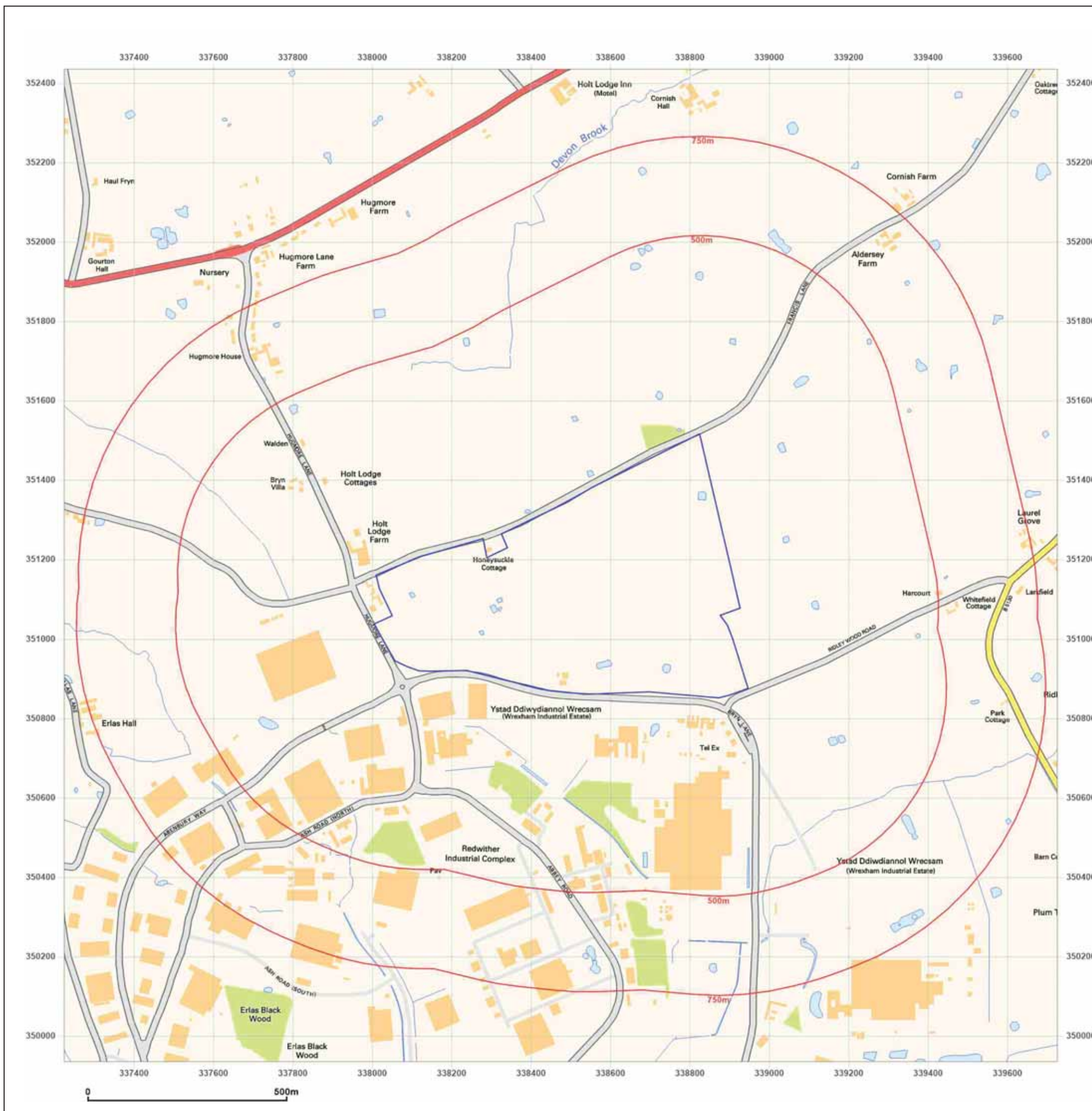


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Site Details:

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WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

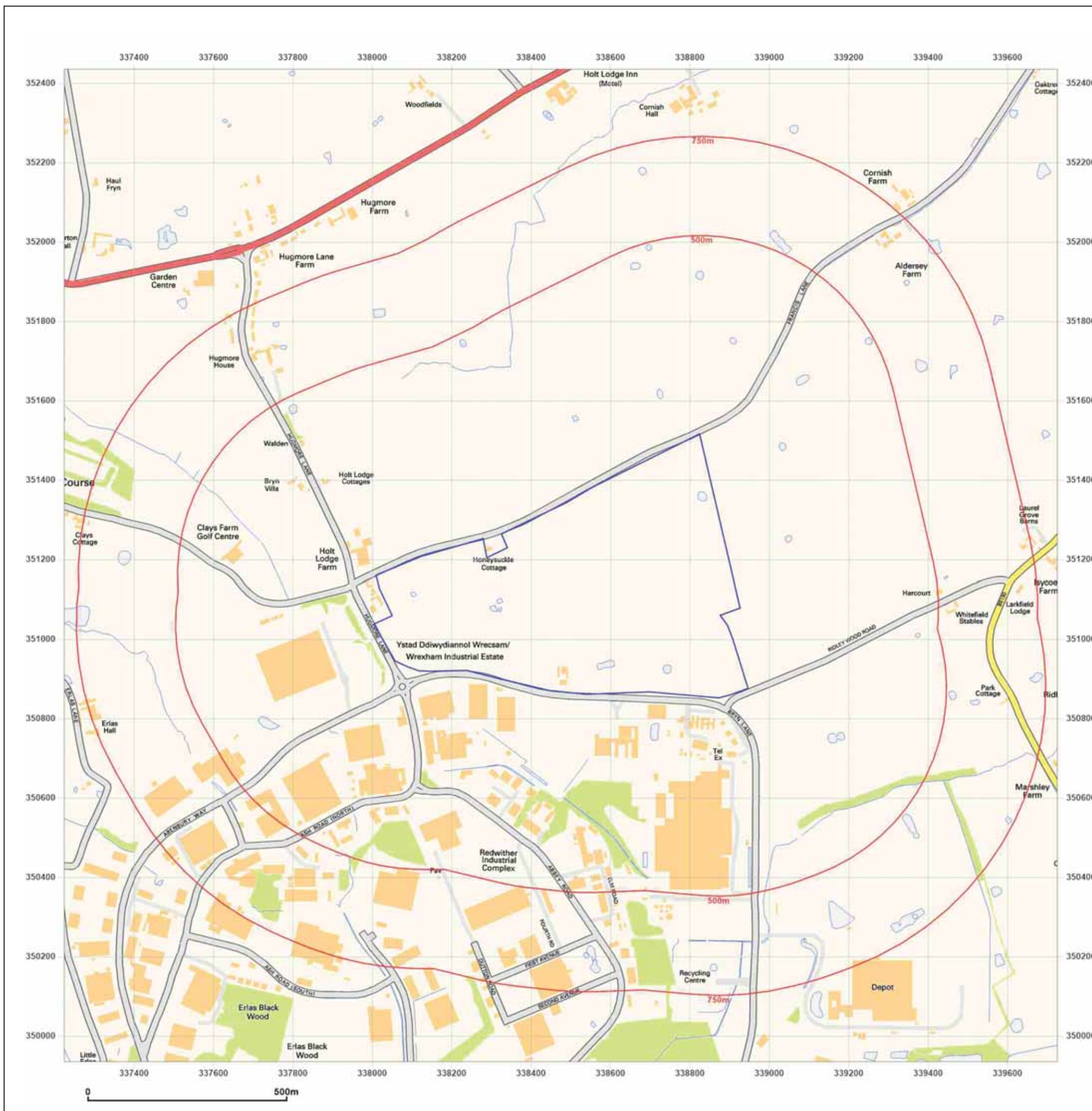


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Site Details:

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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502
Grid Ref: 338475, 351185

Map Name: National Grid

Map date: 2021

Scale: 1:10,000

Printed at: 1:10,000

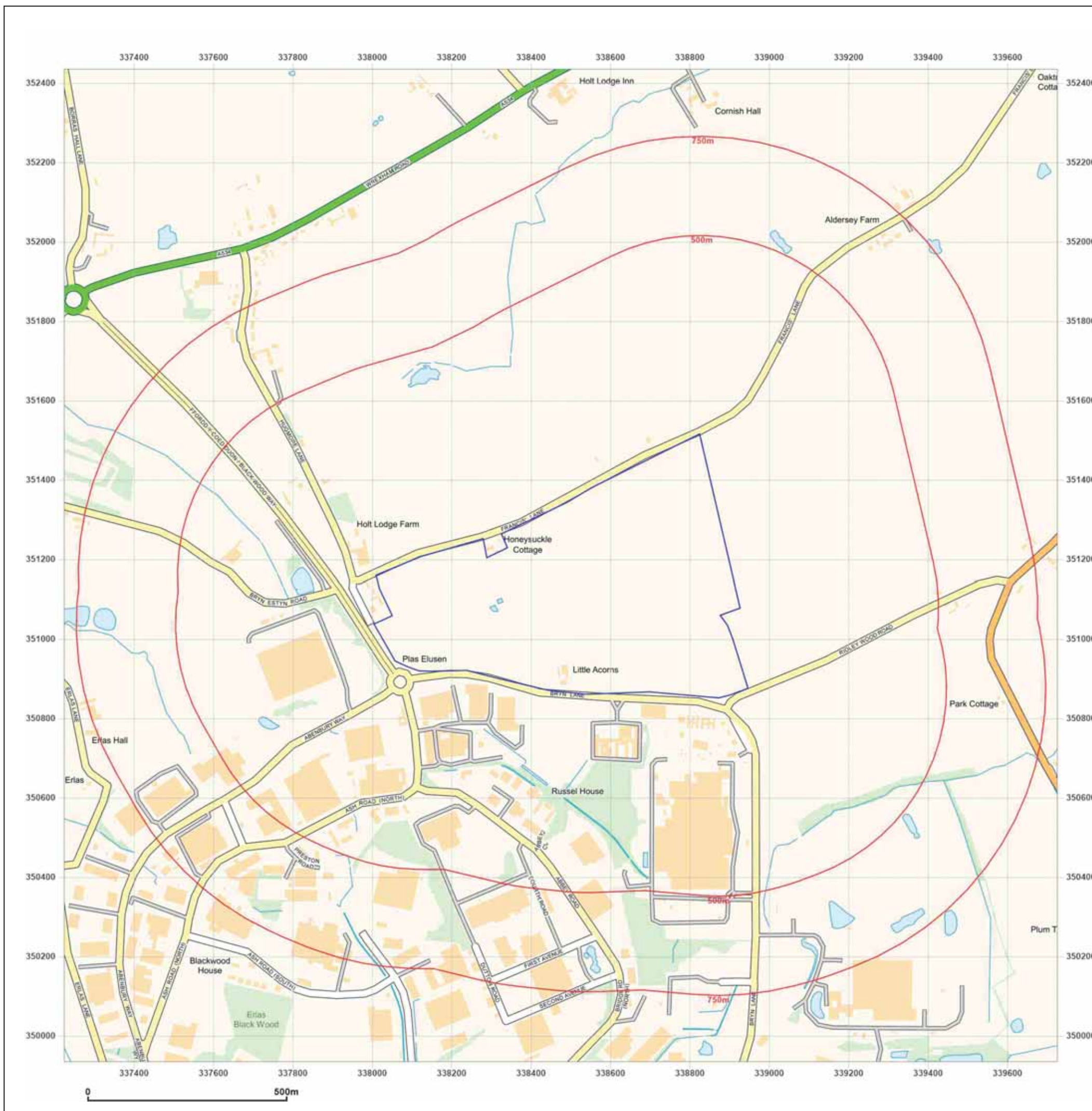


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Site Details:

LAND NORTH OF BRYN LANE,
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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_1_1
Grid Ref: 338025, 350885

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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Site Details:

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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_1_2
Grid Ref: 338025, 351185

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

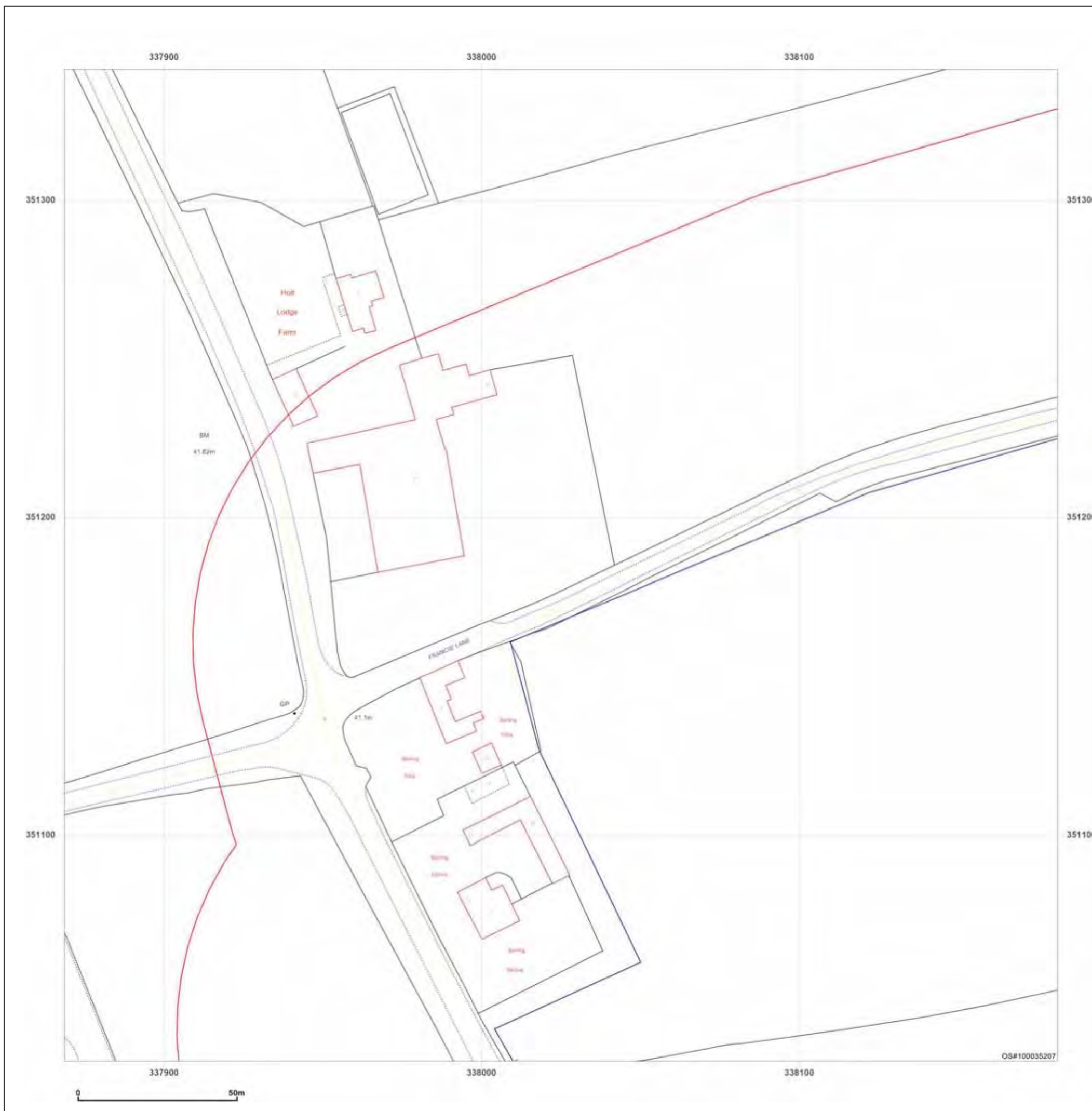


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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_2_1
Grid Ref: 338325, 350885

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_2_2
Grid Ref: 338325, 351185

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

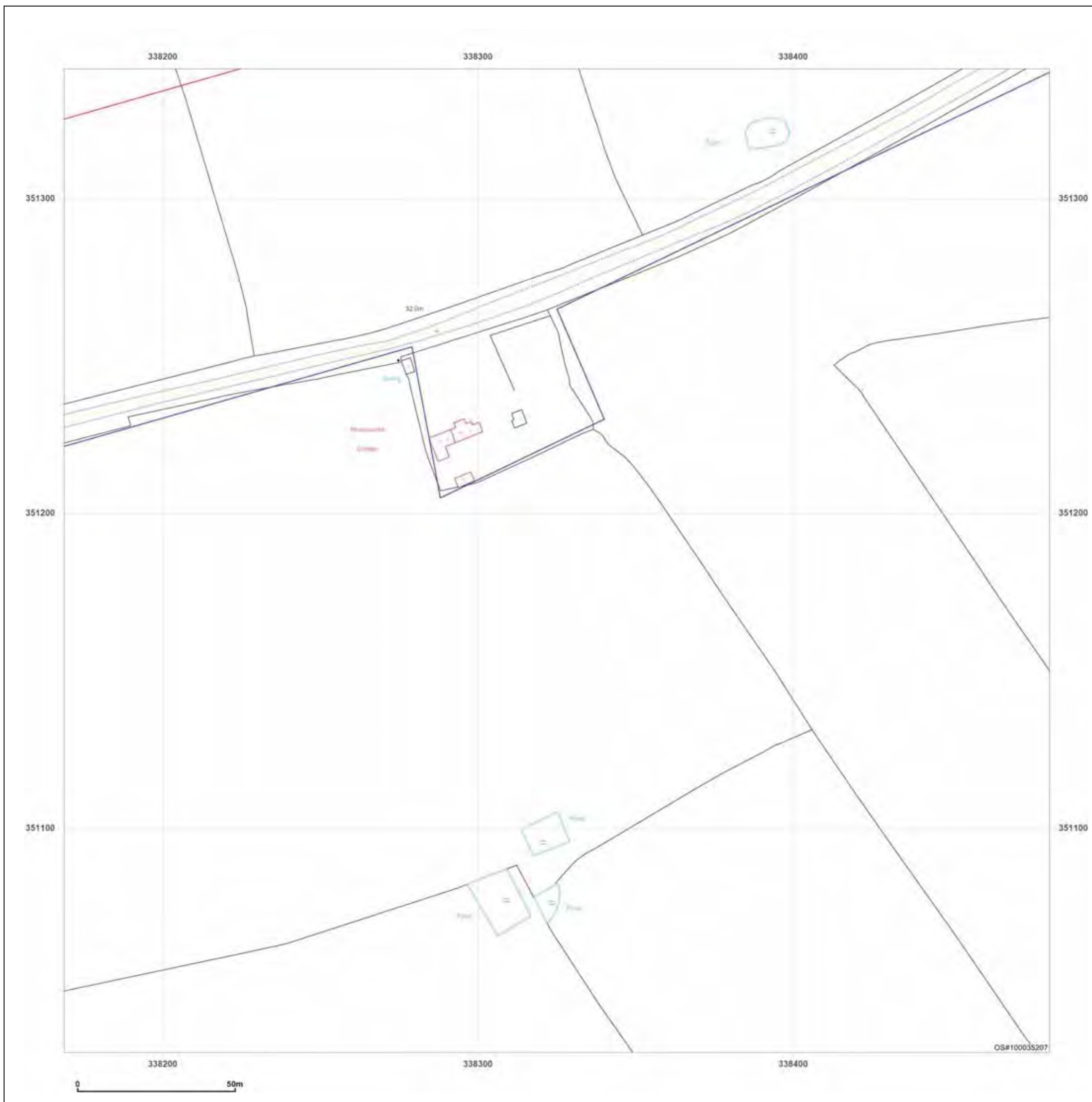


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_2_3
Grid Ref: 338325, 351485

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

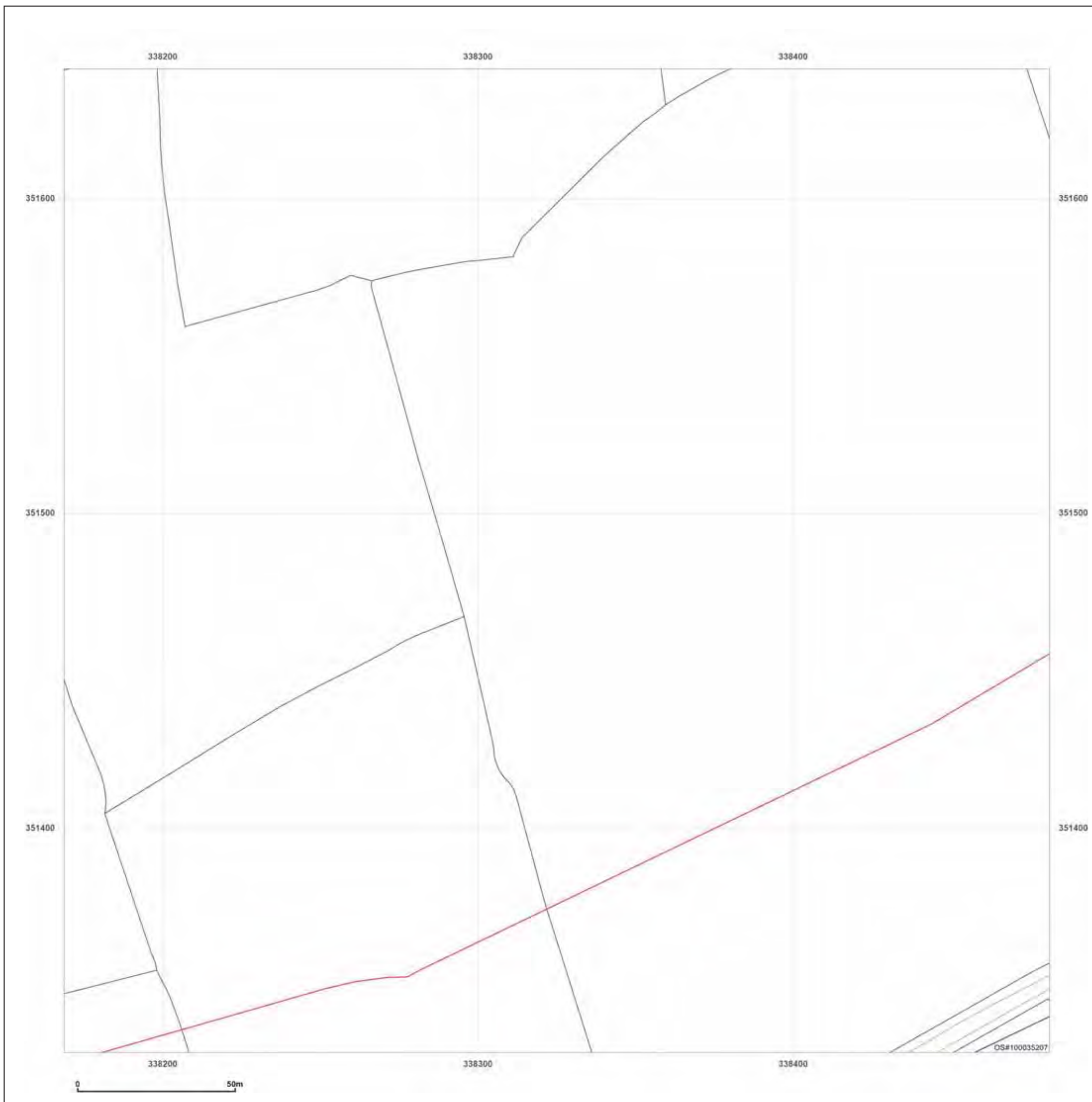


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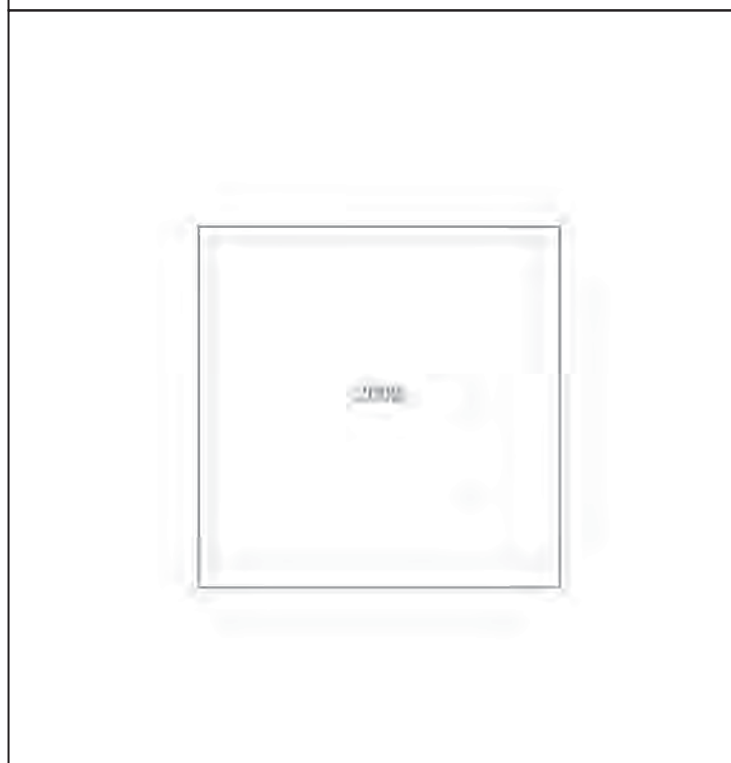
Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_3_1
Grid Ref: 338625, 350885

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

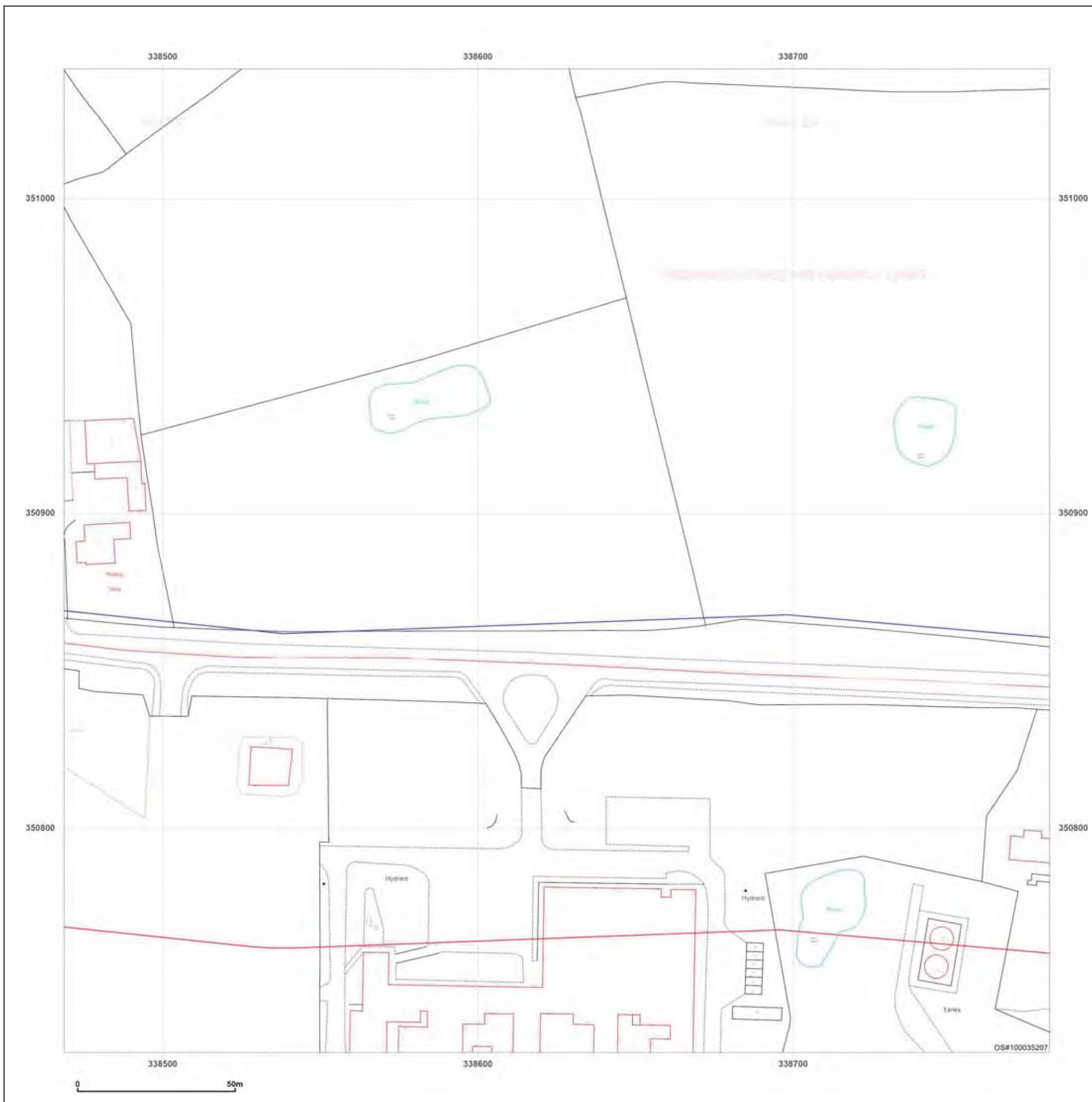


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_3_2
Grid Ref: 338625, 351185

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

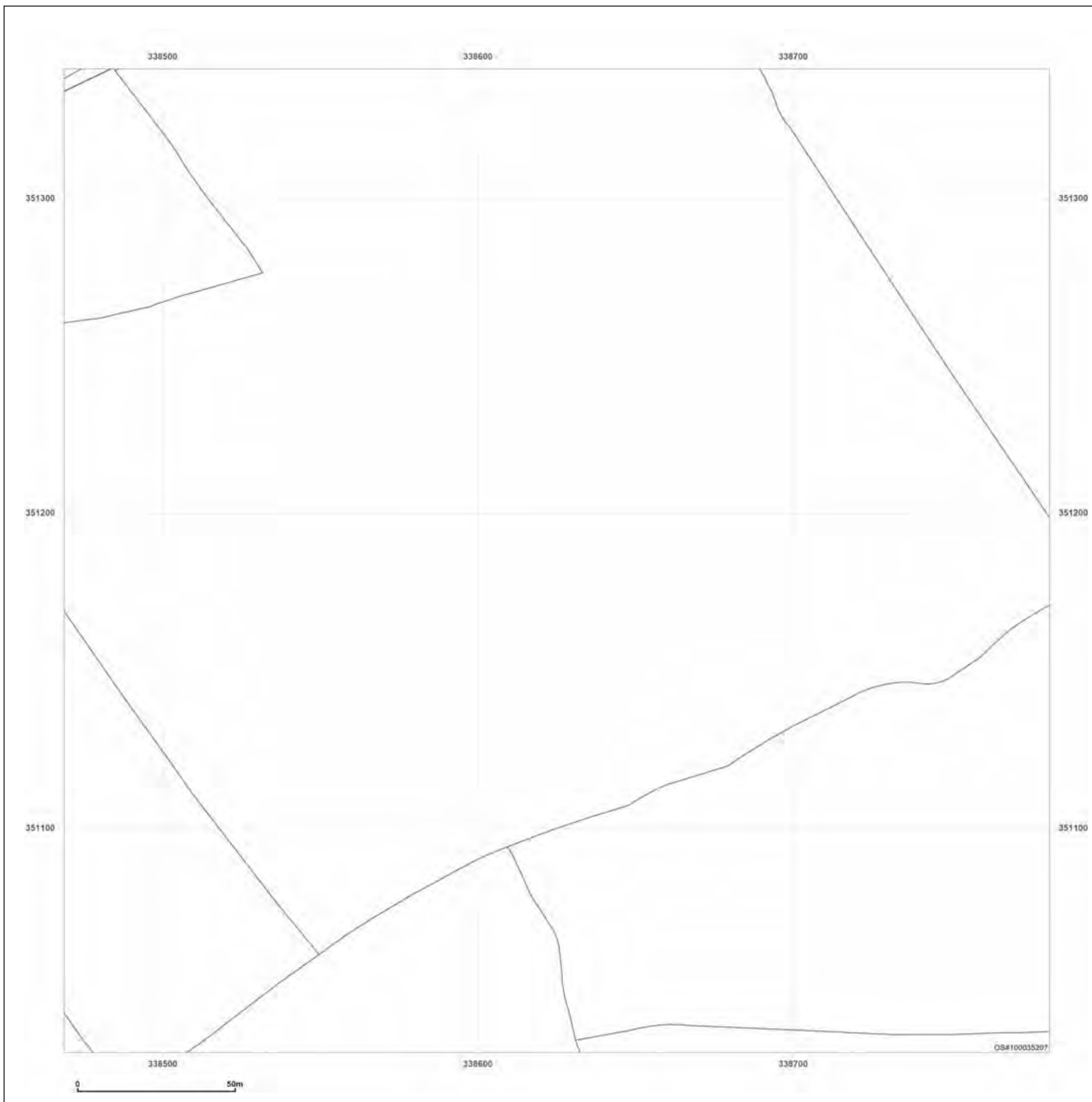


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_3_3
Grid Ref: 338625, 351485

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

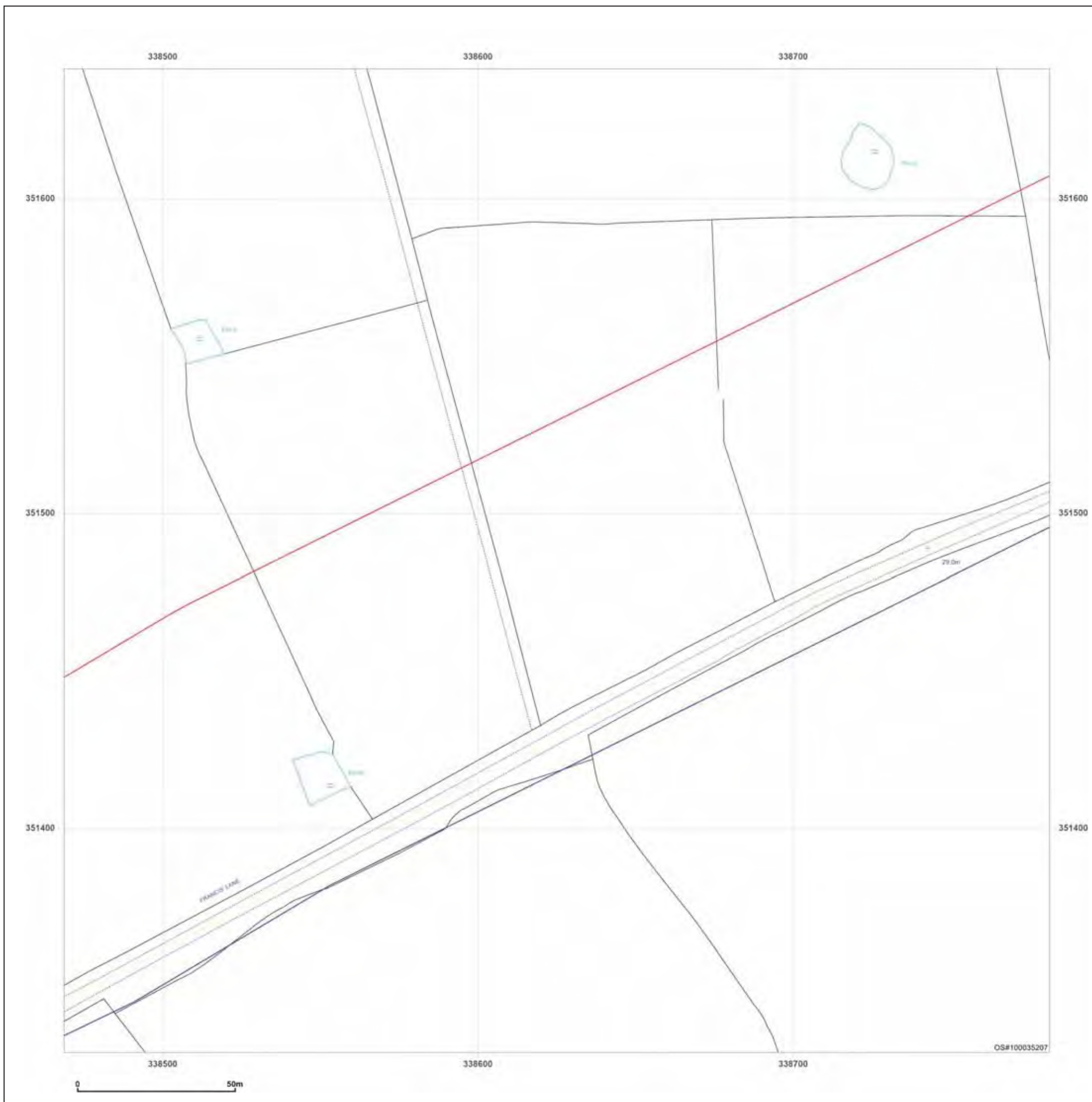


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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_4_1
Grid Ref: 338925, 350885

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_4_2
Grid Ref: 338925, 351185

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

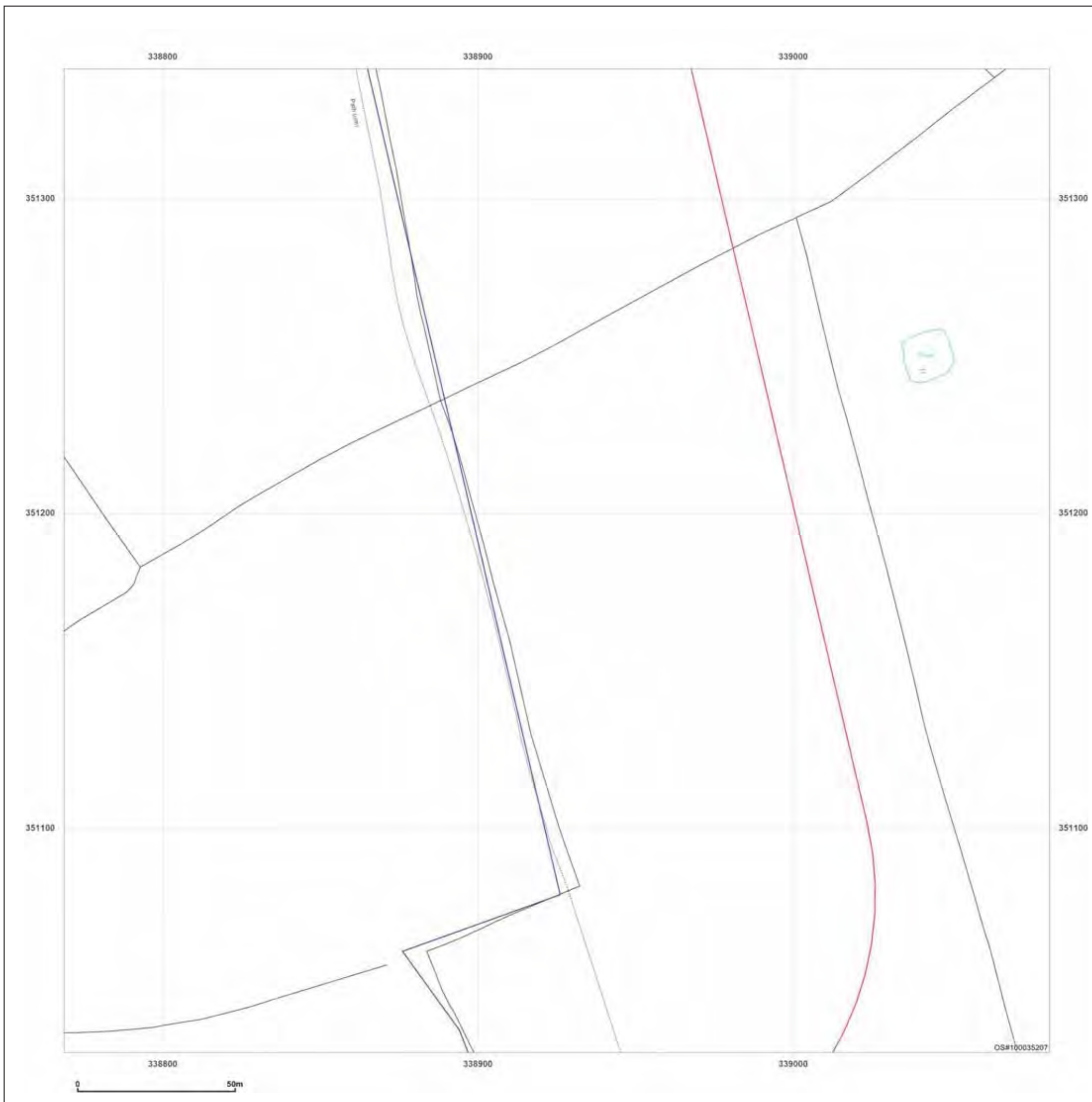


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Site Details:

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ESTATE, WREXHAM, LL13 9UT

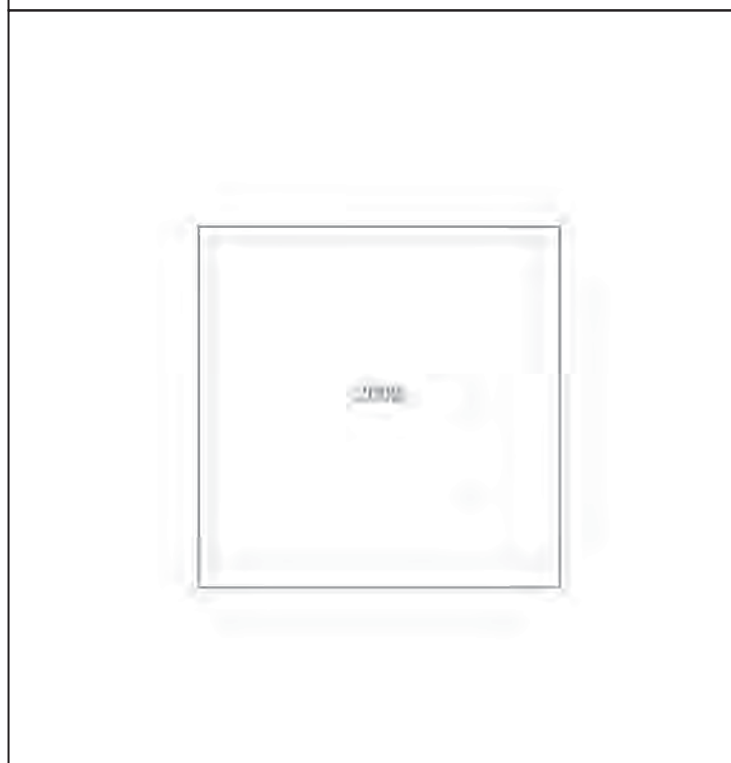
Client Ref: 1779_TE1624
Report Ref: GS-8287502_Landline_4_3
Grid Ref: 338925, 351485

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

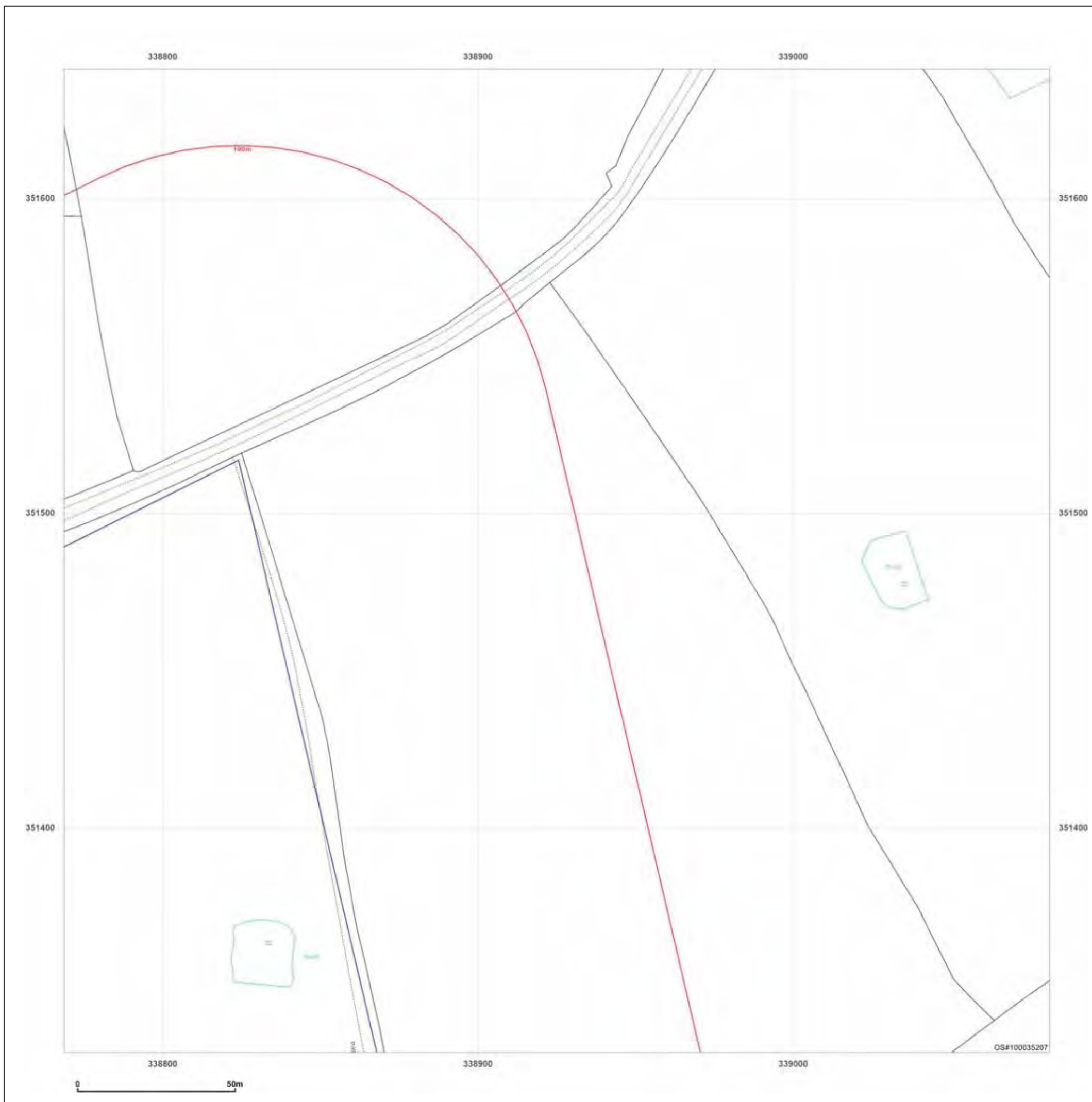


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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: County Series

Map date: 1873

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1873
Revised 1873
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1873
Revised 1873
Edition N/A
Copyright N/A
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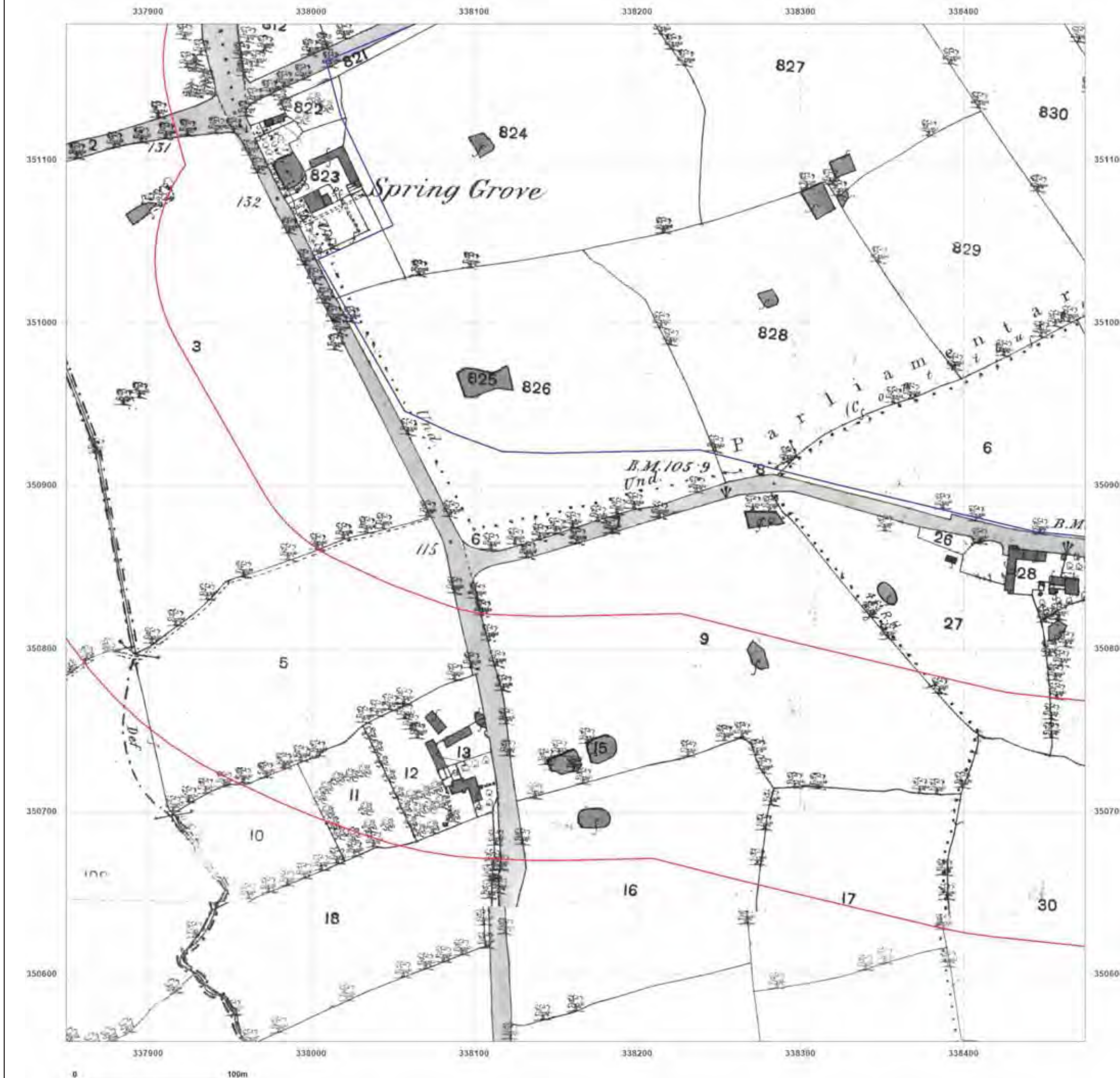


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Site Details:

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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: County Series

Map date: 1899

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1899
Revised 1899
Edition N/A
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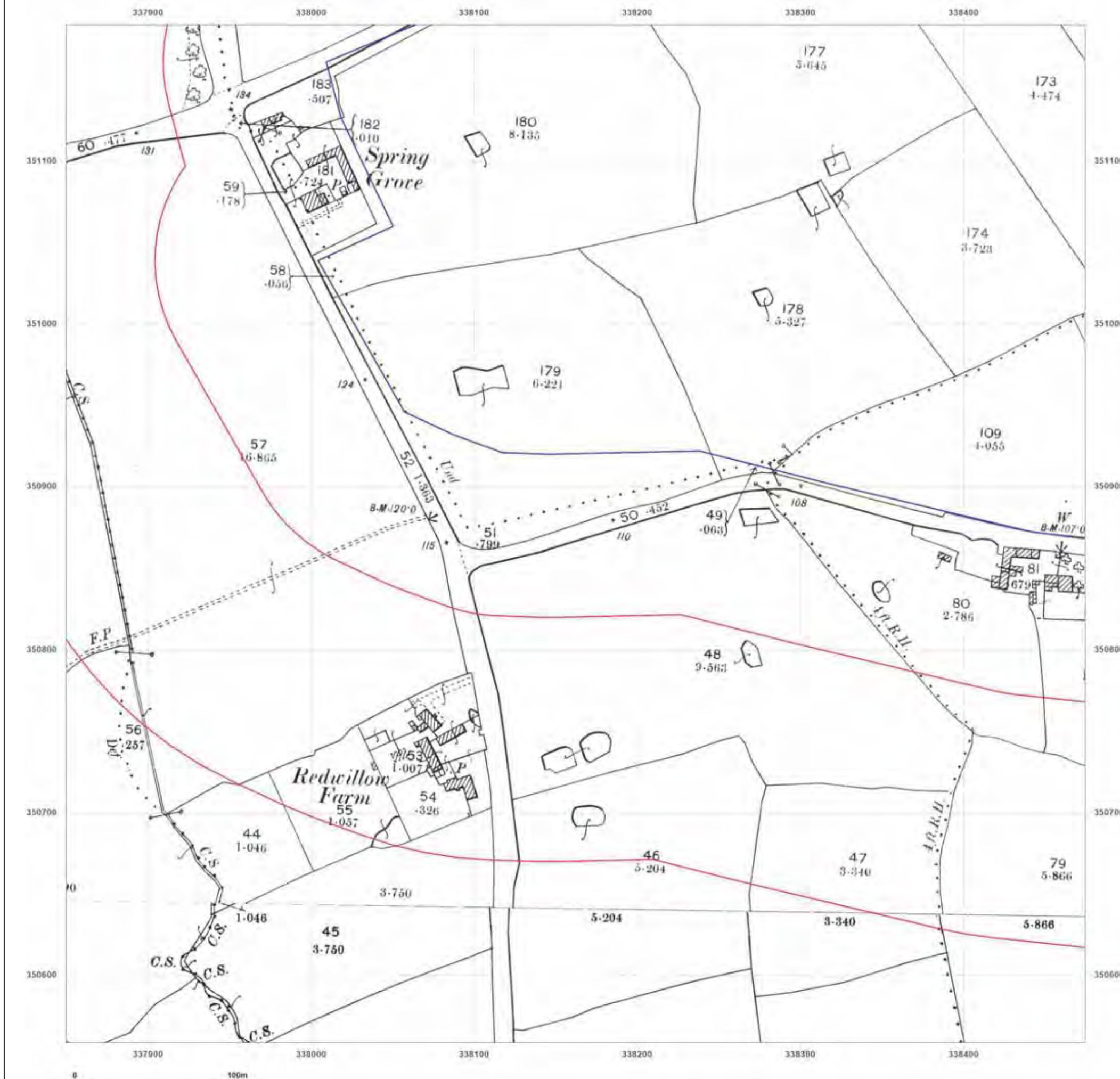


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Site Details:

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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: County Series

Map date: 1912

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

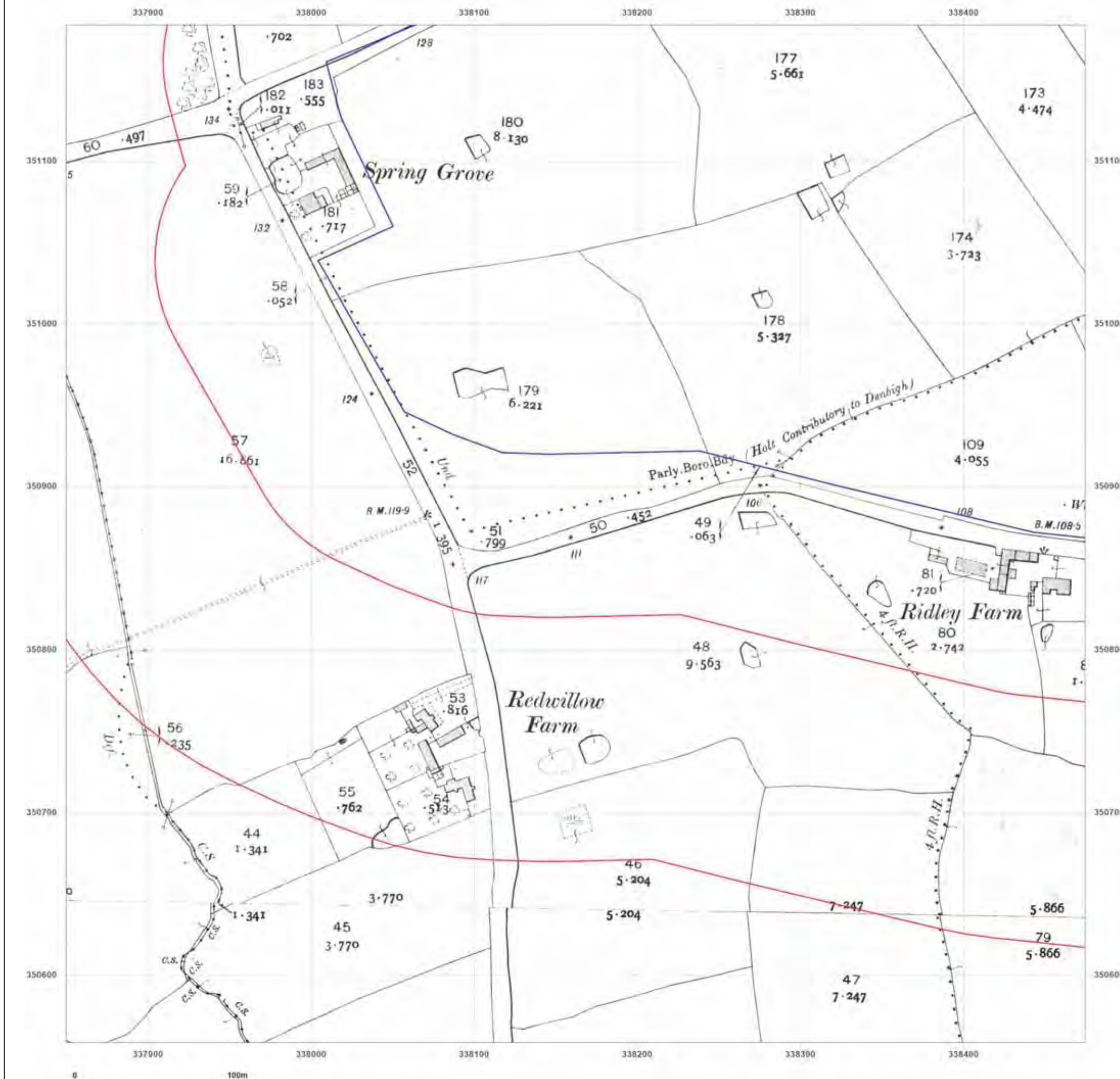


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Site Details:

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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1960-1962

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1961
Revised 1961
Edition N/A
Copyright 1962
Levelled 1959

Surveyed 1962
Revised 1962
Edition N/A
Copyright 1964
Levelled 1959

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1950

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1950

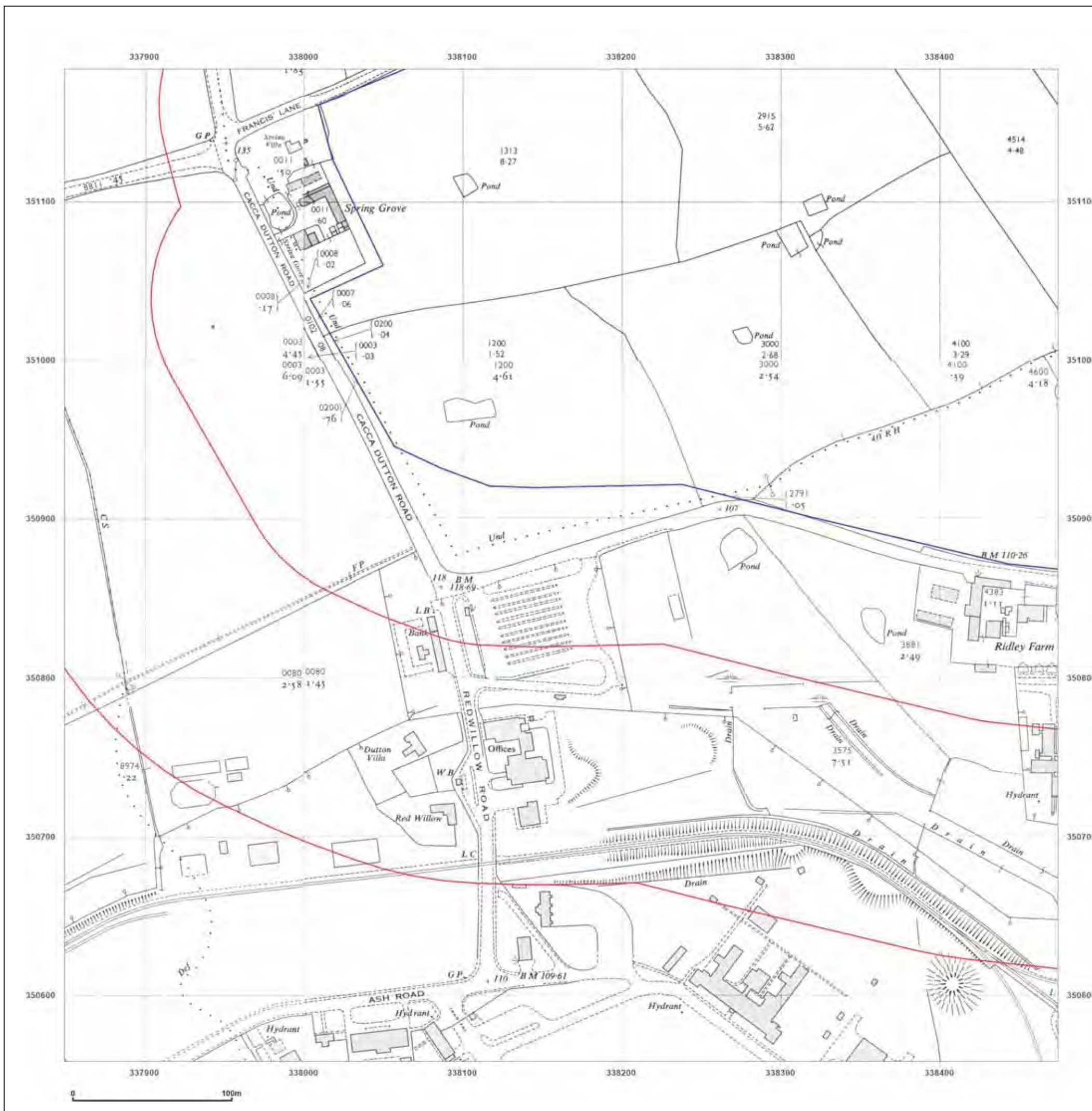


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1961-1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
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Site Details:

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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1974-1975

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1960
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Edition N/A
Copyright 1961
Levelled 1959

Surveyed N/A
Revised N/A
Edition N/A
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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1974-1976

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1974
Revised 1974
Edition N/A
Copyright 1974
Levelled 1959



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Site Details:

LAND NORTH OF BRYN LANE,
WREXHAM INDUSTRIAL
ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1982

Scale: 1:2,500

Printed at: 1:2,500



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ESTATE, WREXHAM, LL13 9UT

Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

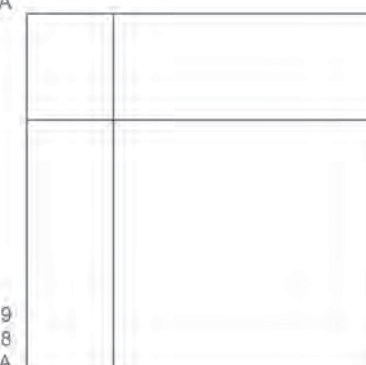
Map date: 1988-1991

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
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Surveyed 1959
Revised 1988
Edition N/A
Copyright 1988
Levelled 1959

Surveyed 1959
Revised 1989
Edition N/A
Copyright 1989
Levelled 1959

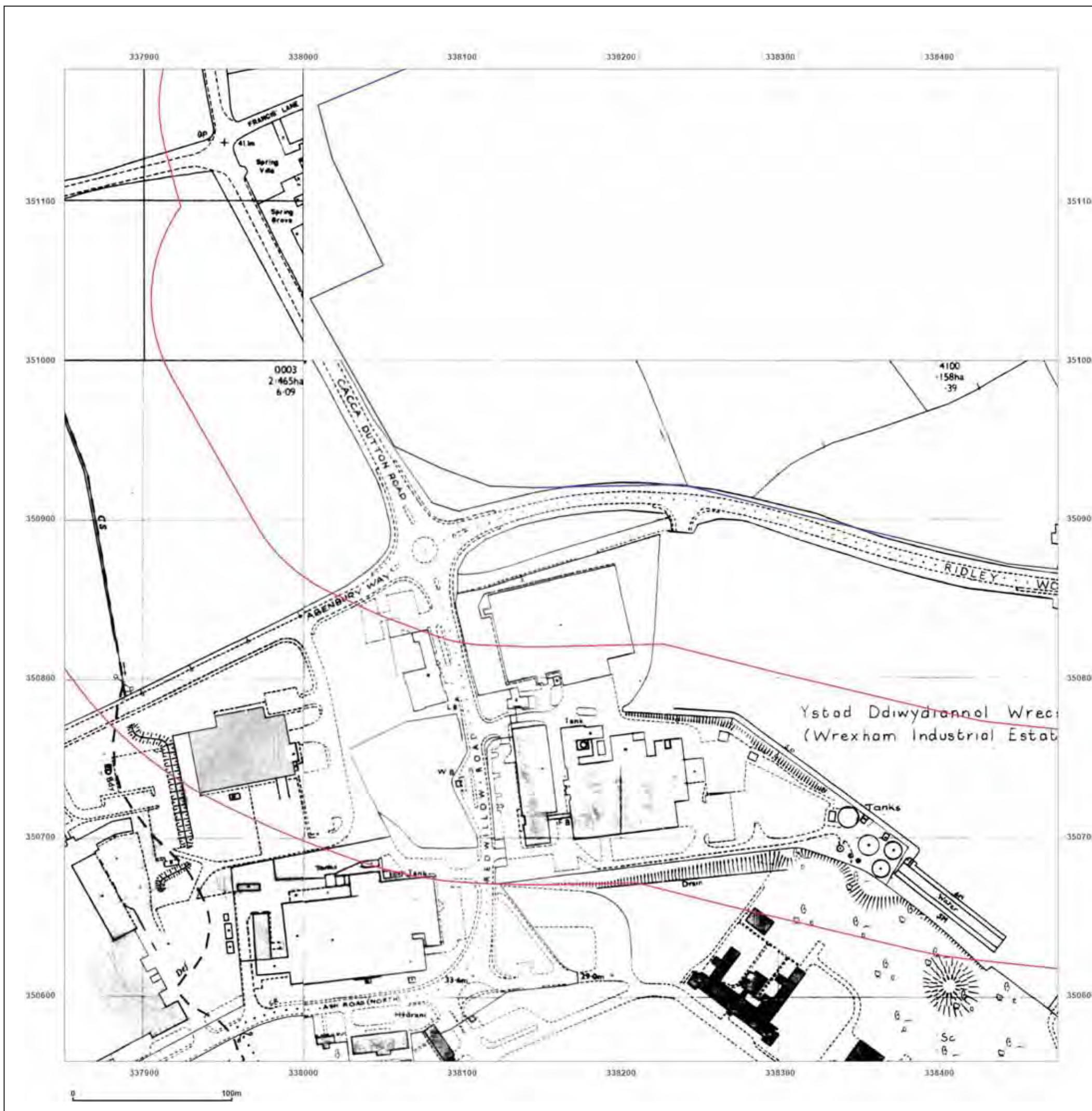


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

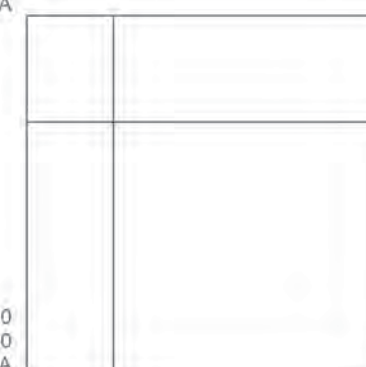
Map date: 1989-1991

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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Surveyed 1990
Revised 1990
Edition N/A
Copyright 1990
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1989
Levelled 1959

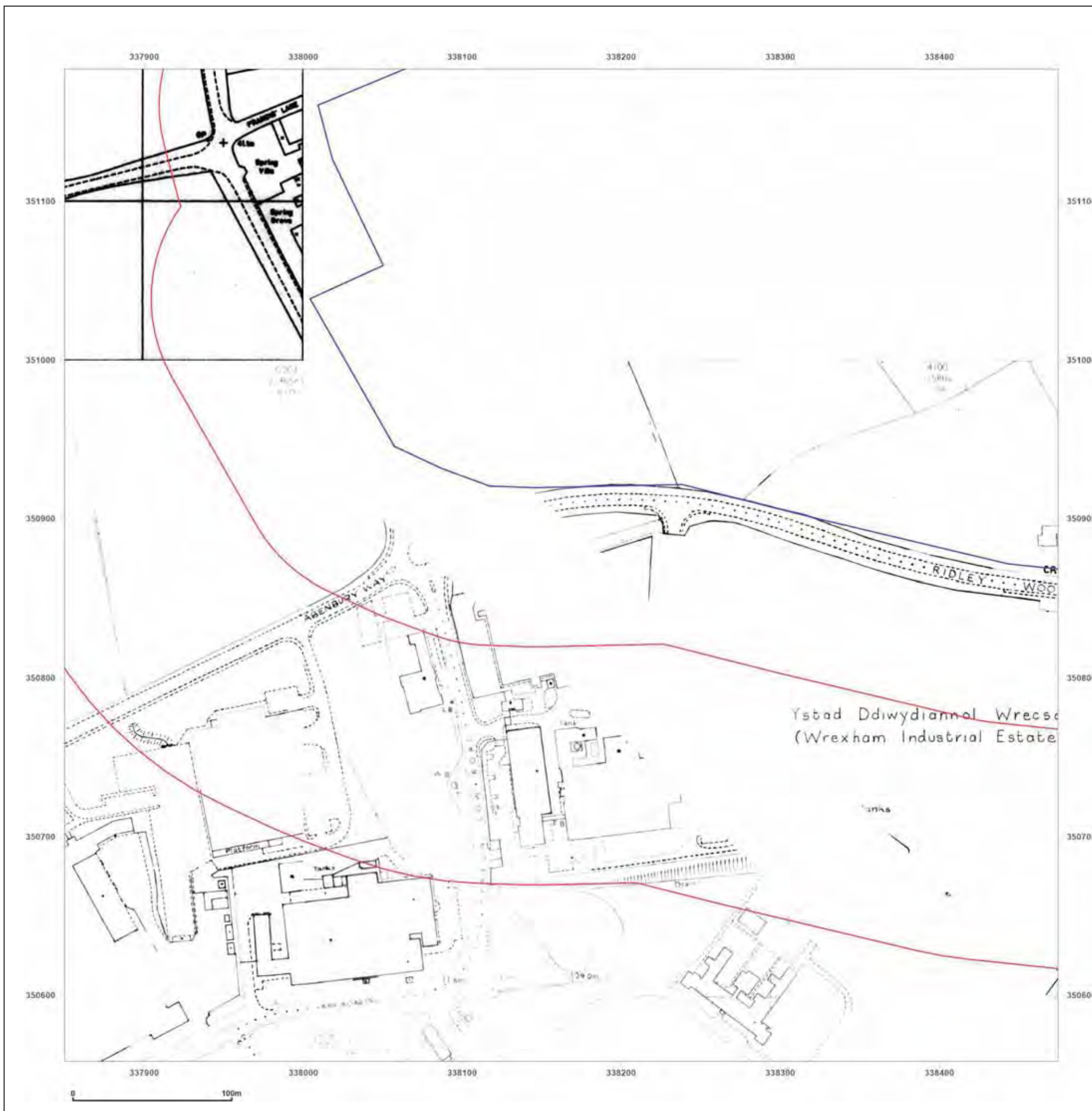


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

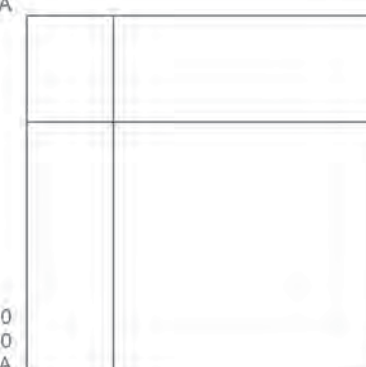
Map date: 1990-1992

Scale: 1:2,500

Printed at: 1:2,500



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Revised N/A
Edition N/A
Copyright 1992
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Revised 1990
Edition N/A
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1990
Levelled 1959

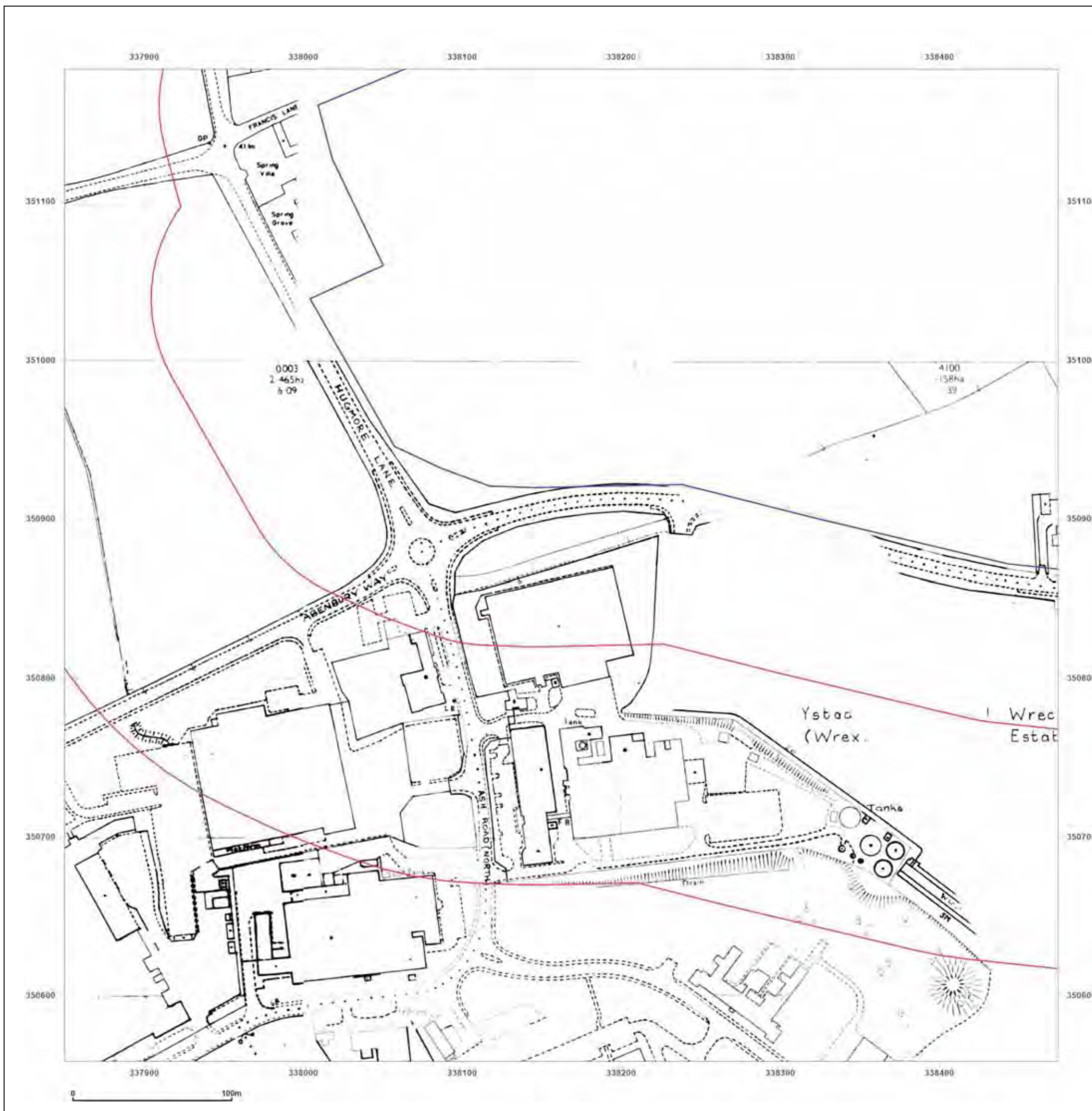


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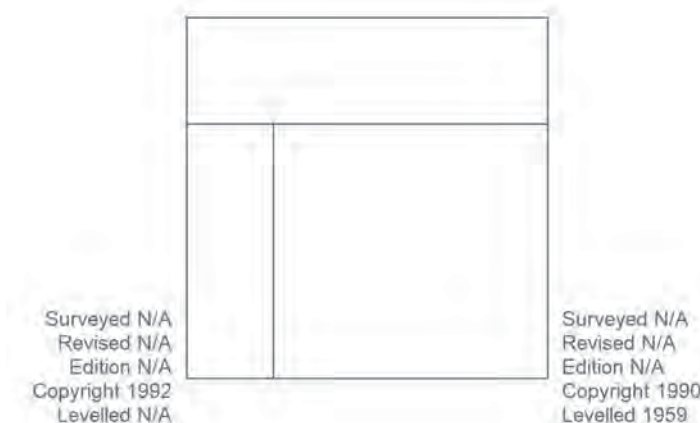
Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1990-1992

Scale: 1:2,500

Printed at: 1:2,500

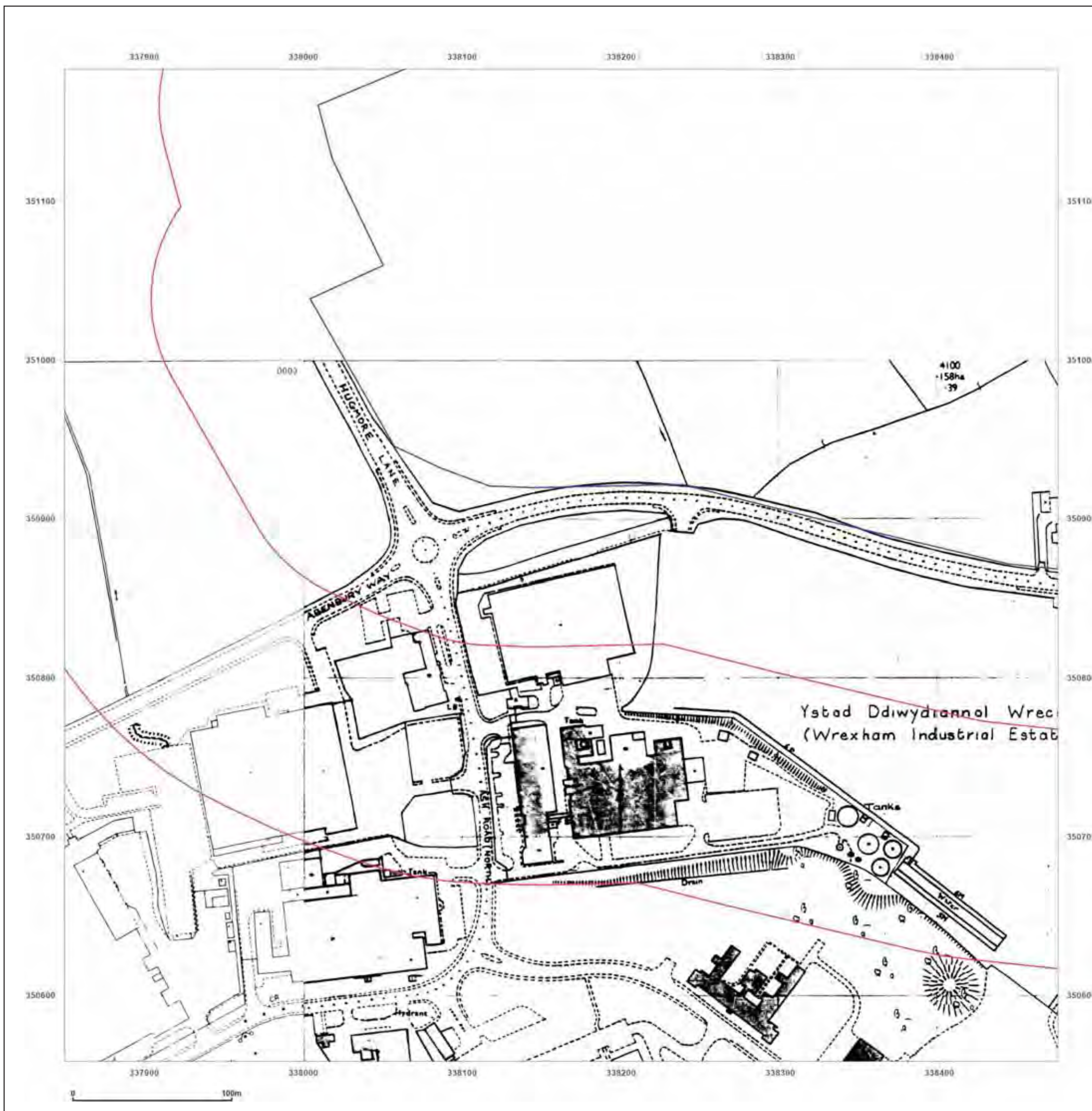


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1987-1992

Scale: 1:2,500

Printed at: 1:2,500



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Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
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Surveyed N/A
Revised N/A
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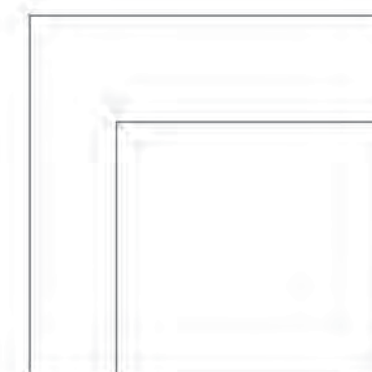
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Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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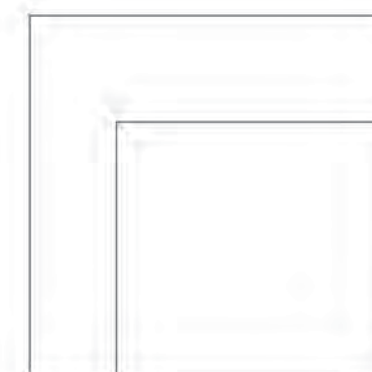
Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

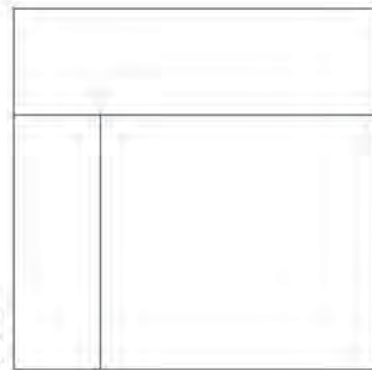
Map Name: National Grid

Map date: 1991-1994

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1992-1994

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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Revised N/A
Edition N/A
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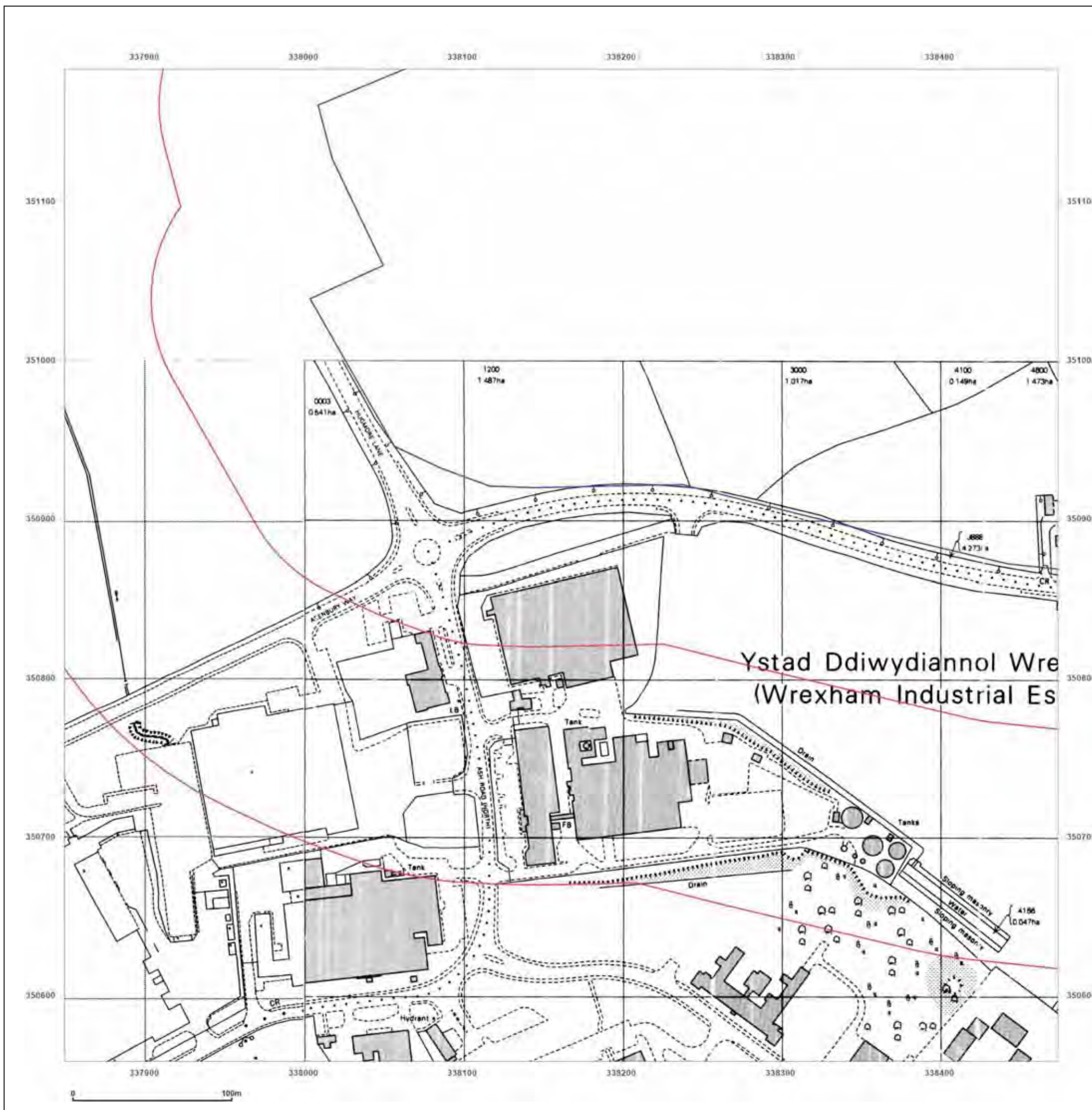


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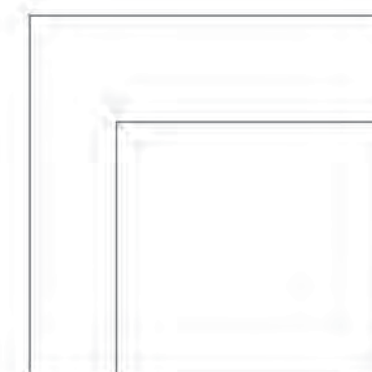
Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1994

Scale: 1:2,500

Printed at: 1:2,500



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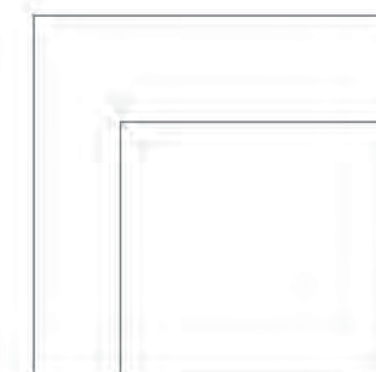
Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1994

Scale: 1:2,500

Printed at: 1:2,500



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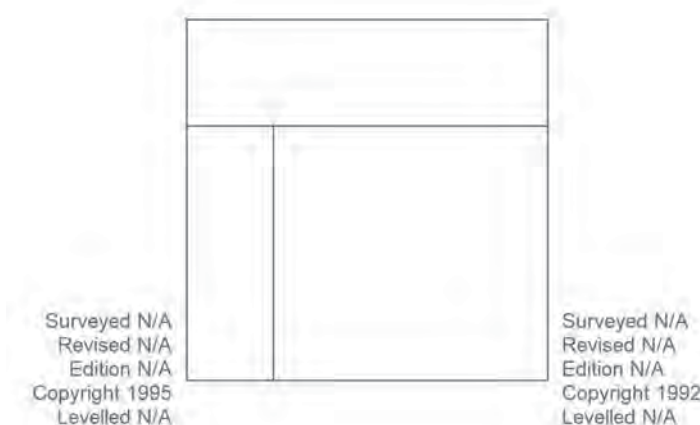
Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1992-1995

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1993-1995

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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Revised 1993
Edition N/A
Copyright 1990
Levelled 1959

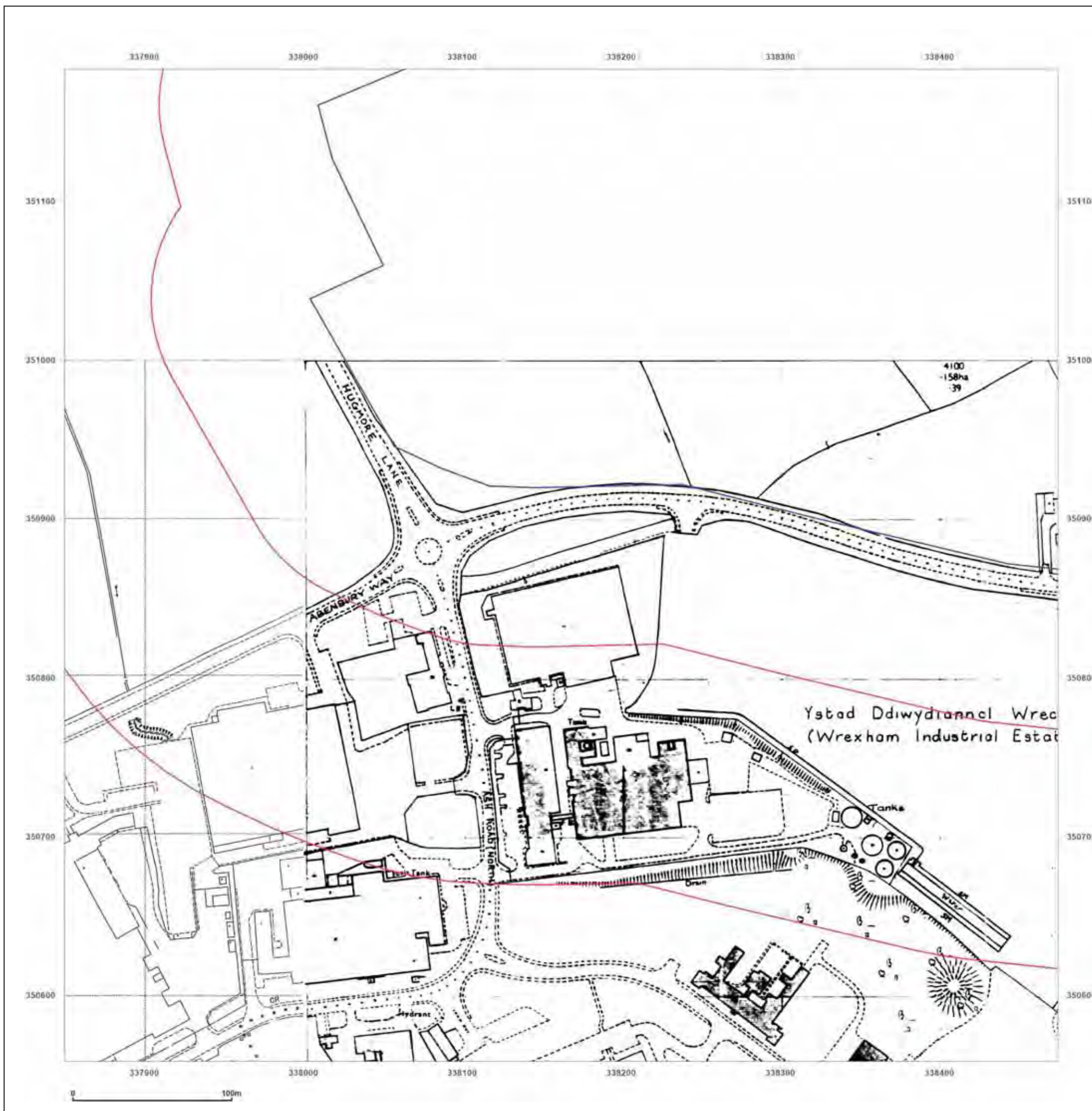


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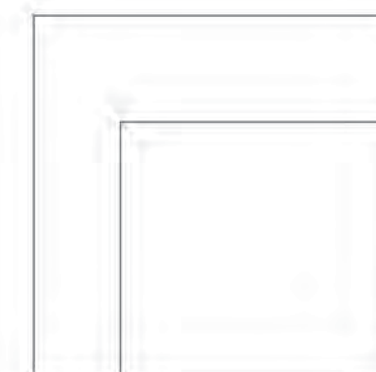
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Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1995

Scale: 1:2,500

Printed at: 1:2,500



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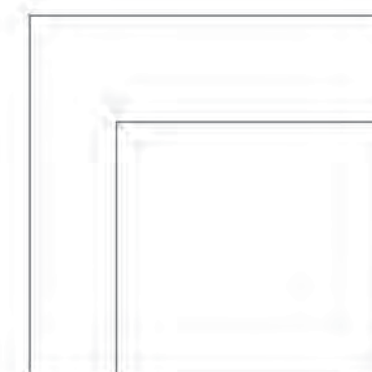
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Report Ref: GS-8287502_LS_1_1
Grid Ref: 338162, 350871

Map Name: National Grid

Map date: 1995

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_2
Grid Ref: 338162, 351496

Map Name: County Series

Map date: 1873

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1873
Revised 1873
Edition N/A
Copyright N/A
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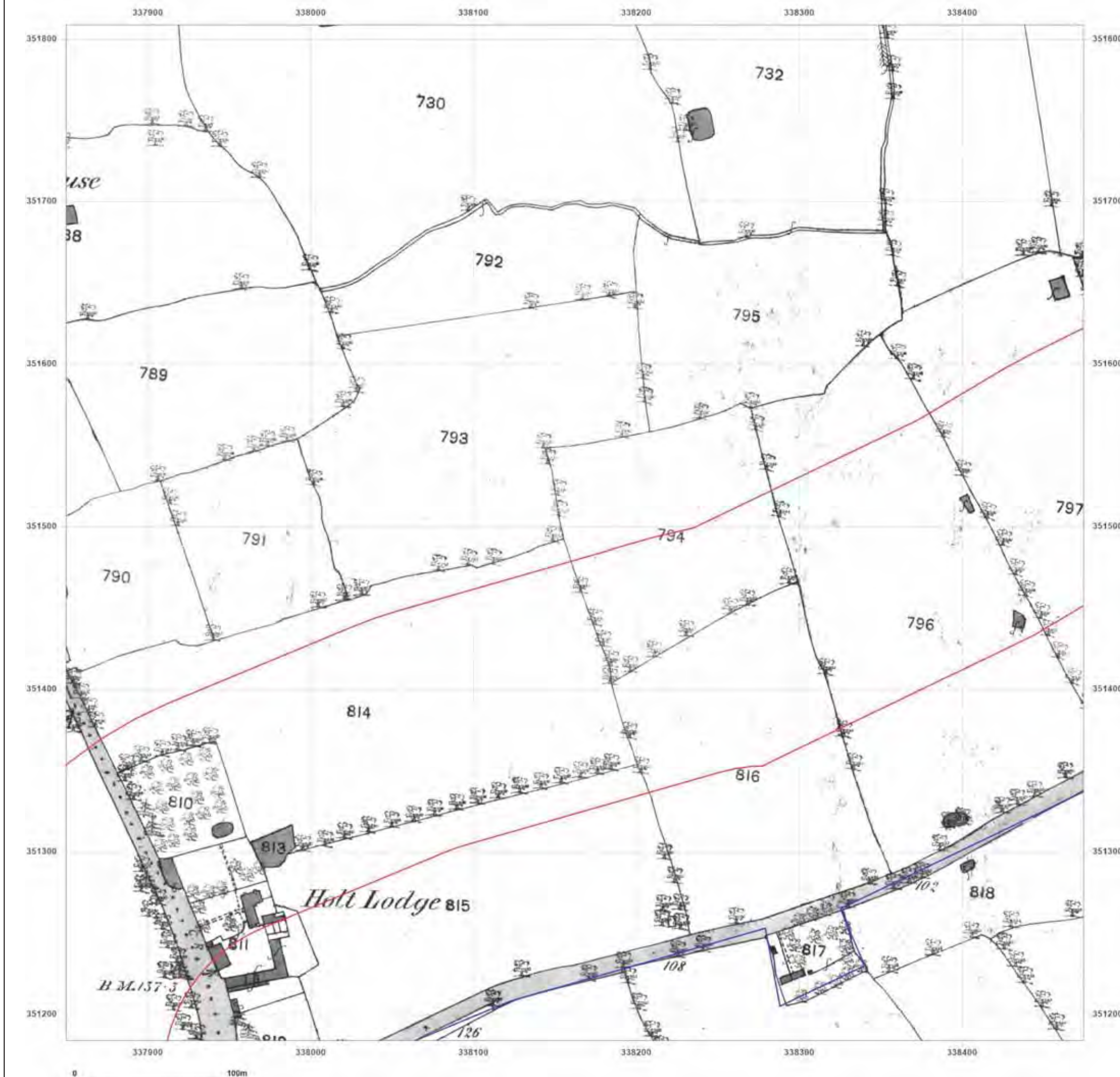


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_2
Grid Ref: 338162, 351496

Map Name: County Series

Map date: 1912

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1912
Revised 1912
Edition N/A
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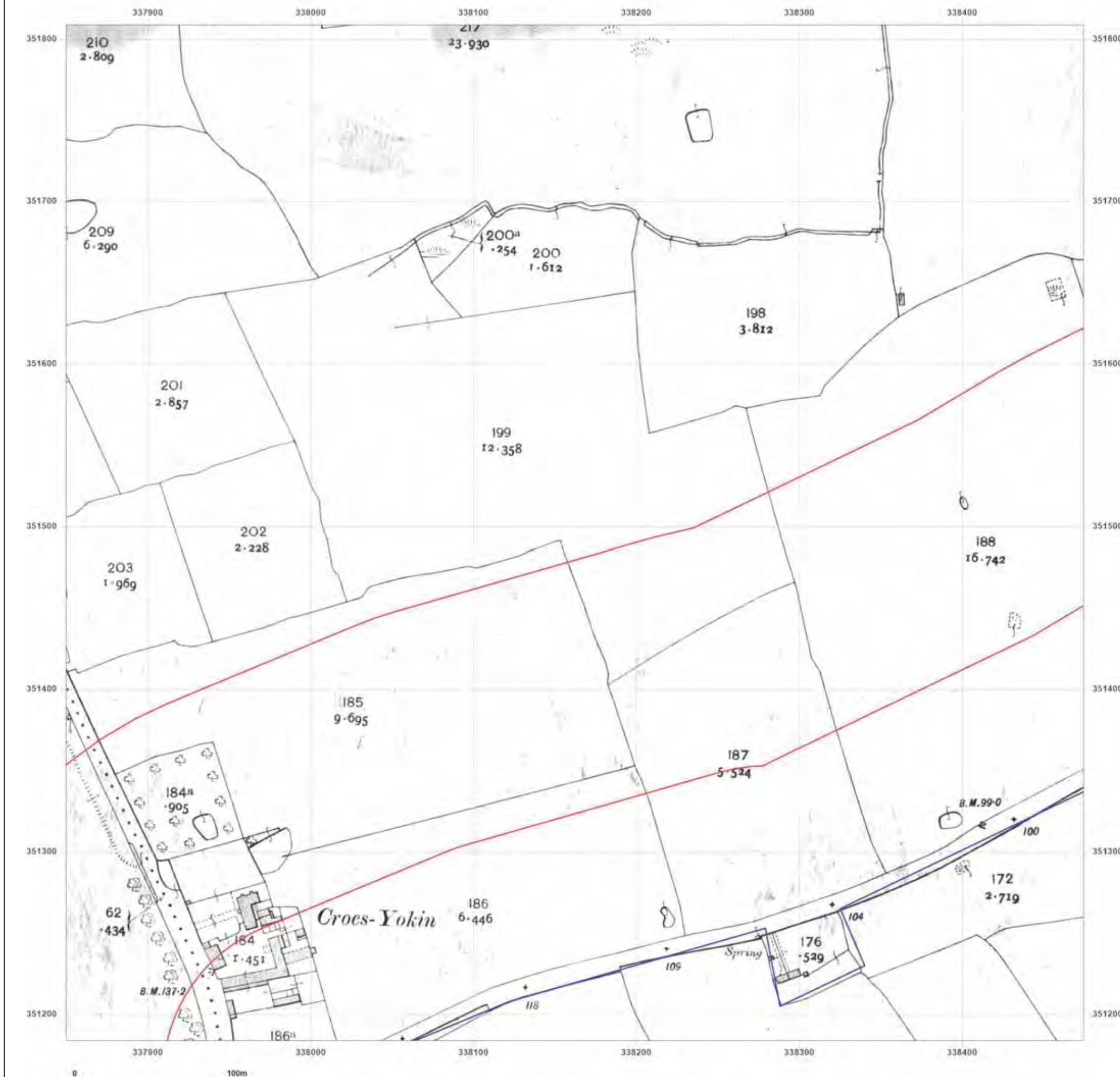


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_2
Grid Ref: 338162, 351496

Map Name: National Grid

Map date: 1961-1962

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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Surveyed 1962
Revised 1962
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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_2
Grid Ref: 338162, 351496

Map Name: National Grid

Map date: 1962-1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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Revised N/A
Edition N/A
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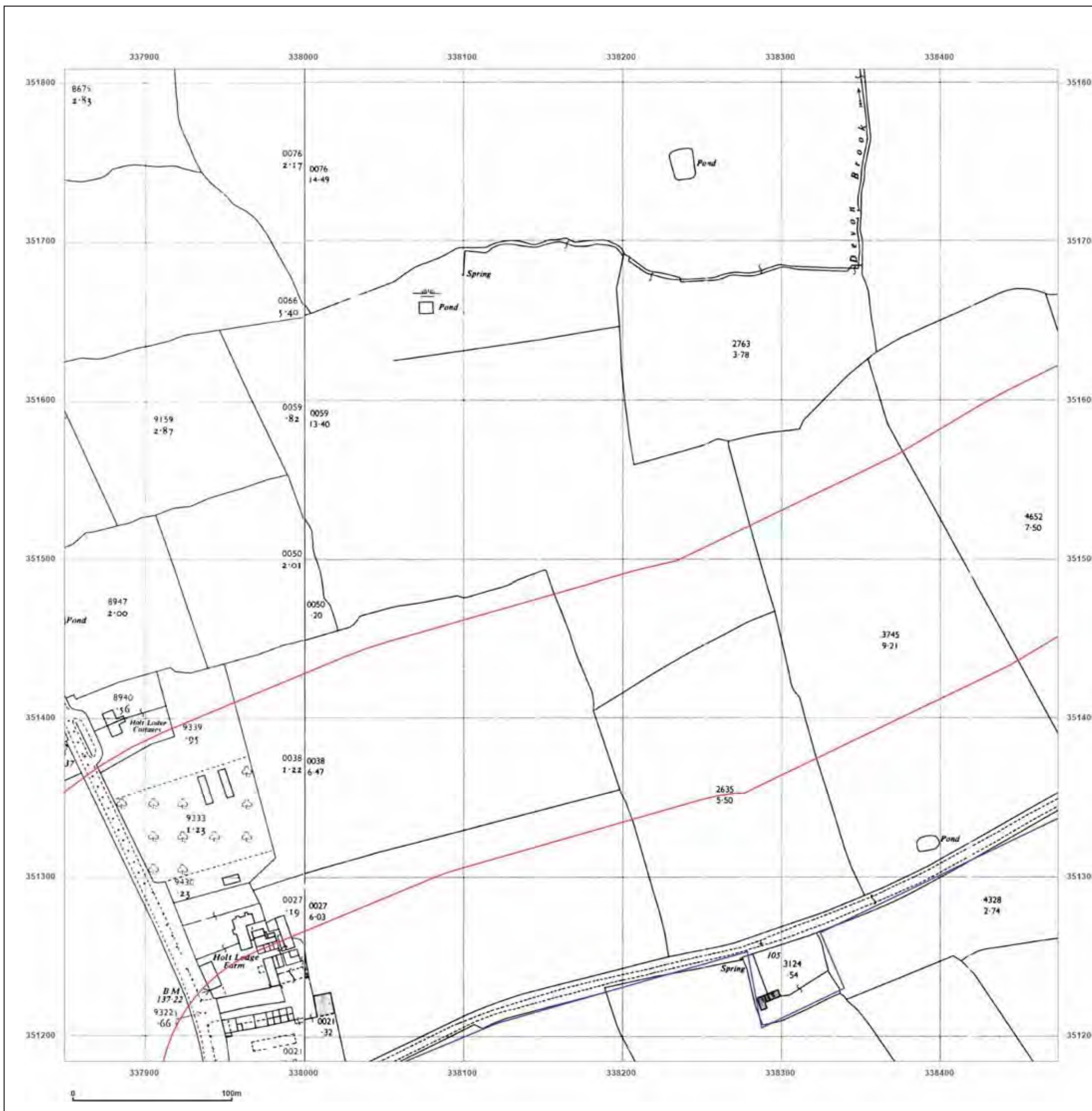


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_1_2
Grid Ref: 338162, 351496

Map Name: National Grid

Map date: 1991-1992

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: County Series

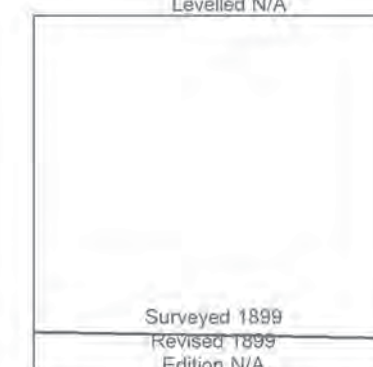
Map date: 1899

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1899
Revised 1899
Edition N/A
Copyright N/A
Levelled N/A

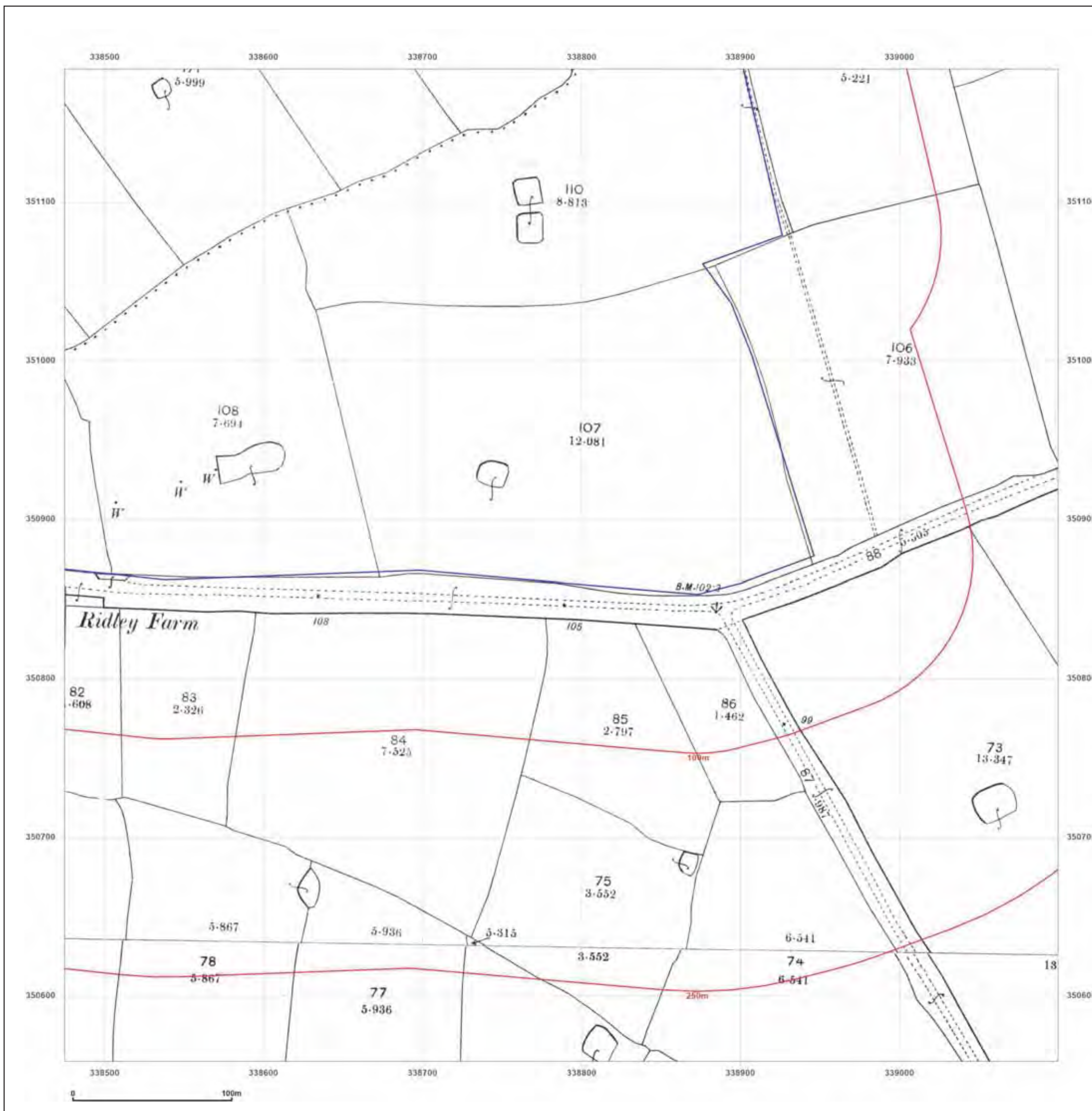


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: County Series

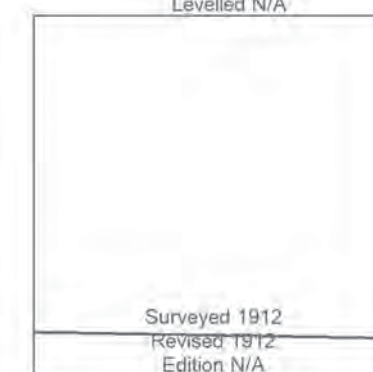
Map date: 1912

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1912
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

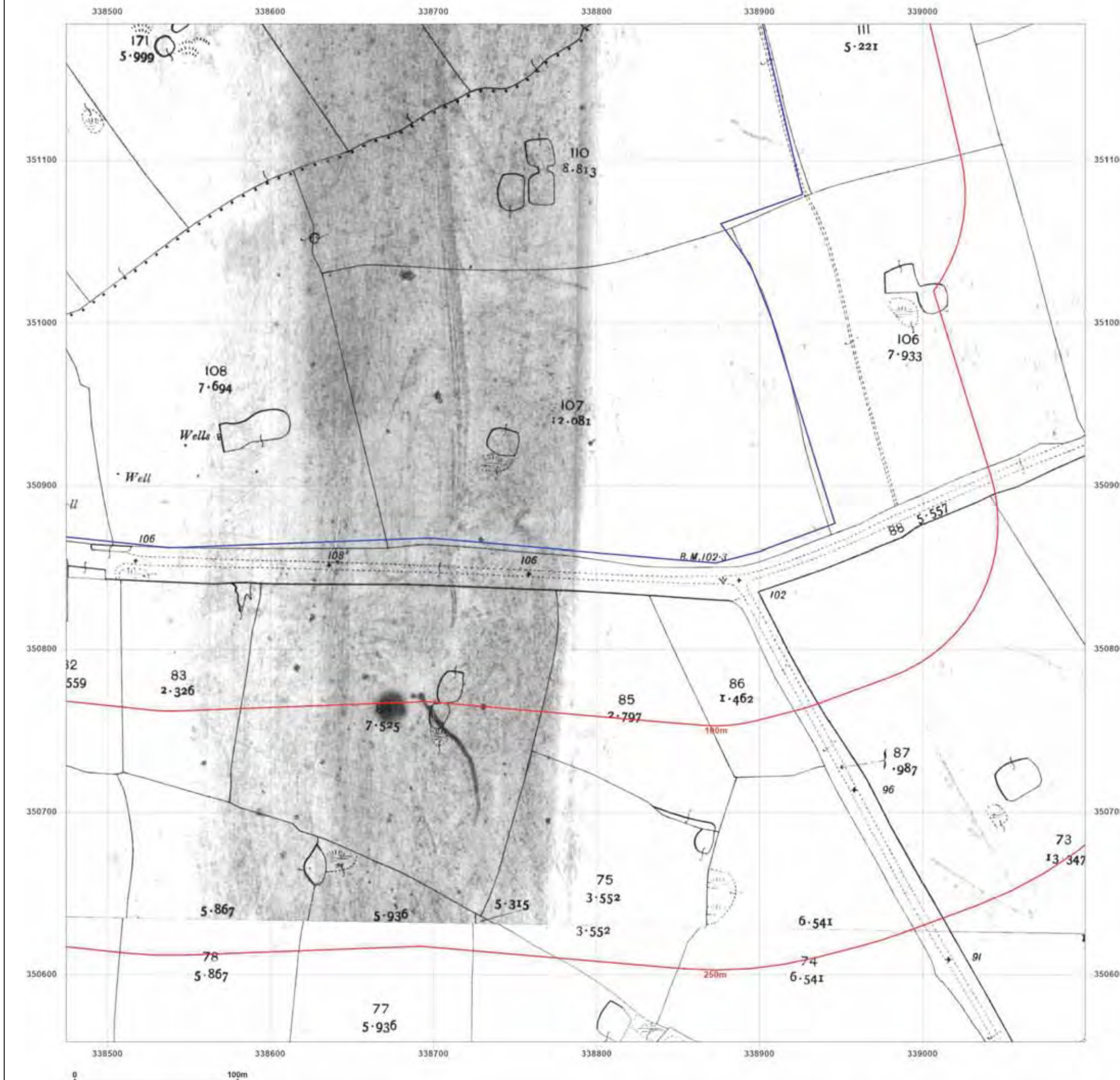


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1960-1962

Scale: 1:2,500

Printed at: 1:2,500



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Surveyed 1960
Revised 1960
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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1961-1964

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1974

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1974

Scale: 1:2,500

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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1982

Scale: 1:2,500

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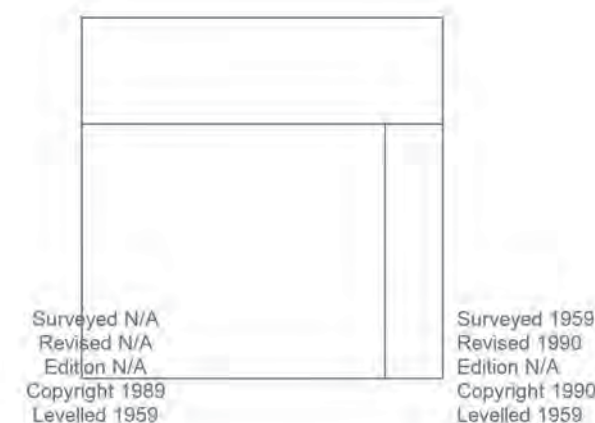
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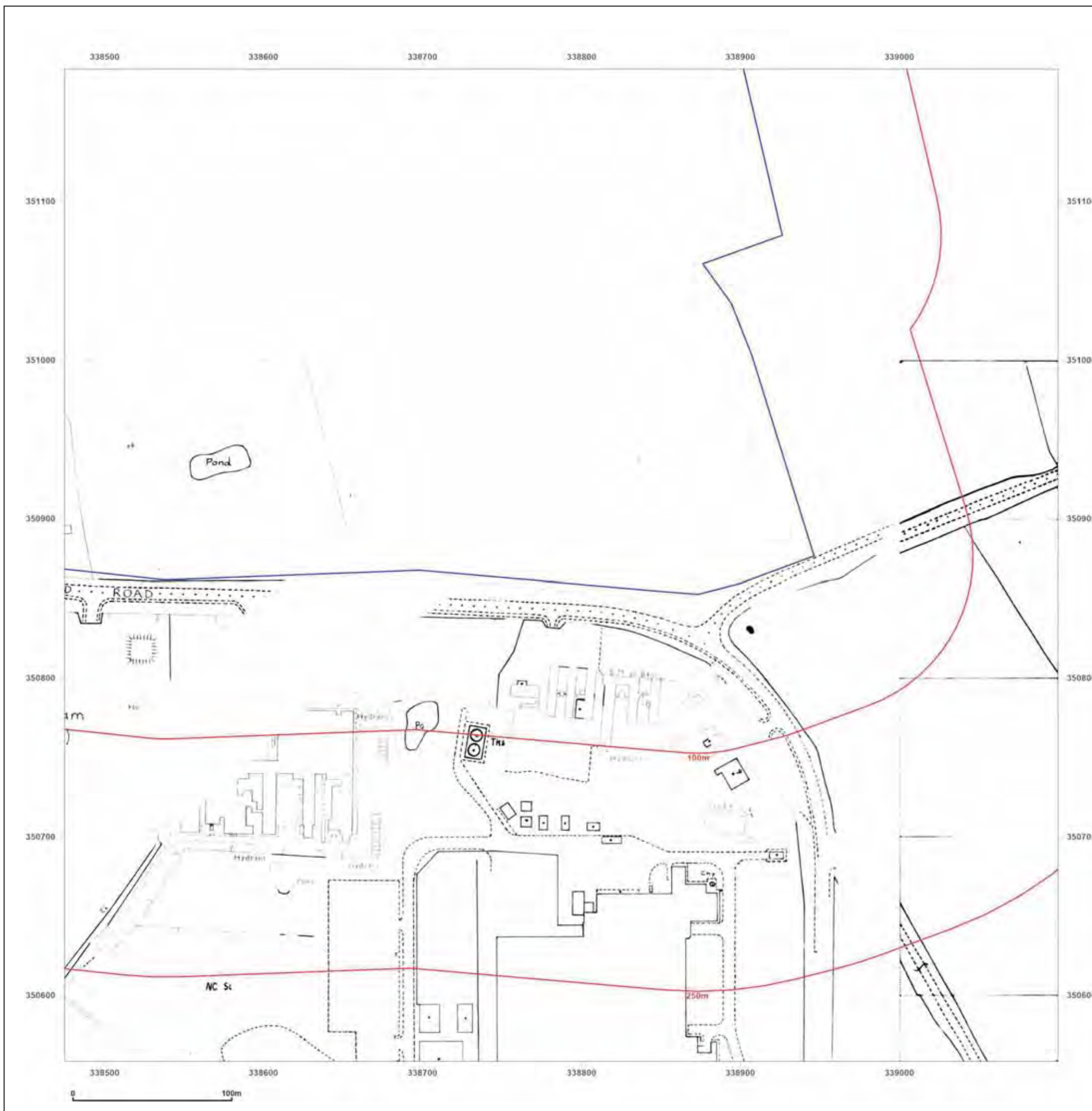


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1990-1991

Scale: 1:2,500

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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1990-1992

Scale: 1:2,500

Printed at: 1:2,500



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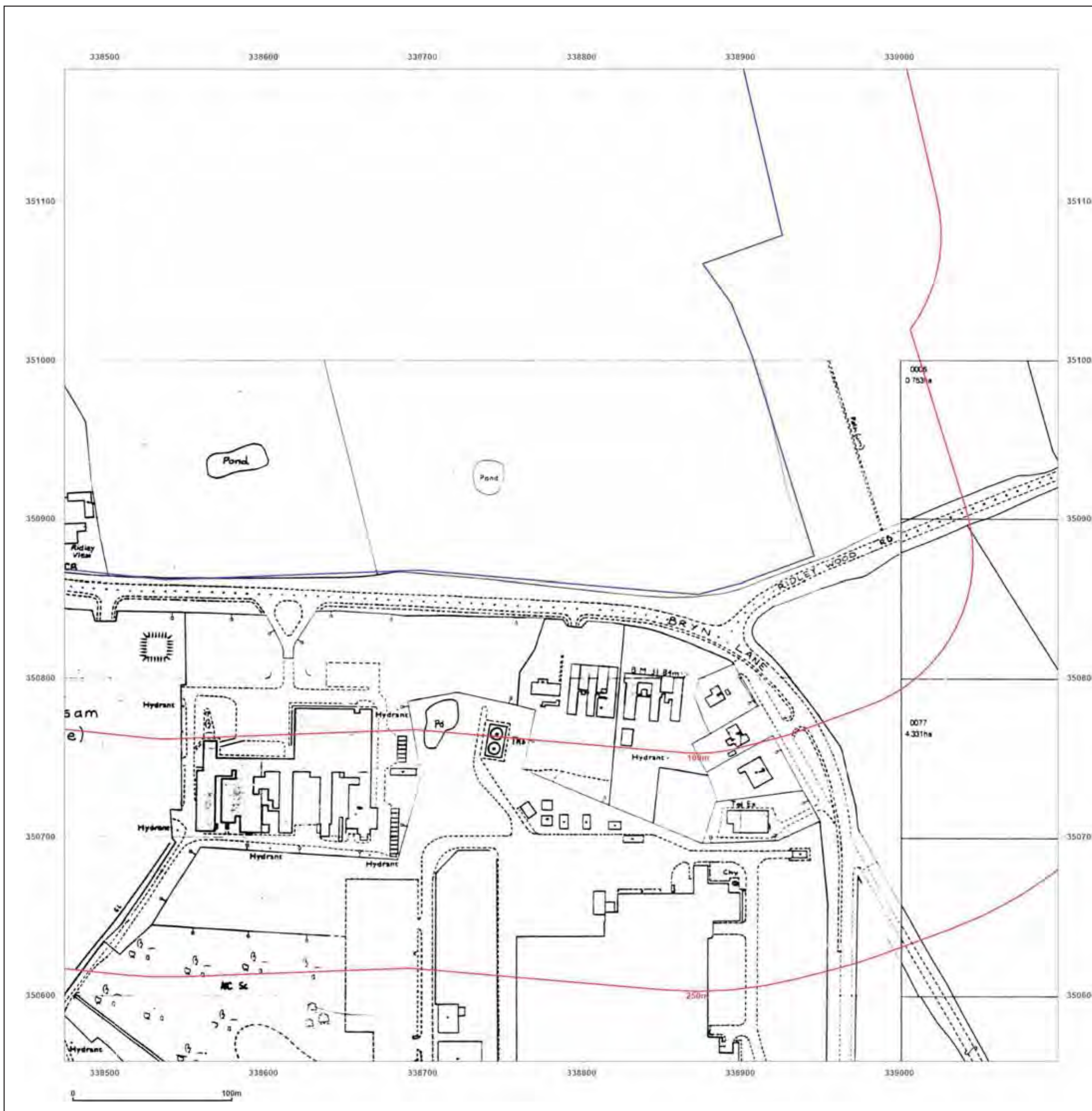


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1992

Scale: 1:2,500

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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1992

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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1987-1992

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1989-1992

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised 1993
Edition N/A
Copyright 1990
Levelled 1959

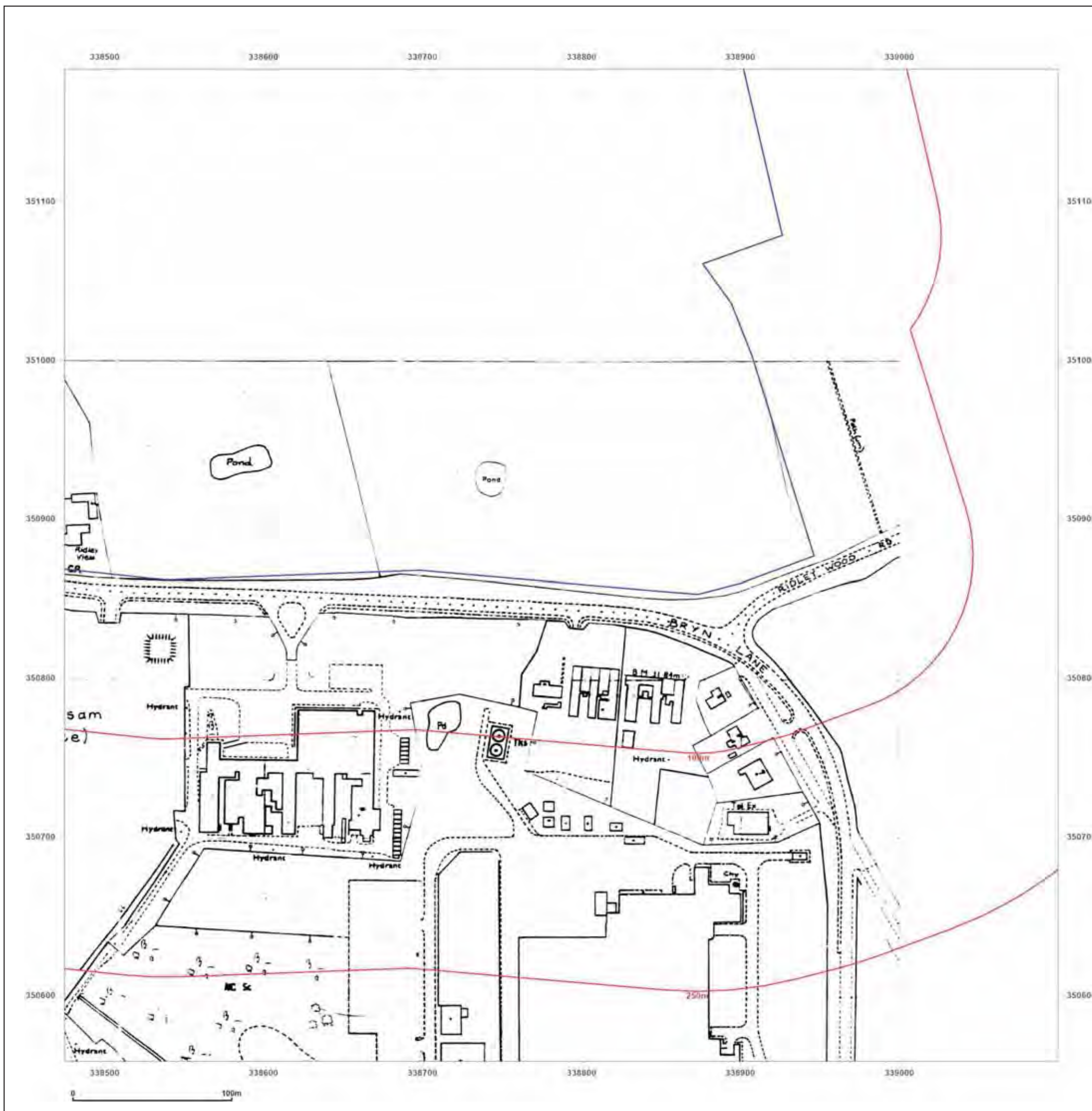


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Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

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Edition N/A
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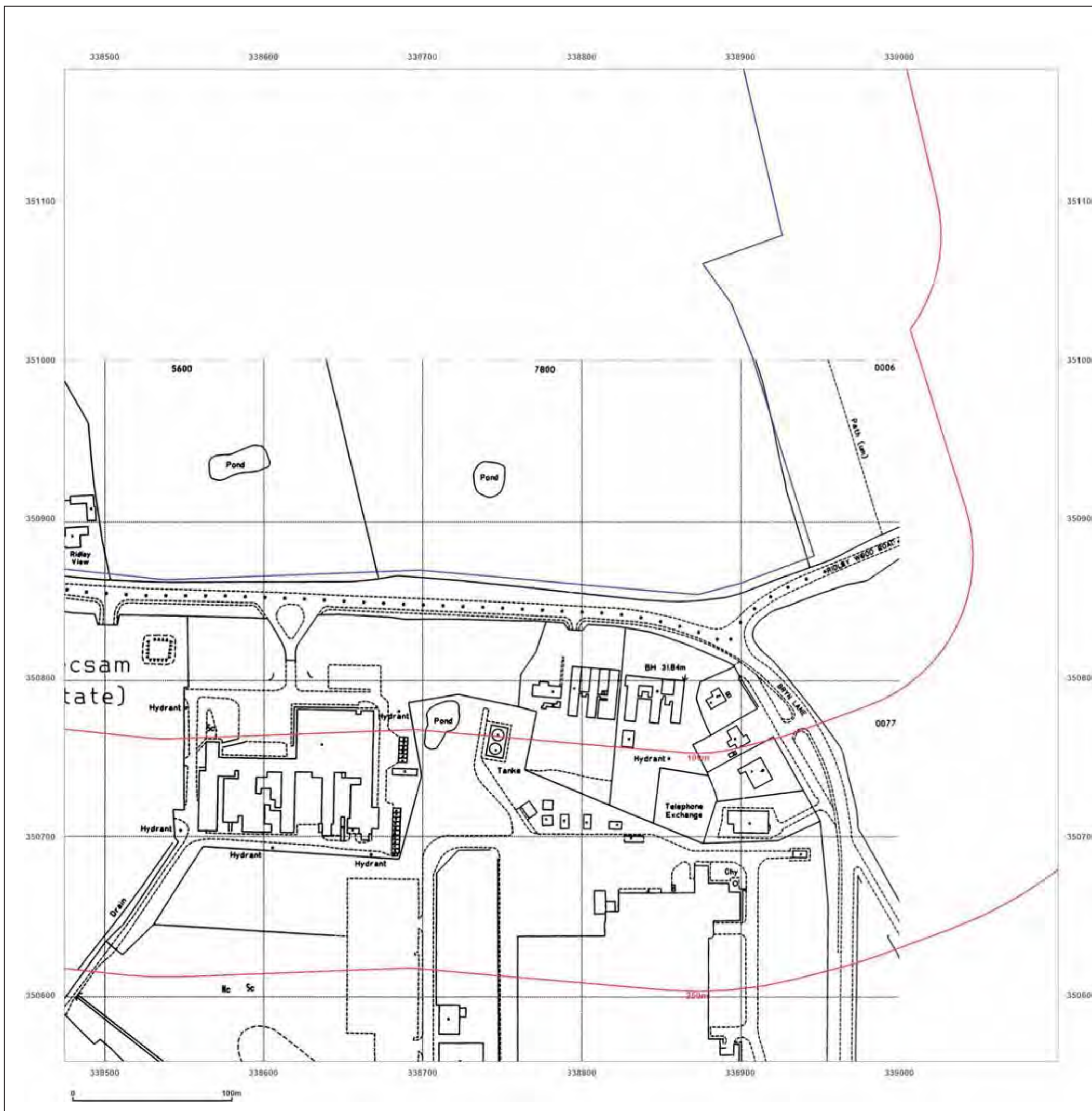


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1994

Scale: 1:2,500

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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

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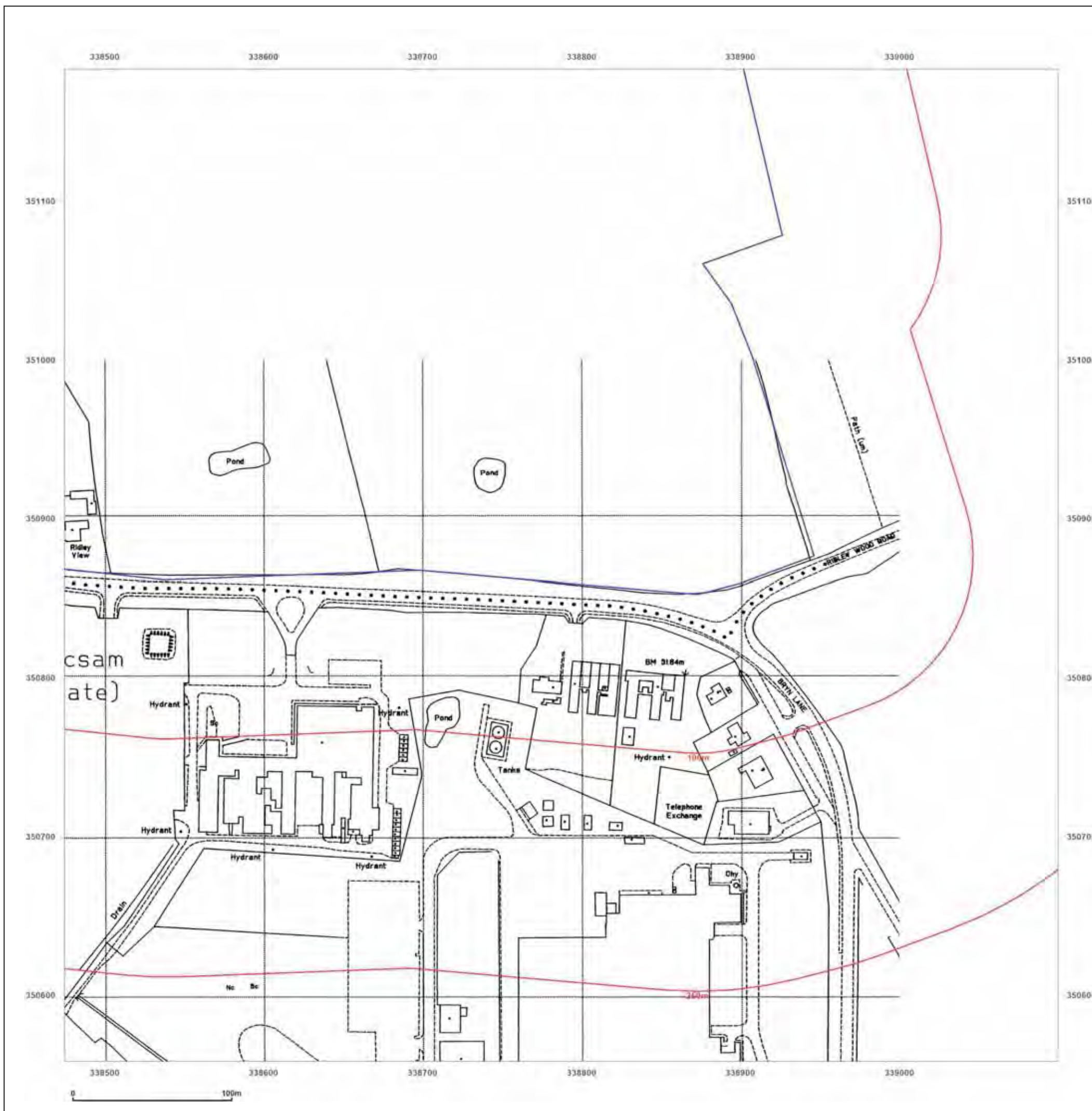


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1995

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_1
Grid Ref: 338787, 350871

Map Name: National Grid

Map date: 1995

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_2
Grid Ref: 338787, 351496

Map Name: County Series

Map date: 1873

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1873
Revised 1873
Edition N/A
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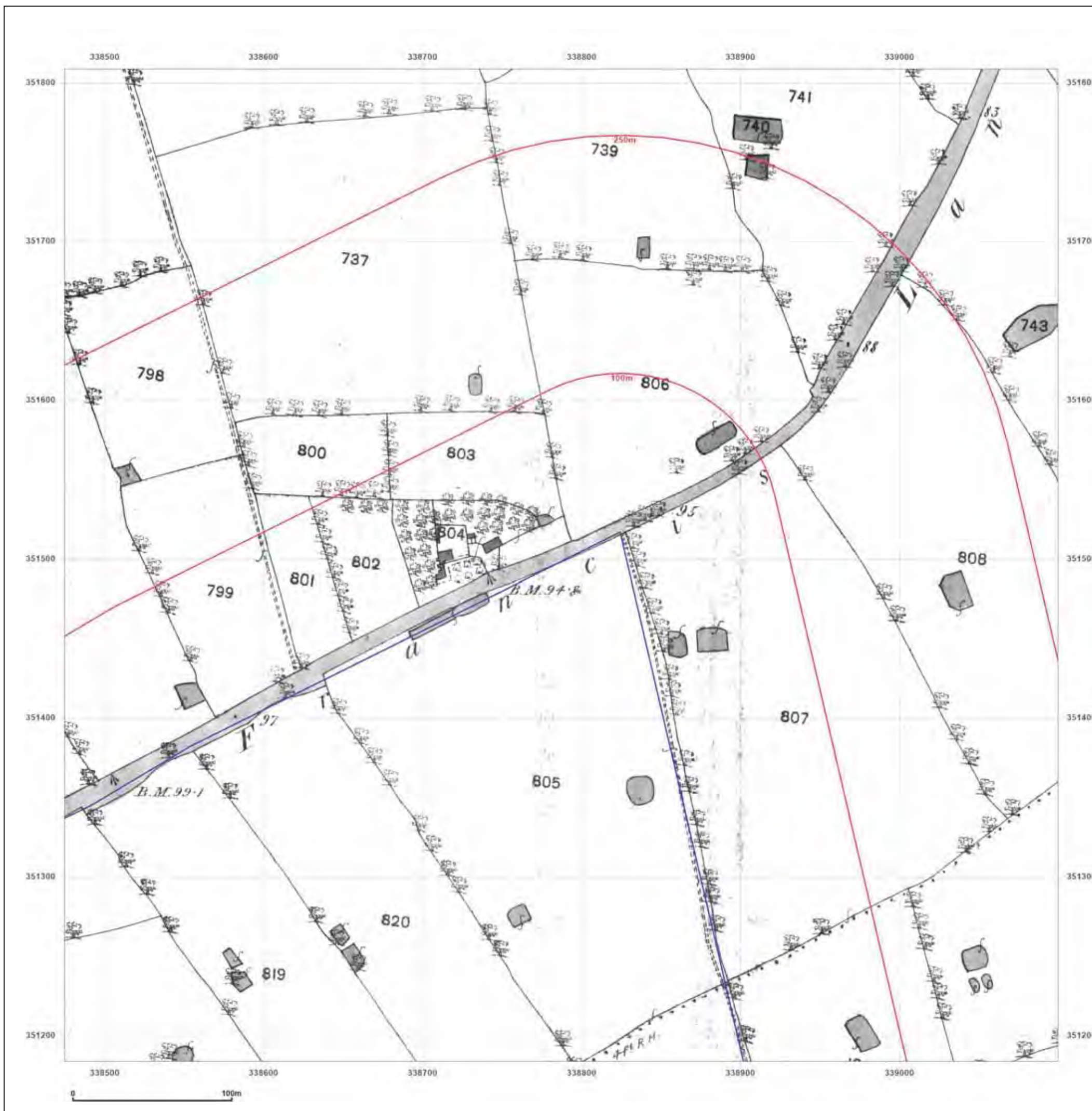


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_2
Grid Ref: 338787, 351496

Map Name: County Series

Map date: 1899

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1899
Revised 1899
Edition N/A
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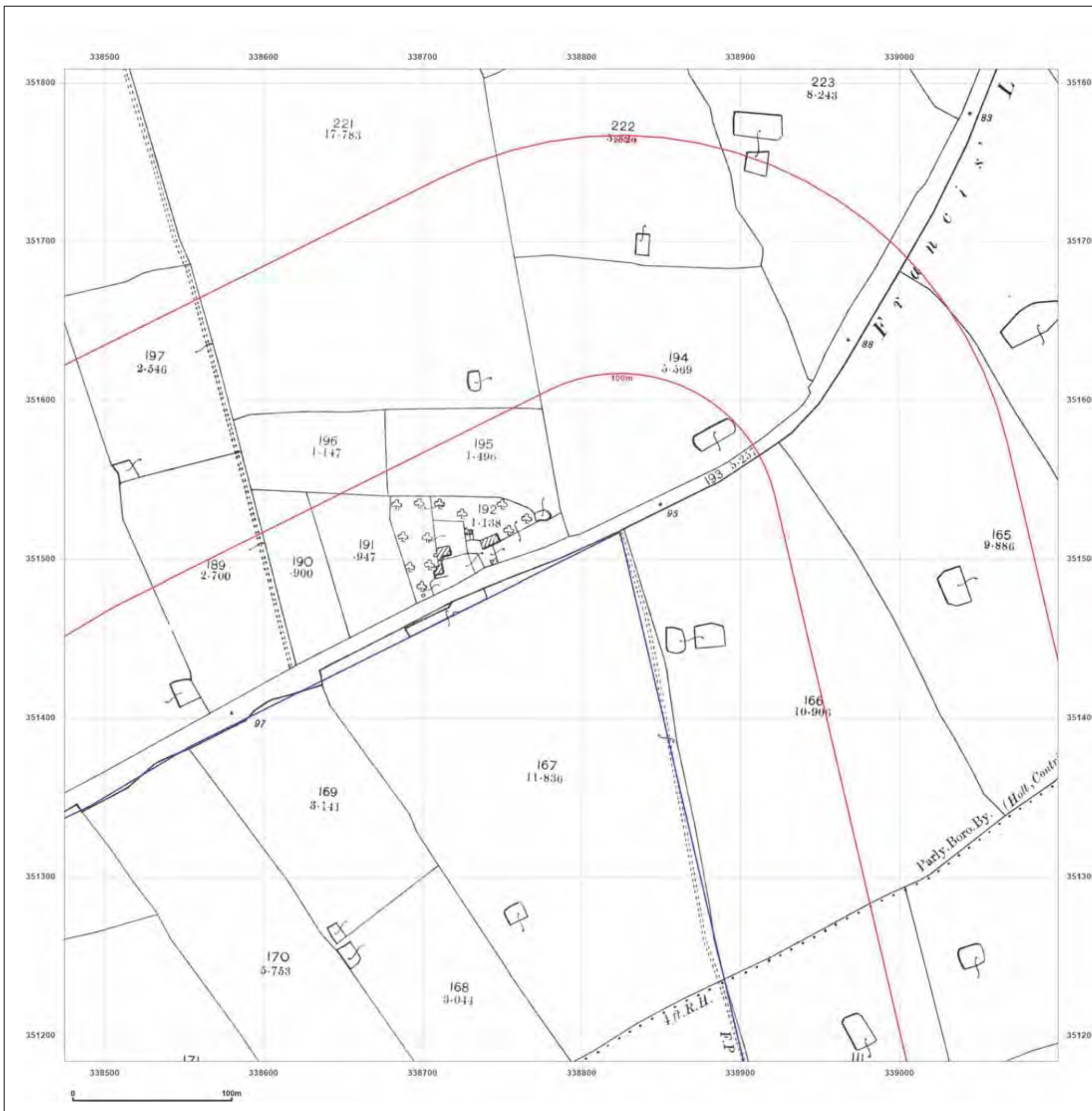


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_2
Grid Ref: 338787, 351496

Map Name: County Series

Map date: 1912

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1912
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Edition N/A
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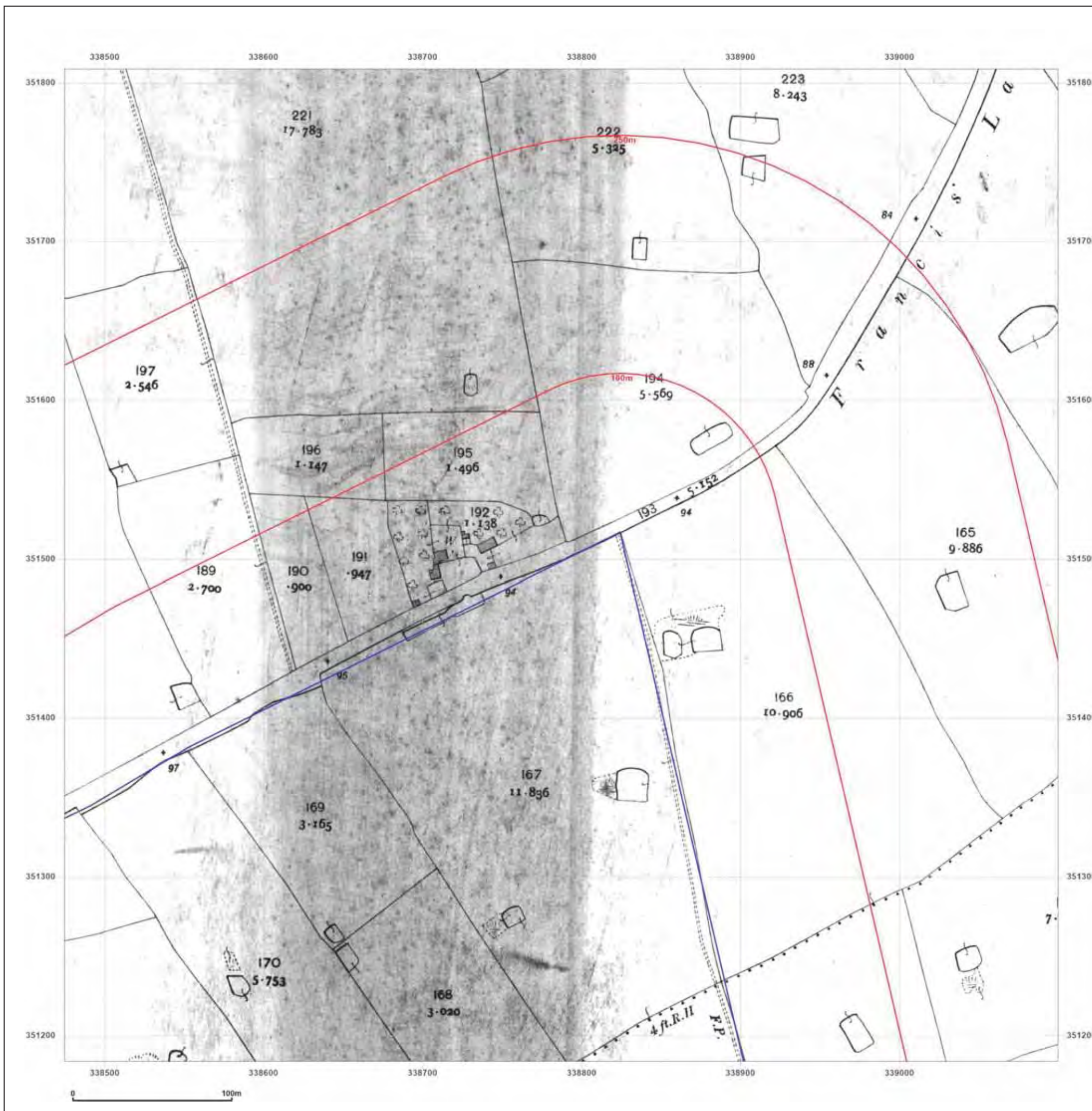


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Report Ref: GS-8287502_LS_2_2
Grid Ref: 338787, 351496

Map Name: National Grid

Map date: 1962

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1962
Revised 1982
Edition N/A
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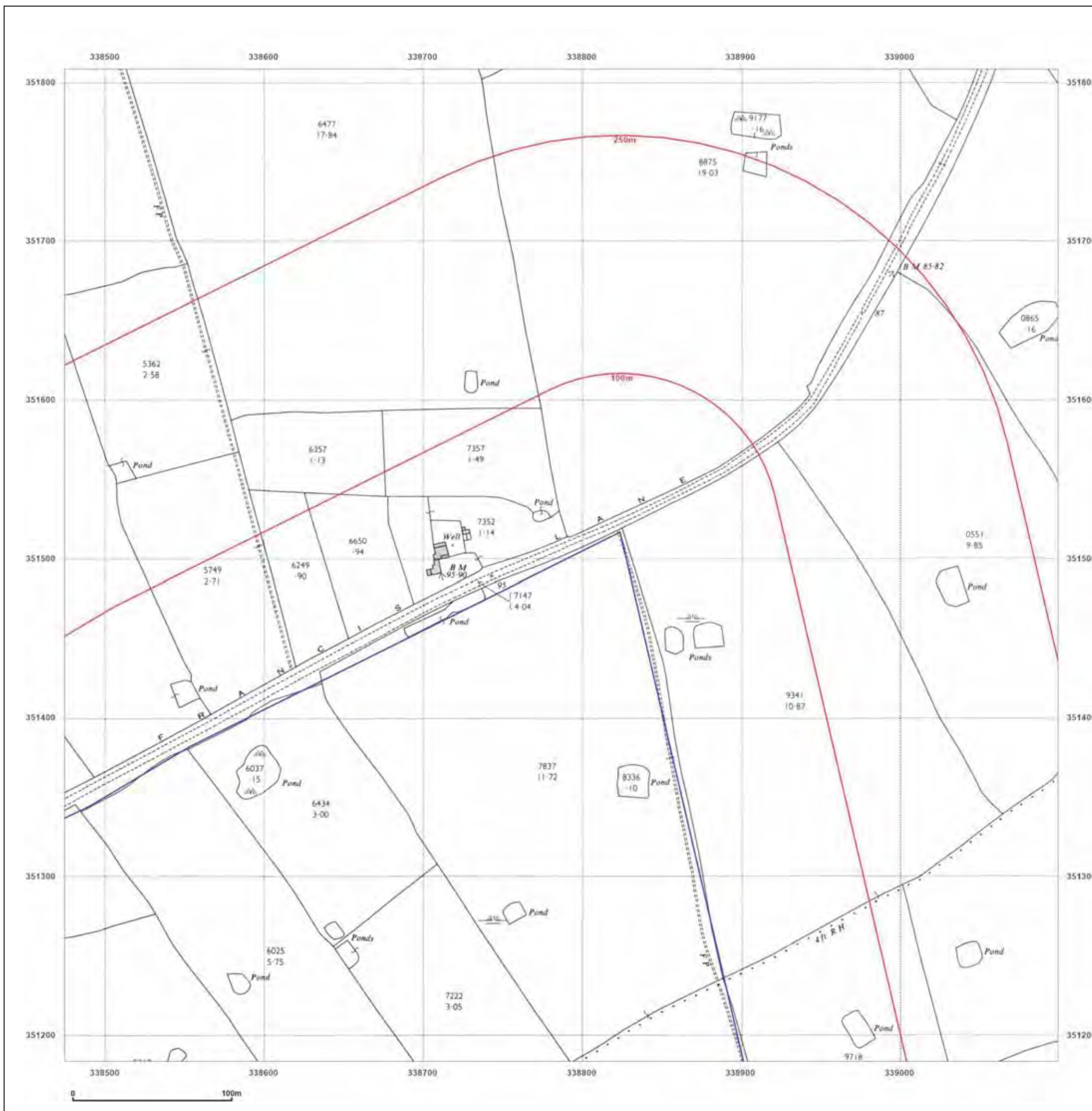


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Grid Ref: 338787, 351496

Map Name: National Grid

Map date: 1964

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
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Edition N/A
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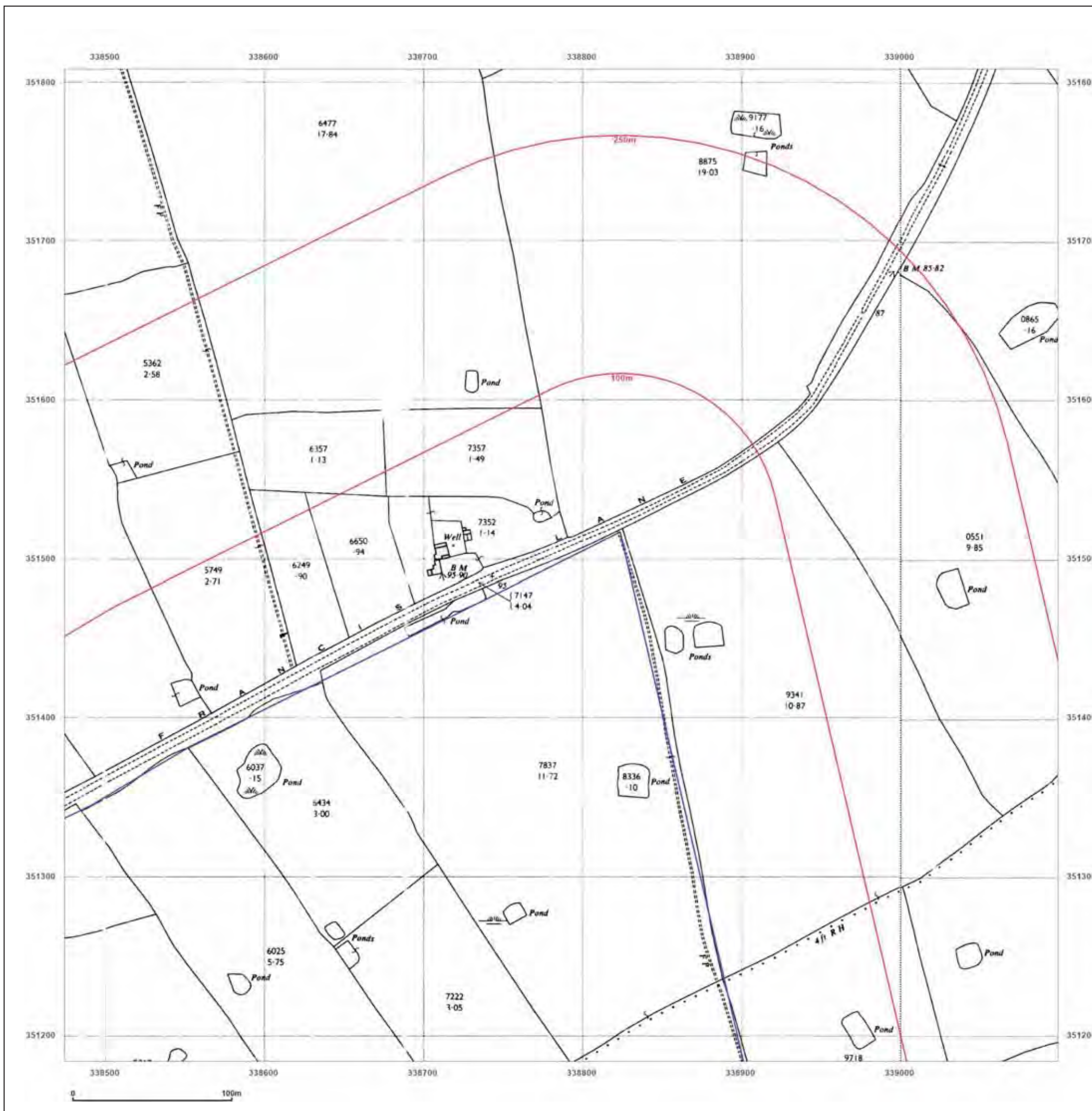


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Client Ref: 1779_TE1624
Report Ref: GS-8287502_LS_2_2
Grid Ref: 338787, 351496

Map Name: National Grid

Map date: 1992

Scale: 1:2,500

Printed at: 1:2,500



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Surveyed 1992
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Edition N/A
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Levelled N/A

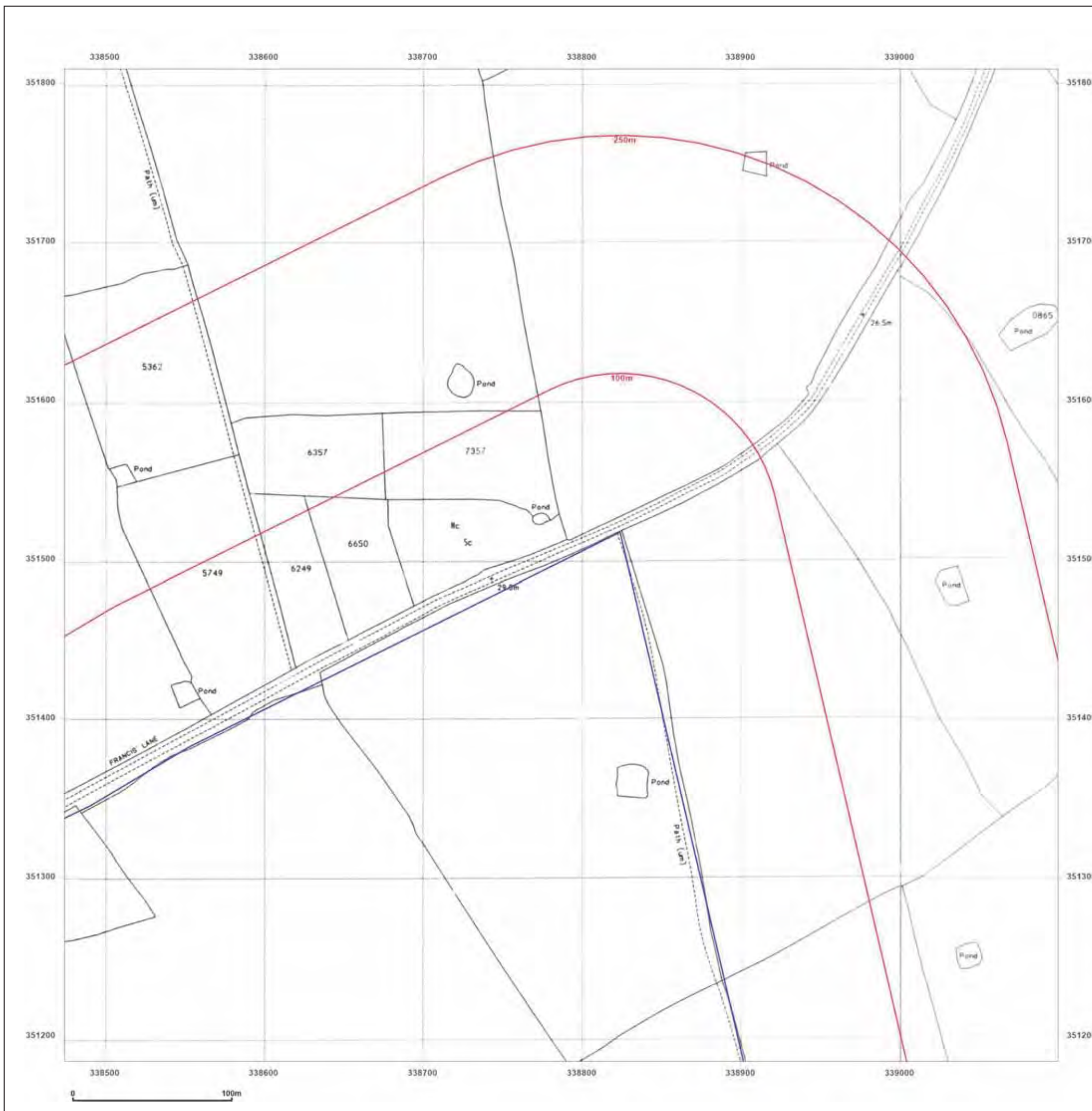


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APPENDIX J - DEFINITIONS OF TERMS USED IN QUALITATIVE AND QUANTITATIVE RISK ASSESSMENTS

CIRIA C552 Terminology

For the qualitative and quantitative assessment of risks posed by potential pollutant linkages have been undertaken using the risk matrix adapted from CIRIA C552 and outlined in the table below.

	Category	Definition
Potential severity	Severe	Acute (short term) risk to human health, Major pollution of sensitive controlled waters, ecosystems or habitat. Catastrophic damage to buildings or property or crops.
	Medium	Chronic (Medium / long term) risk to human health Pollution of sensitive controlled waters, ecosystems or species, Significant damage to crops, buildings or structures
	Mild	Easily preventable permanent health effects on humans. Pollution of non-sensitive controlled waters. Minor damage to buildings or structures.
	Minor	Easily preventable non-permanent health effects on humans, or no effects. Minor, low level and localised contamination of on-site soil. Easily repairable damage to buildings or structures.
Probability of risk	High Likelihood	Pollutant linkage may be present, and the risk is almost certain to occur , or there is evidence of harm already occurring.
	Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term.
	Low Likelihood	Pollutant linkages may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
	Unlikely	Pollutant linkage may be present but the circumstances under which harm would occur are improbable.

		Potential Severity			
		Severe	Medium	Mild	Minor
Probability of risk	High Likelihood	Very high risk	High risk	Moderate risk	Moderate / low risk
	Likely	High risk	Moderate risk	Moderate / low risk	Low risk
	Low Likelihood	Moderate risk	Moderate / low risk	Low risk	Very low risk
	Unlikely	Moderate / low risk	Low risk	very low risk	Very low risk

APPENDIX K - HUMAN HEALTH ASSESSEMENT CRITERIA

HUMAN HEALTH ASSESSMENT CRITERIA

Context

Contaminated Land is defined under law through Part IIA of the Environmental Protection Act 1990, implemented through Section 57 of the Environment Act 1995 and associated guidance ("Part IIA"). These specify that a "suitable for use" approach is to be applied in the assessment of potentially contaminated land, implemented through a phased programme of site investigation and risk assessment appropriate to the site under consideration.

The assessment of potential risks posed by contaminated land is based upon the assessment of plausible contaminant source - pathway - receptor linkages ("pollutant linkages") for the current and/or proposed future use of the site. The process for the assessment of contaminated land adopted in this report is in line with guidance issued by the [Environment Agency Land contamination risk management \(LCRM\)](https://www.gov.uk/government/publications/environment-agency-land-contamination-risk-management) - GOV.UK (www.gov.uk)

Land contamination can harm:

- human health
- drinking water supplies, groundwater and surface water
- soils
- ecosystems including wildlife, animals and wetlands
- property

It can also affect the current and future land use. Dealing with land contamination helps make the environment clean and safe. Through regeneration it can:

- enhance the health and wellbeing of all
- add to the economic, ecological and amenity value of the area

Use land contamination risk management (LCRM) to:

- identify and assess if there is an unacceptable risk
- assess what remediation options are suitable to manage the risk
- plan and carry out remediation
- verify that remediation has worked

You can use LCRM in a range of regulatory and management contexts. For example, voluntary remediation, planning, assessing liabilities or under the Part 2A contaminated land regime. The Environment Agency expects you to follow LCRM if you are managing the risks from land contamination.

We support the use of the National Quality Mark Scheme (NQMS). You can use it for any type of land contamination report.

Using the NQMS:

- will make sure all legislative requirements and necessary standards related to managing land contamination are met
- can provide increased confidence by submitting reports of the quality we expect
- can result in cost and time savings by 'getting it right first time'

LCRM is made up of 4 guides.

1. LCRM: Before you start.
2. LCRM: Risk assessment.
3. LCRM: Options appraisal.
4. LCRM: Remediation and verification.

We use a staged risk based approach. There are 3 stages, and each stage is broken down into tiers or steps.

Stage 1: Risk assessment

You will use a tiered approach to risk assessment. The 3 tiers are:

1. Preliminary risk assessment.
2. Generic quantitative risk assessment.
3. Detailed quantitative risk assessment.

Stage 1 includes information for intrusive site investigations.

Stage 2: Options appraisal

There are 3 steps to follow.

1. Identify feasible remediation options.
2. Do a detailed evaluation of options.
3. Select the final remediation option.

Stage 3: Remediation and verification

There are 4 steps to follow.

1. Develop a remediation strategy.
2. Remediate.
3. Produce a verification report.
4. Do long term monitoring and maintenance, if required

You must always start with a preliminary risk assessment.

The risk assessment stage is an iterative process. You can do the 3 tiers in order or progress from a preliminary risk assessment to a detailed quantitative risk assessment. As part of a generic or detailed quantitative risk assessment you will need to collect detailed information about the site. This is usually through an intrusive site investigation.

Depending on the level of risk or regulatory requirements, you can proceed from a preliminary risk assessment to the options appraisal stage. If you proceed direct to the options appraisal stage, you still need to collect the detailed site investigation information required by the generic and detailed quantitative risk assessments. This is to confirm that your approach is viable and acceptable.

Following the risk assessment stage, if you conclude that the risks are acceptable, with agreement from the relevant regulator, you can end the process.

If there are unacceptable risks, then remediation or mitigation is required. Follow stages 2 and 3 in order.

In stage 2 options appraisal, you will:

- look at the most feasible options
- produce a shortlist of options
- use evaluation criteria to assess them
- select which ones are the most suitable to take forward to stage 3

In stage 3 remediation and verification, you will produce a remediation strategy, do the remediation and then produce a verification report.

You will decide at the options appraisal stage if long term monitoring and maintenance is the remediation option. You may need to do post-remediation monitoring for further verification.

The risk assessment and subsequent investigation, remediation and verification must address all potential sources of pollutants that may be present on the site (the "hazards"), all receptors that may be harmed by these (e.g., human health, controlled waters, ecological receptors) and the pathways by which the contamination may be transported from the contaminant source(s) to the receptor(s). This is defined within the conceptual model for the site, which represents the characteristics of the site in a form that shows the possible pollutant linkages. As further information becomes available (for example, through site investigation), so the conceptual model will be refined.

Remedial action can be specified at any phase within this assessment process to break the identified pollutant linkage in determining whether or not to undertake further assessment or to undertake remediation, the potential cost-savings arising from a more thorough assessment of the pollutant linkages and more tightly defined remedial strategy must be considered against the direct costs involved in the work and the time that this will take to execute and gain regulatory approval.

A different approach to the statistical appraisal of data is required depending on whether the assessment is being undertaken to assess land as Contaminated Land in accordance with the regulations or whether the assessment is to assess whether the site is suitable for new development in accordance with the Planning regime. The statistical approach to assessment is discussed further in CL:AIRE:2020 "Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration".

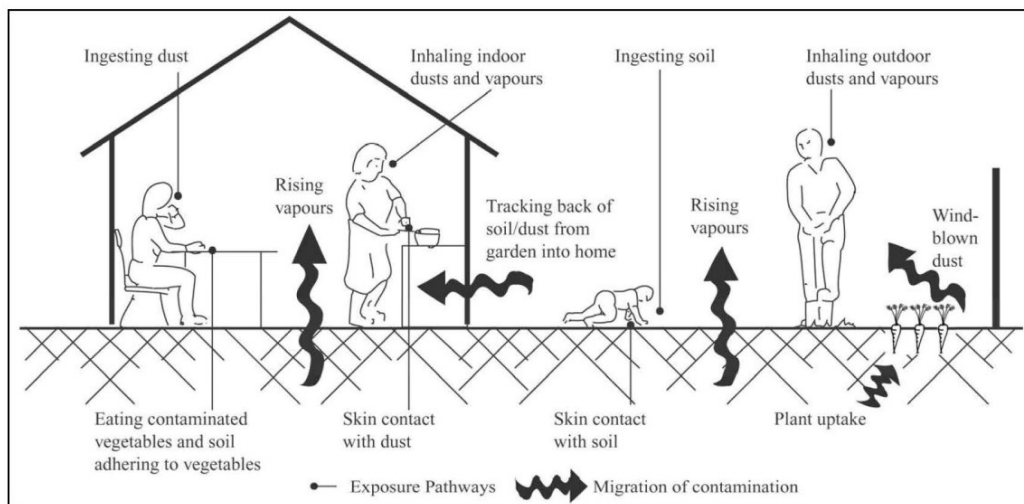
Some form of Detailed Quantitative Risk Assessment (DQRA) will be essential for those cases where appropriate GAC values cannot be established for the contaminant linkages under consideration.

Generic Assessment Criteria for Human Health Risk Assessment

In March 2002, the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency (EA) published the Contaminated Land Exposure Assessment (CLEA) Model and a series of related reports and guidance. These were designed to provide a scientifically based framework for the assessment of chronic risks to human health from contaminated land. The initial documents (CLR7 – 10) were withdrawn and replaced with revised guidance issued by the Environment Agency including:

- “Using Soil Guideline Values”; EA, 2009; [Land contamination: using soil guideline values \(SGVs\) - GOV.UK \(www.gov.uk\)](http://www.gov.uk/government/publications/using-soil-guideline-values)
- “Human Health toxicology assessment of contaminants in soil” EA, 2009; <https://www.gov.uk/government/publications/human-health-toxicological-assessment-of-contaminants-in-soil>
- “Update technical background to the CLEA model” 2009; <https://www.gov.uk/government/publications/updated-technical-background-to-the-clea-model>
- CLEA Software (Version 1.05) Handbook 2015; <https://www.gov.uk/government/publications/contaminated-land-exposure-assessment-clea-tool>
- Compilation of Data for priority Organic Contaminants for Derivation of Soil Guideline Values; Science Report SC050021/SR7, 2008; and,
- “Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration”. CL:AIRE:2020 <https://www.claire.co.uk/component/phocadownload/category/9-other-cl-aire-documents?download=745:2020-stats-guidance>

The CLEA model and associated guidance was developed to calculate an estimated tolerable daily intake (TDI) of contaminants for site users given a set of ‘typical’ human health exposure pathways which are detailed in “SR3: Updated technical background to the CLEA model”



(Science Report SC050021/SR3, EA, 2009) and reproduced below.

Ingestion

- Outdoor soil;
- Indoor dust;
- Home grown produce;
- Soil attached to home grown produce.

Dermal Contact

- Outdoor soil;
- Indoor dust.

Inhalation

- Outdoor dust;
- Indoor dust;
- Outdoor vapour;
- Indoor vapour.

It should be noted that the CLEA model does not include an exhaustive list of potential exposure pathways, e.g. certain compounds can pass through plastic water pipes into drinking water supply.

The potential significance of each of the exposure pathways is dependent upon the type of land use and the nature of the contaminant being considered. The CLEA model considers principal 'default' land use scenarios and makes a series of assumptions with regards to building type (where applicable), identification of the critical human receptor group, exposure frequency and duration. The definitions of the principal land use types given in SR3 (EA, 2009) are:

Residential land use;

- A typical residential property consisting of a two-storey terraced house built on a ground-bearing slab of 0.15m thickness with a private garden consisting of lawn, flowerbeds, and a small fruit and vegetable patch. The occupants are assumed to be parents with young children, who make regular use of the garden. The critical receptor is a 0 – 6-year-old female.
- Active exposure pathways are ingestion of outdoor soil, ingestion of indoor dust, ingestion of home grown produce and soil adhering to home grown produce; direct dermal contact with outdoor soil and indoor dust; inhalation of outdoor dust and vapour and indoor dust and vapour

Allotments

- A plot of open space commonly made available by the Local Authority to tenants to grow fruit and vegetables for their own consumption. There are usually several plots to a site and the overall site area may cover more than one hectare. The tenants are assumed to be the parents or grandparents and that young children make occasional accompanied visits to the plots. The critical receptor is a 0 – 6-year-old female and there is no building present on Site.
- Active exposure pathways are ingestion of outdoor soil, ingestion of home grown produce and soil adhering to home grown produce; direct dermal contact with outdoor soil; inhalation of outdoor vapour.

Commercial and industrial land use.

- A typical commercial or light industrial property consisting of a three-story office building (pre-1970) with a ground bearing floor slab at which employees spend most time indoors and are involved in office based or related light physical work. The critical receptor is a working female adult aged 16 – 65 years.
- Active exposure pathway is ingestion of outdoor soil, ingestion of indoor dust; direct dermal contact with outdoor soil and indoor dust; inhalation of outdoor dust and vapour and inhalation of indoor dust and vapour.

Soil Guideline Values

Based on the assumption of each land use type, the EA and DEFRA developed and published Soil Guideline Value (SGV) using the CLEA model for a number of principal contaminants and 'default' end-use scenarios of residential, allotments and commercial/industrial use. The primary purpose of the SGVs is as trigger value for the tolerable daily intake (TDI), below which it can be assumed that the soil does not pose an unacceptable risk to the identified receptor. Where soils contamination is present above this level further assessment may be required. SGVs were developed for the following contaminants:

- Heavy metals and other inorganic compounds: arsenic, cadmium, chromium, cyanide, lead (now withdrawn), mercury, nickel and selenium.
- Benzene, ethylbenzene, toluene and xylenes.
- Phenol.
- Dioxins and dioxin-like polychlorinated biphenyls (PCBs)
- Polycyclic aromatic hydrocarbons (PAHs) – 11 substances

LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment

In addition, in 2009 CIEH through LQM and EIC published generic assessment criteria (GACs) for 82 substances including metals, petroleum hydrocarbons, PAHs and explosive substances for a variety of soil types and the three 'default' land uses – (residential, allotments and commercial end-uses) as described in SR3 (EA, 2009). These have been superseded as described below.

Category 4 Screening Values

In 2013 "SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination" (CL:AIRE 2013) was issued which detailed findings of a research project undertaken by CL:AIRE to set out the framework by which potential Category 4 Screening Levels (pC4SL) may be derived for 6 contaminants of concern, Arsenic, Benzene, Benzo(a)pyrene, Cadmium, Chromium VI and Lead.

This was supplemented in 2014 by "SP1010: Development of Category 4 Screening Levels for the Assessment of Land Affected by Contamination – Policy Companion Document" (DEFRA, 2014). SP1010 proposed several updated toxicology information relating to contaminant behaviour updated assumptions relating to the modelling of human exposure to soil contaminants, derivation of separate C4SLs for residential with the consumption of home grown produce, residential without the consumption of home grown produce, and two new land uses: public open spaces near residential housing (POS resi) and public parks (POS park).

Public Open Space: Residential

- For public open space in close proximity to residential housing and the central green area around which houses are located, as on many housing estates from the 1930s to 1970s. It is also applicable for smaller areas commonly incorporated in newer developments as informal grassed areas or more formal landscaped areas with a mixture of open space and covered soil with planting. It is considered to be a generally grassed area up to 0.5ha with up to 50% bare soil. The land use is an important resource

for children and the area is near the homes. The critical receptor is a female child age >3 - <9 years old (CLEA age class 4 – 9) as younger children are unlikely to play outdoors unsupervised.

- Active exposure pathways are ingestion of outdoor soil, ingestion of indoor dust; direct dermal contact with outdoor soil and indoor soil derived dust; inhalation of outdoor and indoor dust and inhalation of outdoor vapour.

Public Open Space: Park

- A public park is defined as an area of open space provided for recreational use and usually owned and maintained by the Local Authority. It is anticipated the park could be used for a wide range of activities, including the following:
 - Family visits and picnics;
 - Children's play area;
 - Sporting activities such as football on an informal basis (i.e. not a dedicated sports pitch); and
 - Dog walking.
- The park is modelled as an area >0.5 ha of predominantly grasses open space with no more than 25% of exposed soil.
- The critical receptor is a female child with CLEA age classes 1 – 6.
- Active exposure pathway are: ingestion of outdoor soil; direct dermal contact with outdoor soil; inhalation of outdoor dust and inhalation of outdoor vapour.

Furthermore, the C4SLs are based on a different toxicological benchmark, the 'low level of toxicological concern' (LLTC). This difference in approach was adopted because the C4SLs were primarily intended for use under Part 2A of the EPA 1990 to quickly screen out Category 4 sites where there is "*no risk or that the level of risk posed is low*". SGVs and LQM GACs are based on the more conservative 'minimal or tolerable level of risk' as defined in SR2 (EA, 2009) and were derived for assessment of contamination for the Planning process.

LQM/CIEH Suitable 4 Use Levels (S4ULs)

The publication of the C4SLs resulted in considerable and inconclusive debate about the applicability of the lower level of protection of the C4SL, which are underlain by the LLTC, outside of the Part 2A context for which they were derived. In 2014 LQM/CIEH presented a Suitable 4 Use Levels (S4ULs), which incorporate the updated assumption exposure derived for the production of the C4SLs but within the context of deriving screening criteria above which further assessment of the risks or remedial action may be needed. The S4ULs replace the 82 substances, species and fractions and congeners contained in the previous LQM/CIEH GACs issued in 2009. Additionally, following changes and new land uses proposed in the C4SL research project, S4ULs have also been derived for the majority of substances for which the EA derived SGVs in 2009 with the exception of lead (see below).

Lead

The C4SL for lead provides a technically robust and conservative assessment tool using significantly updated toxicological modelling than the withdrawn SGV and derived in line with current science of lead toxicology.

EIC/AGS/CL:AIRE Soil Generic Assessment Criteria (2010)

In some instances, EIC/AGS/CL:AIRE GACs for certain VOC / SVOC potential contaminants of concern have been used *in lieu* of available LQM / CIEH S4UL values.

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Metals/metalloids																			
Arsenic	37			40			43			640			79			170			LQM (2014)
Beryllium	1.7			1.7			35			12			2.2			63			LQM (2014)
Boron	290			11000			45			240000			21000			46000			LQM (2014)
Cadmium	11			85			1.9			190			120			532			LQM (2014)
Chromium III	910			910			18000			8600			1500			33000			LQM (2014)
Chromium VI	6			6			1.8			33			7.7			220			LQM (2014)
Copper	2400			7100			520			68000			12000			44000			LQM (2014)
Lead	200			310			80			2330			630			1300			C4SL
Mercury (elemental)	1.2			1.2			21			58 (25.8)			16			30 (25.8)			LQM (2014)
Mercury (Inorganic)	40			56			19			1100			120			240			LQM (2014)
Methylmercury	11			15			6			320			40			68			LQM (2014)
Nickel	180			180			230			980			230			3400			LQM (2014)
Selenium	250			430			88			12000			1100			1800			LQM (2014)
Vanadium	410			1200			91			9000			2000			5000			LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Zinc	3700			40000			620			730000			81000			170000			LQM (2014)
Other																			
Total Sulphate	2,400			2,400			2,400			2,400			2,400			2,400			BRE (2005)
Water Soluble Sulphate (g/l)	0.5			0.5			0.5			0.5			0.5			0.5			BRE (2005)
PAHs																			
Acenaphthene	210	510	1100	3000 (57)	4700(141)	6000 (336)	34	85	200	84000 (57)	97000 (141)	100000	15000	15000	15000	29000	30000	30000	LQM (2014)
Acenaphthylene	170	420	920	2900 (86.1)	4600 (212)	6000 (506)	28	69	160	8300 (86.1)	97000 (212)	100000	15000	15000	15000	29000	30000	30000	LQM (2014)
Anthracene	2400	5400	11000	31000 (1.17)	35000	37000	380	950	2200	520000	540000	540000	74000	74000	74000	150000	150000	150000	LQM (2014)
Benzo(a)anthracene	7.2	11	13	11	14	15	2.9	6.5	13	170	170	180	29	29	29	49	56	62	LQM (2014)
Benzo(a)pyrene	2.2	2.7	3	3.2	3.2	3.2	0.97	2	3.5	35	35	36	5.7	5.7	5.7	11	12	13	LQM (2014)
Benzo(b)fluoranthene	2.6	3.3	3.7	3.9	4	4	0.99	2.1	3.9	44	44	45	7.1	7.1	7.1	13	15	16	LQM (2014)
Benzo(g,h,i)perylene	320	340	350	360	360	360	290	470	640	3900	4000	4000	640	640	640	1400	1500	1600	LQM (2014)
Benzo(k)fluoranthene	77	93	100	110	110	110	37	75	130	1200	1200	1200	190	190	190	370	410	440	LQM (2014)
Chrysene	15	22	27	30	31	32	4.1	9.4	19	350	350	350	57	57	57	93	110	120	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Dibenz(a,h)anthracene	0.24	0.28	0.3	0.31	0.32	0.32	0.14	0.27	0.61	3.5	3.6	3.6	0.57	0.57	0.58	1.1	1.3	1.4	LQM (2014)
Fluoranthene	280	560	890	1500	1600	1600	52	130	290	23000	23000	23000	3100	3100	3100	63	6300	6400	LQM (2014)
Fluorene	170	400	860	2800 (30.9)	3800 (76.5)	4500 (183)	27	67	160	63000 (30.9)	68000	71000	9900	9900	9900	20000	20000	20000	LQM (2014)
Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	9.5	21	39	500	510	510	82	82	82	150	170	180	LQM (2014)
Naphthalene	2.3	5.6	13	2.3	5.6	13	4.1	10	24	190 (76.4)	460 (183)	1100 (432)	4900	4900	4900	1200 (76.4)	1900 (183)	3000	LQM (2014)
Phenanthrene	95	220	440	1300 (36)	1500	1500	15	38	90	22000	22000	23000	3100	3100	3100	6200	6200	6300	LQM (2014)
Pyrene	620	1200	2000	3700	3800	3800	110	270	620	54000	54000	54000	7400	7400	7400	15000	15000	15000	LQM (2014)
Coal Tar (BaP as surrogate marker)	0.79	0.98	1.1	1.2	1.2	1.2	0.32	0.67	1.2	15	15	15	2.2	2.2	2.2	4.4	4.7	4.8	LQM (2014)
BTEX and TPH																			
Benzene	0.087	0.17	0.37	0.38	0.7	1.4	0.017	0.034	0.075	27	47	90	72	72	73	90	100	110	LQM (2014)
Toluene	130	290	660	880 vap (869)	1900	3900	22	51	120	56000 vap (869)	110000 vap (1920)	180000 vap (4360)	56000	56000	56000	87000 vap (869)	95000 vap (1920)	100000 vap (4360)	LQM (2014)
Ethylbenzene	47	110	260	83	190	440	16	39	91	5700 vap (518)	13000 vap (1220)	27000 vap (2840)	24000	24000	25000	17000 vap (518)	22000 vap (1220)	27000 vap (2840)	LQM (2014)
Xylene - o	60	140	330	88	210	480	28	67	160	6600 (478)	15000 (1120)	33000 (2620)	41000	42000	43000	17000 (478)	24000 (1120)	33000 (2620)	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Xylene - m	59	140	320	82	190	450	31	74	170	6200 (625)	14000 (1470)	31000 (3460)	41000	42000	43000	17000 (625)	24000 (1470)	32000 (3460)	LQM (2014)
Xylene - p	56	130	310	79	180	430	29	69	160	5900 (576)	14000 (1350)	30000 (3170)	41000	42000	43000	17000 (576)	23000 (1350)	31000 (3170)	LQM (2014)
Aliphatic EC 5-6	42	78	160	42	78	160	730	1700	3900	3200 (304)	5900 (558)	12000 (1150)	570000 (304)	590000	60000 0	95000 (304)	130000 (558)	180000 (1150)	LQM (2014)
Aliphatic EC >6-8	100	230	530	100	230	530	2300	5600	13000	7800 (144)	17000 (322)	40000 (736)	600000	610000	62000 0	150000 (144)	220000 (322)	320000 (736)	LQM (2014)
Aliphatic EC >8-10	27	65	150	27	65	150	320	770	1700	2000 (78)	4800 (190)	11000 (451)	13000	13000	13000	14000 (78)	18000 (190)	21000 (451)	LQM (2014)
Aliphatic EC >10-12	130 (48)	330 (118)	760 (283)	130 (48)	330 (118)	760 (283)	2200	4400	7300	9700 (48)	23000 (118)	47000 (283)	13000	13000	13000	21000 (48)	23000 (118)	24000 (283)	LQM (2014)
Aliphatic EC >12-16	1100 (24)	2400 (59)	4300 (142)	1100 (24)	2400 (59)	4300 (142)	11000	13000	13000	59000 (24)	82000 (59)	90000 (142)	13000	13000	13000	25000 (24)	25000 (59)	26000 (142)	LQM (2014)
Aliphatic EC >16-35	65000 (8.48)	92000 (21)	11000 0	65000 (8.48)	92000 (21)	110000	26000 0	270000	27000 0	160000 0	1700000	180000 0	250000	250000	25000 0	450000	480000	490000	LQM (2014)
Aliphatic EC >35-44	65000 (8.48)	92000 (21)	11000 0	65000 (8.48)	92000 (21)	110000	26000 0	270000	27000 0	160000 0	1700000	180000 0	250000	250000	25000 0	450000	480000	490000	LQM (2014)
Aromatic EC 5-7	70	140	300	370	690	1400	13	27	57	26000 (1220)	46000 (2260)	86000 (4710)	56000	56000	56000	76000 (1220)	84000 (2260)	92000 (4710)	LQM (2014)
Aromatic EC >7-8	130	290	660	860	1800	3900	22	51	120	56000 (869)	110000 (1920)	180000 (4360)	56000	56000	56000	87000 (869)	95000 (1920)	100000 (4360)	LQM (2014)
Aromatic EC >8-10	34	83	190	47	110	270	8.6	21	51	3500 (613)	8100 (1500)	17000 (3580)	5000	5000	5000	7200 (613)	8500 (1500)	9300 (3580)	LQM (2014)
Aromatic EC >10-12	74	180	380	250	590	1200	13	31	74	16000 (364)	28000 (899)	34000 (2150)	5000	5000	5000	9200 (364)	9700 (899)	10000	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Aromatic EC >12-16	140	330	660	1800	2300 (419)	2500	23	27	130	36000 (169)	37000	38000	5100	5100	5000	10000	10000	10000	LQM (2014)
Aromatic EC >16-21	260	540	930	1900	1900	1900	46	110	260	28000	28000	28000	3800	3800	3800	7600	7700	7800	LQM (2014)
Aromatic EC >21-35	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	LQM (2014)
Aromatic EC >35-44	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	LQM (2014)
Aromatic EC >44-75	1600	1800	1900	1900	1900	1900	1200	2100	3000	28000	28000	28000	3800	3800	3800	7800	7800	7900	LQM (2014)
VOCs																			
1,2-dichloroethane (1,2-DCA)	0.0071	0.011	0.019	0.0092	0.013	0.023	0.0046	0.0083	0.016	0.67	0.97	1.7	29	29	29	21	24	28	LQM (2014)
1,1,1-trichloroethane	8.8	18	39	9	18	40	48	110	240	660	1300	3000	140000	140000	140000	57000 (1425)	76000 (2915)	100000 (6392)	LQM (2014)
1,1,2,2,tetrachloroethane	1.6	3.4	7.5	3.9	8	17	0.41	0.89	2	270	550	1100	1400	1400	1400	1800	2100	2300	LQM (2014)
tetrachloroethene	0.18	0.39	0.9	0.18	0.4	0.92	0.65	1.5	3.6	19	45	95	1400	1400	1400	810 (424)	1100 (951)	1500	LQM (2014)
tetrachloromethane (Carbon tetrachloride)	0.026	0.056	0.13	0.026	0.056	0.13	0.45	1	2.4	2.9	6.3	14	890	920	950	190	270	400	LQM (2014)
Trichloroethene	0.016	0.034	0.075	0.017	0.036	0.08	0.041	0.091	0.21	1.2	2.6	5.7	120	120	120	70	91	120	LQM (2014)
Trichloromethane (chloroform)	0.91	1.7	3.4	1.2	2.1	4.2	0.42	0.83	1.7	99	170	350	2500	2500	2500	2600	2800	3100	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Chloroethene (Vinyl chloride)	0.0006 4	0.0008 7	0.0014	0.0007 7	0.001	0.0015	0.0005 5	0.001	0.0018	0.059	0.077	0.12	3.5	3.5	3.5	4.8	5	5.4	LQM (2014)
2,4,6 Trinitrotoluene (TNT)	1.6	3.7	8.1	65	66	66	0.24	0.58	1.4	1000	1000	1000	130	130	130	260	270	270	LQM (2014)
RDX	120	250	540	13000	13000	13000	17	38	85	210000	210000	210000	26000	26000	27000	49000 (18.7)	51000	53000	LQM (2014)
HMX	5.7	13	26	6700	6700	6700	0.86	1.9	3.9	110000	110000	110000	13000	13000	13000	23000 (0.35)	23000 (0.39)	24000 (0.48)	LQM (2014)
Aldrin	5.7	6.6	7.1	7.3	7.4	7.5	3.2	6.1	9.6	170	170	170	18	18	18	30	31	31	LQM (2014)
Dieldrin	0.97	2	3.5	7	7.3	7.4	0.17	0.41	0.96	170	170	170	18	18	18	30	30	31	LQM (2014)
Atrazine	3.3	7.6	17.4	610	620	620	0.5	1.2	2.7	9300	9400	9400	1200	1200	1200	2300	2400	2400	LQM (2014)
Dichlovos	0.032	0.066	0.014	6.4	6.5	6.6	0.0049	0.01	0.022	140	140	140	16	16	16	26	26	27	LQM (2014)
Alpha-Endosulfan	7.4	18	41	160 (0.003)	280 (0.007)	410 (0.016)	1.2	2.9	6.8	5600 (0.003)	7400 (0.007)	8400 (0.016)	1200	1200	1200	2400	2400	2500	LQM (2014)
alpha-Hexachlorocyclohexane	0.23	0.55	1.2	6.9	9.2	11	0.035	0.087	0.21	170	180	180	24	24	24	47	48	48	LQM (2014)
beta-hexachlorocyclohexanes	0.085	0.2	0.46	3.7	3.8	3.8	0.013	0.032	0.077	65	65	65	8.1	8.1	8.1	15	15	16	LQM (2014)
gamma-hexachlorocyclohexanes	0.06	0.14	0.33	2.9	3.3	3.5	0.0092	0.023	0.054	67	69	70	8.2	8.2	8.2	14	15	15	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Chlorobenzene	0.46	1	2.4	0.46	1	2.4	5.9	14	32	56	130	290	11000	13000	14000	1300 (675)	2000 (1520)	2900	LQM (2014)
1,2-Dichlorobenzene	23	55	130	24	57	130	94	230	540	2000 (571)	4800 (1370)	11000 (3240)	90000	95000	98000	24000 (571)	36000 (1370)	51000 (3240)	LQM (2014)
1,3-Dichlorobenzene	0.4	1	2.3	0.44	1.1	2.5	0.25	0.6	1.5	30	73	170	300	300	300	390	440	470	LQM (2014)
1,4-Dichlorobenzene	61	150	350	61	150	350	15	37	88	4400 (224)	10000 (540)	25000 (1280)	17000	17000	17000	36000 (224)	36000 (540)	36000 (1280)	LQM (2014)
VOCs Continued																			
1,2,3-Trichlorobenzene	1.5	3.6	8.6	1.5	3.7	8.8	4.7	12	28	102	250	590	1800	1800	1800	770 (134)	1100 (330)	1600 (789)	LQM (2014)
1,2,4-Trichlorobenzene	2.6	6.4	15	2.6	6.4	15	55	140	320	220	530	1300	15000	17000	19000	1700 (318)	2600 (786)	4000 (1880)	LQM (2014)
1,3,5-Trichlorobenzene	0.33	0.81	1.9	0.33	0.81	1.9	4.7	12	28	23	55	130	1700	1700	1800	380 (36.7)	580 (90.8)	860 (217)	LQM (2014)
1,2,3,4-Tetrachlorobenzene	15	36	78	24	56	120	4.4	11	26	1700 (122)	3080 (304)	4400 (728)	830	830	830	1500 (122)	1600	1600	LQM (2014)
1,2,3,5-Tetrachlorobenzene	0.66	1.6	3.7	0.75	1.9	4.3	0.38	0.9	2.2	49 (39.4)	120 (98.1)	240 (235)	78	79	79	110 (39)	120	130	LQM (2014)
1,2,4,5-Tetrachlorobenzene	0.33	0.77	1.6	0.73	1.7	3.5	0.06	0.16	0.37	42 (19.7)	72 (49.1)	96	13	13	13	25	26	26	LQM (2014)
Pentachlorobenzene	5.8	12	22	19	30	38	1.2	3.1	7	640 (43)	770 (107)	830	100	100	100	190	190	190	LQM (2014)

Parameter	Residential with homegrown produce			Residential without homegrown produce			Allotment			Commercial / Industrial			Public Open Space near Residential			Public Open Space - Park			Source
	(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			(mg/kg, unless otherwise stated)			
SOM	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	1%	2.50%	6%	
Hexachlorobenze ne	1.8 (0.2)	3.3 (0.5)	4.9	4.1 (0.2)	5.7 (0.5)	6.7 (1.2)	0.47	1.1	2.5	110 (0.2)	120	120	16	16	16	30	30	30	LQM (2014)
Phenol	280	550	1100	750	1300	2300	66	140	280	760 ^{dir} (31000)	1500 ^{dir} (35000)	3200 ^{dir} (37000)	760 ^{dir} (31000)	1500 ^{dir} (35000)	3200 ^{dir} (37000)	760 ^{dir} (31000)	1500 ^{dir} (35000)	3200 ^{dir} (37000)	LQM (2014)
Chlorophenols (excluding pentachlorophen ol)	0.87 (g)	2	4.5	94	150	210	0.13 (g)	0.3	0.7	3500	4000	4300	620	620	620	1100	1100	1100	LQM (2014)
Pentachlorophen ol	0.22	0.52	1.2	27 (16.4)	29	31	0.03	0.08	0.19	400	400	400	60	60	60	110	120	120	LQM (2014)
Carbon Disulphide	0.14	0.29	0.62	0.14	0.29	0.62	4.8	10	23	11	22	47	11000	11000	12000	1300	1900	2700	LQM (2014)
Hexachlorobutadi ene	0.29	0.7	1.6	0.32	0.78	1.8	0.25	0.61	1.4	31	66	120	25	25	25	48	50	51	LQM (2014)

(g) derived based on 2,3,4,6-tetrachlorophenol; dir - based on a threshold protective of direct skin contact with phenol (guideline in brackets based on health effects following long term exposure provided for illustration only); (vap) calculated for vapour phase only. SOM – Soil Organic Matter; (4.5) solubility.

APPENDIX L - CONTROLLED WATERS RISK ASSESSMENT

CURRENT GUIDANCE FOR CONTROLLED WATERS RISK ASSESSMENT

Regulatory Context

Government policy is based upon a “suitable for use approach,” which is relevant to both the current use of land and also to any proposed future use. When considering the current use of land, Part IIA of the Environment Protection Act 1990 (EPA 1990) provides the regulatory regime, which was introduced by Section 57 of the Environment Act 1995, which came into force in England on 1 April 2000. The main objective of introducing the Part IIA regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health, controlled waters or the wider environment given the current use and circumstances of the land. Part IIA provides a statutory definition of contaminated land under Section 78A(2) as:

“any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land, that:

(a) Significant harm is being caused or there is a significant possibility of such harm being caused; or

(b) Pollution of controlled waters is being, or is likely to be, caused.”

Part IIA provides a statutory definition of the pollution of controlled waters under Section 78A(9) as:

“the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter”

Controlled Waters are defined Section 104 of the Water Resources Act 1991. In summary, they comprise relevant territorial waters which extend seaward for three miles from the low-tide limit from which the territorial sea adjacent to England and Wales is measured.

The Environment Agency has powers under Part 7 of The Water Resources Act (1991) to take action to prevent or remedy the pollution of controlled waters, including circumstances where the pollution arises from contamination in the land. This is reinforced in The Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, 2012) which came into force in early April 2012.

Part IIA introduces the concept of a contaminant linkage; where for potential harm to exist there must be a connection between the source of the hazard and the receptor via a pathway. Risk assessment in contaminated land is therefore directed towards identifying the contaminants, pathways and receptors that can provide contaminant linkages. This is known as the contaminant-pathway-receptor link (CPR or contaminant linkage).

Part IIA places contaminated land responsibility as a part of the planning and redevelopment process, rather than Local Authority or Environment Agency directly, except in cases of very high pollution risk or where harm is occurring. In the planning process, guidance is provided by National Planning Policy Framework (NPPF) of March 2012. The NPPF requires that a site which has been developed shall not be capable of being determined “contaminated land” under Part IIA. Therefore, appropriate risk-based investigation is required to identify the contaminant linkages that can then be assessed, and then mitigated using methods that can be agreed with the planners.

Source Protection Zones

Source Protection Zones (SPZs) are defined by the Environment Agency (for England and Wales), SEPA (Scotland) and the Environment and Heritage Service (Northern Ireland) for groundwater sources such as wells, boreholes and springs that are used for public drinking water supply. The zones show the risk of contamination from activities that might cause groundwater pollution in the area. The size and shape of a zone depends upon subsurface conditions, how the groundwater is removed, and other environmental factors.

SPZs are classified into four categories:

- **Zone 1 (Inner protection zone).** Any pollution that can travel to the abstraction point within 50 days from any point within the zone is classified as being inside Zone 1. This applies at and below the groundwater table. This zone also has a minimum 50 m protection radius around the abstraction point. These criteria are designed to protect against the transmission of toxic chemicals and water-borne disease.
- **Zone 2 (Outer protection zone).** The outer zone covers pollution that takes up to 400 days to travel to the abstraction point, or 25% of the total catchment area, whichever area is the largest. This travel time is the minimum period over which the Environment Agency considers that pollutants need to be diluted, reduced in strength or delayed by the time they reach the abstraction point.
- **Zone 3 (Total catchment).** This is the total area needed to support removal of water from the abstraction point, and to support any discharge from this.
- **Zone of special interest.** This may occasionally be defined as a special case. This is usually where local conditions mean that industrial sites and other potential sources of contamination could affect the groundwater source, even though they are outside the normal catchment area.

Groundwater Vulnerability Assessments

From 1 April 2010 The Environment Agency Groundwater Protection Policy began to use aquifer designations which 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. It is updated regularly to reflect their ongoing programme of improvements to these maps. The maps are split into two different types of aquifer designation:

- Superficial (Drift) - permeable unconsolidated (loose) deposits. For example, sands and gravels.
- Bedrock - solid permeable formations e.g. sandstone, chalk and limestone.

The maps display the following aquifer designations:

Table 1. Aquifer Classification ("Geological Classification").

Classification	Definition
Principal Aquifers (Highly Permeable)	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 Aquifers	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 Aquifers	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.
Secondary Undifferentiated Aquifers	This has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
Unproductive Strata	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Environment Agency Guidance

The Environment Agency's stance on groundwater resources is:

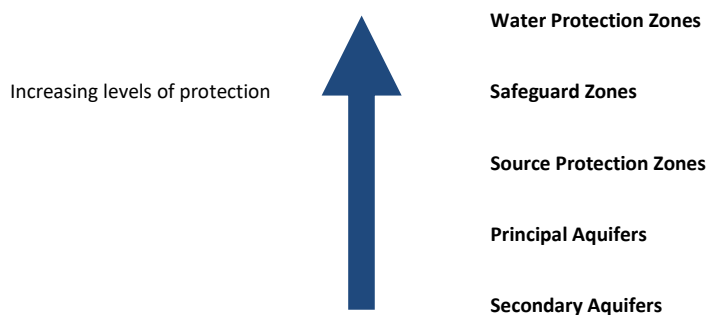
"to protect and manage groundwater resources for present and future generations in ways that are appropriate for the risks we identify"
(Groundwater Protection: Policy and Practice GP3, 2012).

At present, the legislation and guidance pertaining to the protection of controlled waters in the UK is complex; however, the core objectives seek to enforce the position given above.

In 1992, the National Rivers Authority published their Policy and Practice for the Protection of Groundwater (PPPG), this document introduced areas of focus for developments such as Source Protection Zones (SPZs) and Groundwater Vulnerability Maps. The Policy was revised in 1998, since which there have been substantial changes in legislation, driven by key European Directives relating to groundwater include the Groundwater Directive (80/68/EEC) and the Water Framework Directive (2000/60/EC). Aspects of these directives are controlled by primary UK legislation such as the Water Resources Act 1991 as amended by the Water Act 2003. Gaps in the 1998 PPPG that emerged as the result of further legislative changes were addressed in the Environment Agency Policy document Groundwater Protection: Policy and Practice (GP3), Version 1 of November 2012. The three main parts of GP3 were:

- Groundwater principals;
- Position statements and legislation; and
- Technical information.

The Environment Agency has a tiered risk based approach to drinking water protection as summarised below:



Controlled Waters Risk Assessment

A number of tools are available (as detailed in GP3) in order for a developer of a potentially contaminated site to fulfil their obligations under the legislation. A site assessment would be required in order to identify any potential risks to controlled waters and to derive suitable clean up criteria, if required, to ensure the protection of controlled waters.

There are three main stages to any risk assessment of controlled waters:

1. Risk Screening (devise Conceptual Site Model, making reference to groundwater vulnerability maps, site setting, controlled waters context etc)
2. Generic Risk Assessment (EA Remedial Targets Methodology Tier 1 / Comparison of groundwater data with relevant standards)
3. Detailed Quantitative Risk Assessment (Consideration of aquifer properties and site specific parameters, EA Remedial Targets Methodology Tiers 2 & 3)

Risk Screening

Here, the Conceptual Site Model (CSM) is a critical tool to assessing any potentially contaminated site. The information from a robust CSM can be used to establish any pathways or receptors that do not require further assessment at an early stage. For example, it may be possible to confirm the absence of a particular sensitive controlled water receptor (such as a surface water feature) within the vicinity of the Site thereby breaking the associated source-pathway-receptor pollutant linkage. Information from subsequent tiers of risk assessment, such as following intrusive investigations, are used to update the CSM accordingly.

Generic Risk Assessment - England and Wales

When undertaking the Generic Hydrogeological Risk Assessment (EA Remedial Targets Methodology Tier 1), comparison of chemical analytical results is made with those screening criteria.

In accordance with Part 2A of the Environmental Protection Act 1990, Tier Environmental has made regard to all of the Water Quality Standards (WQS) that are relevant to the specific site and a judgment has been made against the most stringent of those relevant standards:

- EQS Directive 2008/105/EC
- Priority Substances Directive 2013/39/EU
- Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015
- UK Drinking Water Standards (UK DWS)
- World Health Organisation (WHO Guidelines) for Drinking Water Quality
- Council Directive 98/83/EC on the quality of water intended for human consumption (Drinking water directive)

In some instances, the laboratory method detection limit is greater than the appropriate EQS/UKDWS value. In these instances, only measured concentrations in excess of the laboratory method detection limit have been considered likely to potentially represent a possible significant risk to controlled waters.

Please note that there is no quantitative criterion for total petroleum hydrocarbons (TPH), or speciated TPH fractions. Historically, standards provided for petroleum hydrocarbons ranges from 10µg/l (Private Water Supply Regulations 1991, removed from the 2009 regulations) to 50µg/l-1000µg/l (Surface Waters (Abstraction for Drinking Water) Regulations 1989) which related to the degree of treatment of water prior to use as drinking water. Over time, the legislative standards have been rescinded and no alternative standard provided, although the Environment Agency planned to release speciated TPH criteria (Fretwell et al., 2009).

In order to assess whether there is a potentially unacceptable risk of pollution of controlled waters, the results of the groundwater chemical analysis for TPH and BTEX were evaluated against Water Quality Standards (WQS) appropriate to the conceptual model for the site:

Table 2. Summary of Selected TPH and BTEX Water Quality Standards Selected for Tier 1 Screening

Determinand	Units	WQS Selected	Source of WQS
Aliphatics >C5-C6	µg/l	15000	Table 5.4 of CL:AIRE 2017#
Aliphatics >C6-C8	µg/l	15000	Table 5.4 of CL:AIRE 2017#
Aliphatics >C8-C10	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aliphatics >C10-C12	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aliphatics >C12-C16	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aliphatics >C16-C21	µg/l	-	Table 5.4 of CL:AIRE 2017#
Aliphatics >C21-C35	µg/l	-	Table 5.4 of CL:AIRE 2017#
Aromatics >C5-EC7	µg/l	10	Table 5.4 of CL:AIRE 2017#
Aromatics >EC7-EC8	µg/l	700	Table 5.4 of CL:AIRE 2017#
Aromatics >EC8-EC10	µg/l	300	Table 5.4 of CL:AIRE 2017#
Aromatics >EC10-EC12	µg/l	100	Table 5.4 of CL:AIRE 2017#

Aromatics >EC12-EC16	µg/l	100	Table 5.4 of CL:AIRE 2017#
Aromatics >EC16-EC21	µg/l	90	Table 5.4 of CL:AIRE 2017#
Aromatics >EC21-EC35	µg/l	90	Table 5.4 of CL:AIRE 2017#
Benzene	µg/l	10	Priority Substance Water Framework Directive 2015 and Table 5.3 of CL:AIRE 2017#
Toluene	µg/l	74	Table 1 Water Framework Directive 2015 and Table 5.3 of CL:AIRE 2017#
Ethylbenzene	µg/l	20	R&D Technical Report P2-115/TR4, 2002
Total xylenes	µg/l	30	DoE (1997c) Hedgecott S. and Lewis S, An update on proposed environmental quality standards for xylenes in water, final report to the Department of the Environment. Report No. DoE 4273/1. Medmenham: WRc; and; Table 5.3 of CL:AIRE 2017#

Notes - # = CL:AIRE document 'Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies' (ISBN 978-1-905046-31-7, dated 2017),

Table 5.3 was referenced in the first instance from the CL:AIRE document 'Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies' (ISBN 978-1-905046-31-7, dated 2017), the to select appropriate Freshwater EQS values for benzene, toluene and total xylenes. The selected value for Ethylbenzene was derived from the proposed EQS value of 20µg/l from the Environment Agency R&D Technical Report P2-115/TR4, 2002. This represents a more conservative value than the 300µg/l value in Table 5.3.

With respect to speciated TPH CWG fractions, Table 5.3 states and refers the reader to 'See Table 5.4'. On this basis, Tier Environmental selected the World Health Organization (WHO) guide values for TPHCWG fractions in drinking water that are presented in Table 5.4 which may be considered appropriately protective of the controlled waters environment based on the conceptual site model.

Generic Risk Assessment is generally undertaken via comparison of reported leachate and/or groundwater concentrations against selected assessment criteria for the potential contaminants of concern identified for the Site from a preliminary desk based assessment.

The selected Generic Assessment Criteria (GAC) derived from a Water Quality Standard (WQS) for any specific substance may not necessarily be a simple number and can often be found to be expressed as:

- Annual mean concentration;
- Maximum allowable concentration;
- 95th percentile concentration for *n* samples;
- Total concentration;
- Dissolved concentration (applicable to filtered samples)

The values may sometimes be expressed for individual substances (e.g. arsenic or for groups of substances e.g. total xylenes or sums of certain PAHs).

Environmental Quality Standards (EQS) have been used where available for Priority Substances and Priority Hazardous Substances set at a European level:

- Priority Substances Directive 2013/39/EU;
- Amending 2008/105 and 2000/118/EC

In addition, EQS values derived for Specific Pollutants have been used as presented in The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

For assessing risks to potable water abstraction supplies, UK Drinking Water Standards presented in the Water Supply (Water Quality) Regulations 2000 (SI/2000/3184) (as amended) have been applied.

In selecting a GAC for a particular Site, Tier Environmental considers the following factors:

- Current use/function of the groundwater (e.g. drinking water, irrigation water, industrial use, base-flow to rivers and streams);
- Plausible, proposed or planned future uses of the water and nearby waters;
- Sensitivity of the critical receptor (e.g. human health, aquatic life); and,
- Requirements to trigger action under the legal context

In accordance with Part 2A:

"in deciding whether pollution of controlled waters is occurring, the assessor will have regard to all of the water quality standards that are relevant to the specific site and make a judgment against the most stringent of those relevant standards"

Should the Level 1 or 2 assessments indicate threshold levels to be exceeded, then there are three alternative ways in which to proceed:

- To devise suitable remedial solutions;
- To carry out more investigation, sampling and analysis;
- To conduct a site-specific Detailed Quantitative Risk Assessment (DQRA) to whether or not the soil materials are suitable for their site-specific intended use or to devise a site-specific clean-up level.

Detailed Quantitative Risk Assessment (DQRA)

The decision to carry out a DQRA will be informed by the initial qualitative and generic assessment. The scope of any such assessment will be accurately defined by the outcomes of the former two stages. The robust CSM will be sufficiently refined by this stage that only certain contaminants of concern, certain pathways and certain receptors will require further assessment.

Additional site specific data is normally required for this stage of assessment, as explained above, more processes that are capable of affecting contaminant concentrations are considered (such as dilution and attenuation).

Remediation criteria derived will therefore be specific to each site and will be based on a detailed assessment of the potential impact at the identified receptor or compliance point. A greater level of confidence can be placed on the predicted impact on the compliance point following a DQRA.

Hazardous and Non Hazardous Substances

The Groundwater (England and Wales) Regulations 2009 control the disposal to the hydrogeological environment of potentially polluting substances which are divided into Hazardous Substances and Non-hazardous Contaminants (this roughly approximates to the former List 1 and List 2 substances).

Hazardous Substances are the most damaging and toxic and must be prevented from directly or indirectly entering the groundwater environment. Hazardous Substances include mineral oils and hydrocarbons, pesticides, biocides, herbicides, solvents and some metals. Discharge of Hazardous Substances to Controlled Waters must be prevented.

Non-hazardous Pollutants are any contaminants other than Hazardous Substances. Non-hazardous Pollutants are potentially toxic but are less harmful than Hazardous Substances, but their direct discharge to groundwater is generally not permitted and any indirect discharge to groundwater must be limited and be controlled by technical precautions in order to prevent pollution. Non-hazardous Pollutants include ammonia and nitrites, many metals and fluorides.

APPENDIX M - ASSESSMENT CRITERIA APPLIED FOR GROUND GAS

Ground Gas Monitoring Methodology

Monitoring for the following is generally performed as part of ground gas assessment:

- Methane (CH₄): an odourless, flammable gas. Mixtures of methane with air containing between 5 and 15% v/v methane are explosive.
- Carbon dioxide (CO₂): an asphyxiant at elevated concentrations. Denser than air, it can accumulate in excavations, and within low points inside buildings
- Oxygen (O₂): important in the assessment of the potential formation of explosive mixtures with methane. Monitoring normally measures both methane and oxygen concentrations in ground gas to derive an indication of the risk of explosive mixture formation, expressed as a percentage of the Lower Explosive Limit (LEL). Low concentrations of oxygen in ground gas can also exacerbate the risk of CO₂ asphyxiation.
- Hydrogen sulphide (H₂S): odorous and toxic, capable of forming flammable mixtures with air.

In addition, depending on the Conceptual Site Model, monitoring may also include for measurements of Volatile Organic Compounds (VOCs); present as chemical contaminants of soil and sometimes also biologically produced in low concentrations.

Assessment of methane (CH₄) and carbon dioxide (CO₂)

Methane and carbon dioxide can arise from natural geological sources, mine workings, rotting organic matter (peat, landfilled materials, etc.) and/or contaminant biodegradation. Assessment of ground gas composition and flows is therefore an essential part of site assessment. The need to adequately address potential risks from ground gas on development sites is therefore required under the planning regime.

In order to appropriately assess the site risks, the Construction Industry Research and Information Association (CIRIA) and others have issued several guidance documents on landfill and ground gas that are intended to provide advice on how to investigate and deal with gas contaminated ground with respect to development. These are:

- Report 149: 'Protecting Development from Methane' (CIRIA, 1995a)
- Report 150: 'Methane Investigation Strategies' (CIRIA, 1995b)
- Report 151: 'Interpreting Measurement of Gas in the Ground' (CIRIA, 1995c)
- Report 152: 'Risk Assessment for Methane and Other Gases from the Ground' (CIRIA, 1995d)

More recent guidance has been published to update the documents detailed above to collaborate and promote industry 'good practice'. These are:

- CIRIA Report 665: 'Assessing risks posed by hazardous ground gases to buildings (CIRIA, 2008)
- NHBC: 'Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present' (NHBC, 2007)
- BS8485:201+A1:2019: Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings (BSI Group, 2019)
- BS8576:2013: Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs) (BSI Group, 2013)
- SoBRA Report Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater (Feb 2017)
- CL:AIRE Technical Bulletin TB17 Ground Gas Monitoring and 'Worst Case' Conditions (CL:AIRE Aug 2018)

The earlier CIRIA 149 approach is now considered to be too conservative. A more realistic measure of the risk posed by methane and CO₂ in ground gas can be established by determining an appropriate Gas Screening Value (GSV), using the methods described in the NHBC and CIRIA 659 documents. These values are based upon earlier work undertaken by Wilson and Card (1999).

GSVs are calculated by multiplying the borehole flow rate (l/hr) by the percentage (% v/v) concentration in the gas stream of the specific component, i.e.:

$$\text{GSV} = (\text{Concentration} / 100) \times \text{Flow rate.}$$

A risk-based methodology for deriving GSVs is defined for two situations (designated A and B), which are adequate for the great majority of site cases (as per CIRIA 665 Section 8.3):

- **Situation A:** Any development other than Situation B, e.g. factories, shops, commercial, warehouses, schools, cinemas, sports centres, stadiums, high rise housing, housing with basements, etc
- **Situation B:** Low rise building with minimum ventilated under floor void (min 150 mm)

Under Situation A, classification of the scope of protection required is determined from the site GSV, summarised in Table 1. For Situation B, GSVs derived are used in a 'Traffic Light' classification (summarised in Table 2) which determines the required level and scope of protection measures. Tables 1 and 2 are summaries only: the details provided in the body text, footnotes and appendices of the above-referenced documents should be read in conjunction with the results to determine the appropriate level of protection.

For conservatism, Tier Environmental **initially** uses the maximum concentration and gas flow rate of methane detected in any borehole during all of the monitoring visits in deriving recommendations on appropriate protection measures. This represents the worst-case risk of forming an explosive mixtures. For carbon dioxide, steady state concentrations and flow data are applied, as these determine the development of an asphyxiating mixture. All values are selected whether or not they occurred in the same borehole or during the same monitoring event.

Exceedances of the maximum concentrations used in a Tier 1 Gas Risk Assessment can be tolerated, when the conceptual site model indicates that it is safe to do so. However, appropriately derived GSV values must never be exceeded - where site-specific circumstances permit the derivation of alternative GSVs according to the defined conceptual model, then the appropriate GSV values should be applied.

Table 1. GSV Categories Defined for Situation A (Summarised from CIRIA Report 665).

Risk classification	GSV (CH ₄ or CO ₂ ; l/hr)	Additional factors	Characteristic Situation
Very low	<0.07	Typically methane <=1% and/or CO ₂ <=5%, otherwise consider increase to Low Risk.	1
Low	<0.7	Typically borehole ground gas flow rate <=70 l/hr; otherwise consider increase to Moderate Risk.	2
Moderate	<3.5	---	3
Moderate to high	<15	QRA required to evaluate scope of remediation measures.	4
High	<70	---	5
Very high	>70	---	6

Table 2. GSV Categories Defined for Situation B (Summarised from NHBC, 2007).

Methane		CO ₂		"Traffic light" classification
Typical max. conc. (% v/v)	GSV (l/hr)	Typical max. conc. (% v/v)	GSV (l/hr)	
				Green
1	0.13	5	0.78	Amber 1
5	0.63	10	1.60	
				Amber 2
20	1.60	30	3.10	Red

Assessment of hydrogen sulphide (H₂S)

H₂S is toxic and highly odorous ("rotten eggs") gas. It is often a minor component within mine gases, in ground gas within or overlying strata rich in pyrites or other sulphide-rich ores, and in most natural gas fields.

H₂S can be generated biologically in significant concentrations by the decomposition by sulphate-reducing bacteria of natural or anthropogenic organic matter under oxygen-free conditions. Its potential generation will be greater in environments containing elevated sulphate concentrations (including sea water). H₂S is therefore common within the gas arising from estuarine and marine sediments, pond sediment, stagnant water bodies, bogs and marshlands and landfilled waste, for example.

It must be noted that H₂S normally occurs together with other potentially hazardous ground gases. The measures adopted for protection against these will prove equally protective against H₂S.

There are no standards by which H₂S concentrations in ground gas can be assessed directly. Therefore, the significance of measured H₂S concentrations in ground gas must be evaluated on a case-by-case basis, taking into account the measured concentrations of other components and the specific conceptual site and exposure models. To assist in this process, the following standards and guidance may be applied.

General protection of land users

There are no UK air quality standards for general exposure to H₂S. The World Health Organisation has derived ambient air quality standards (WHO, 2000) for this gas, which may be used to inform risk assessment and decision-making:

The 24 hour average exposure guideline value for ambient air: 0.15 mg/m³ (0.1 ppmv, approx.; this was derived by the application of a 100x safety factor to the LOAEL for long-term exposure).

This is significantly above the odour threshold, which is typically around 0.01 mg/m³. To avoid substantial nuisance odour complaints, WHO (2000) recommends that the 30 minute average H₂S concentration in ambient air should not exceed: 0.007 mg/m³ (0.005 ppmv, approx.).

Occupational exposures

For occupational exposure, the HSE (2005) limits for H₂S are applicable:

- 8 hour time weighted average occupational exposure limit: 5 ppmv (7 mg/m³).
- Short-term exposure limit (15 minute reference period): 10 ppmv (14 mg/m³).

VOC Data Collection, Sampling and Assessment

BS8576 Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs).

Volatile organic compounds (VOCs) include, for example, halogenated hydrocarbons such as trichloroethene, non-halogenated hydrocarbons such as benzene, and organosulfur compounds such as thiols (mercaptans). They can occur as a component of ground gas originating from historically contaminated ground, spills and leaks from industry, commercial or residential properties (e.g. from pipelines, storage facilities, and at the point of use or dispensing), land-filled wastes and from naturally occurring sources.

The migration of VOCs in ground gas can be via three primary mechanisms:

- diffusive flow (movement of constituent along a concentration gradient);
- advective flow (movement of constituent due to motion of a transporting fluid);
- dispersion (transport resulting from local variations in fluid flow, e.g. due to friction effects in the matrix).

The choice of sampling and monitoring techniques should be based upon the conceptual model and be designed to achieve the objectives of the investigation, bearing in mind the requirements of any subsequent analytical procedures and the need to provide relevant data of sufficient quantity and quality. Consideration should also be given to the nature of ground under investigation, as well as the nature and distribution of contamination, the geology and the hydrogeology. Every effort should be made to avoid cross-contamination and at no point should underlying aquifers be put at risk.

Where the response zone extends below the water table, gas present in the groundwater will tend to produce an equilibrium concentration in the well headspace. This applies to both permanent gases and VOCs but can be particularly misleading in the latter case. Testing for dissolved gases in groundwater is useful to help interpret monitoring results in such a situation. Similarly, any VOCs in a floating non-aqueous hydrocarbon layer will produce an equilibrium concentration in the well headspace.

The monitoring period and frequency of monitoring for VOCs in ground gases should be developed on a site-specific basis from the conceptual site model and investigation data quality objectives.

Ground gas samples can be collected from the unsaturated zone adjacent to, or above, the known or suspected source of VOCs in ground gas through installation of a ground gas monitoring point in the unsaturated zone (see 10.2), and from a near-surface location beneath hardstanding or a floor or foundation slab through installation of a near- or sub-slab monitoring point (see 10.3). For monitoring of VOCs in ground gas the monitoring well should be installed into unsaturated ground to allow sampling for VOCs to take place. The borehole should not be progressed below the groundwater table or the surface of any floating non-aqueous layer. The borehole should be progressed to the target sampling depth within the unsaturated zone. Full details can be found in BS8576 Section 10.2 onwards.

Assessment of VOC concentrations have been made for limited number of VOCs by SoBRA with the Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater in Feb 2017.

The assessment of VOC concentrations is not covered by above-referenced reports. These data can be used to inform the human health risk assessment for site occupants but should not be relied upon to assess human health risk due to uncertainties in the ground gas flow regime, variability in the (generally low) contaminant concentrations measured and inaccuracies in the concentrations measured by PID instruments.

Data on the VOC concentration in ground gas can also help inform potential occupational exposure risks to construction and similar workers. For this purpose, the measured values can be compared to the relevant occupational exposure limit (OEL) for the contaminant(s) of concern, as given in HSE (2005). In cases of doubt as to the identity of the organic contaminants within the ground gas or when these are present as a complex mixture, then the 8 hour time-weighted average (TWA) exposure limit for benzene (1 ppmv) will be applied for screening purposes. This is a reasonably conservative approach since the OEL for benzene is lower than that for the great majority of organic contaminants commonly encountered in soil and groundwater at contaminated sites

APPENDIX N - CHEMICAL AND GEOTECHNICAL TEST SAMPLING

Samples were selected by a representative of Tier Environmental during the site investigation works in accordance with the sampling approach described elsewhere in this report.

Samples for geotechnical and related testing

Bulk samples were placed within robust heavy duty plastic bags and sealed, together with small disturbed samples, within airtight 1 litre plastic containers.

100 mm diameter ‘undisturbed’ samples (“U100 samples”) were obtained where possible from cable percussive and large diameter window sample boreholes within cohesive materials.

Samples for chemical analysis

All samples for chemical analysis were placed into clean new containers as summarised in Table 1. Unless explicitly stated elsewhere in this report, no preservatives were used to eliminate the risk that preservatives cause contaminant dissolution or analytical interference. Containers for VOC analysis were fully filled to exclude headspace.

Soil samples were dispensed as soon as possible after collection using reusable stainless steel spatulas, trowels or similar implements.

Ground water samples were collected from boreholes using single-use Teflon bailers or dedicated Waterra tubing with foot valves, except as otherwise noted within this report. Caution was taken to avoid excessive agitation during collection

New disposable gloves were used by the engineer for the collection of each sample.

Reusable equipment was washed down with distilled or deionised water between samples, except where tarry or similarly sticky materials were present. In such cases specific cleaning procedures were adopted as specifically described elsewhere in this report.

All sub-samples taken for chemical analysis were placed into refrigerators or cool boxes containing frozen ice packs immediately after aliquoting. All samples were transferred in cool boxes containing frozen ice packs to the relevant UKAS/MCERTS accredited laboratory as soon as possible. Recommended maximum holding times before analysis are summarised in Table 1.

Table 1. Sample containers and holding times.

Analysis	Container/special requirements	Max. holding time at 4°C before analysis
Soil and sediment samples		
VOCs	30-60 g brown or green glass jar with VOC-resistant cap and inert cap liner. Must be fully filled.	14 days
TPHCWG	30-60 g brown or green glass jar with VOC-resistant cap and inert cap liner PLUS 250-500 g brown or green glass jar with unwaxed cap liner. ¹ The former must be fully filled.	14 days
All other organics	250-500 g brown or green glass jar with unwaxed cap liner.	7 days
Inorganics	Air-tight 0.5-2.0 kg plastic container (250-500 g brown or green glass jar may also be used).	14 days ²
Water samples		
VOCs	40-50 ml glass vial with VOC resistant screw cap and inert liner. Must be fully filled.	14 days
TPHCWG	40-50 ml glass vial with VOC resistant screw cap and inert liner PLUS 500-1000 ml brown or green glass bottle with screw cap and unwaxed liner. ¹ The former must be fully filled, the latter should be filled if possible.	14 days
All other organics	500-1000 ml brown or green glass bottle with screw cap. Fill if possible.	7 days
Inorganics	500-1000 ml translucent or opaque screw cap plastic <i>or</i> brown or green glass bottles. Fill if possible.	14 days ³

¹ The smaller vessel is used for analysis of the volatile components within the TPH mixture and the larger one is for the non-volatile components.

² 14 days is set as a reasonable limit for all routine analyses of soil for those inorganic components vulnerable to chemical and/or biological breakdown. Samples for sulphate analysis are vulnerable to biological sulphate-reduction but can be held for up to 28 days. For total metals, a holding period of up to 6 months is acceptable.

³ 14 days applies for all routine analyses of most inorganic components that may be vulnerable to chemical and/or biological reactions. In the specific cases of sulphide, nitrite, nitrate and phosphate analyses, storage time must not exceed 48 hours. For total metals, a holding time of up to 6 months is acceptable.

Tier Environmental standard analytical suites

The analyses included with Tier Environmental's standard analytical suites for soil, soil leachate and water samples are presented in Table 2. Other individual analyses were specified as described within this report.

Table 2. Tier Environmental Standard Analytical Suites.

Parameter	Sample type					
	Soil		Leachate ¹		Water	
		LoD ² (mg/kg or as stated)		LoD (µg/l or as stated)		LoD (µg/l or as stated)
Metals and metalloids						
Arsenic	✓	1	✓	10	✓	10
Cadmium	✓	1	✓	5	✓	5
Chromium	✓	1	✓	5	✓	5
Mercury	✓	1	✓	1	✓	1
Lead	✓	1	✓	4	✓	4
Selenium	✓	2	✓	10	✓	10
Copper	✓	1	✓	1	✓	1
Nickel	✓	1	✓	50	✓	50
Zinc	✓	1	✓	8	✓	8
Other inorganics						
Ammonia (as NH ₄ -N)					✓	15
Total sulphate	✓	100			✓	50 mg/l
Water-soluble sulphate	✓	0.1 g/l				
Hardness (as CaCO ₃)					✓	1 mg/l
Organics						
Monohydric phenol	✓	1	✓	0.5	✓	0.5
Speciated PAHs (USEPA 16)	✓	0.1	✓	0.01	✓	0.01
Total Organic Carbon	✓	0.1 wt%				
Others						
Electrical conductivity					✓	NA
pH	✓	NA	✓	NA	✓	NA

NA - Not applicable

¹ Leachate preparation according to NRA (1994), 10:1 liquid to solid ratio.

² The table presents the desired limit of detection for the analysis. Higher LoDs may be reported on analytical data sheets due to interference between analytes within specific samples or if the laboratory needed to dilute samples to achieve results within the calibrated range for that instrument.

Analytical QA procedures

Introduction

Quality Assurance (QA) is a system of review and audit that assesses the effectiveness of that product and assures the producer and user that defined standards of quality have been met. If we consider site investigation and chemical analysis, QA is the management system that ensures these measures are in place and working as intended.

QA within the laboratory form part of relevant certification programmes (such as UKAS and MCERTS) and, indeed, will be undertaken in some form by any reputable analyst, whether for a certified technique or not. Laboratory QA/QC is beyond the control of Tier Environmental and will not be considered further in this document, although the relevant laboratory documentation can be obtained upon request. QA must also form part of the design and execution of a site investigation.

Two parameters often used to assess measurement quality objectives are bias and precision. Bias is a systematic deviation in the data. For example, a positive bias (concentrations higher than in reality) would be introduced if sampling bottles were a source of the analyte and this fact was unknown. Precision is the variation in the measurements around a central 'expected' value. This could be due both to real variability in the environmental medium being measured and random errors in the analytical process. Both precision and bias can be assessed by the use of appropriate blanks and replicates within the site investigation programme.

The objectives of the QA activities undertaken in this present site investigation were to recognise and quantify systematic bias within the analytical dataset and to obtain an indication of precision. In environmental samples, much of the observed variability is likely to result from heterogeneity in the sampled medium, particularly for soil and sediment samples.

Such QA practice within the sampling programme is required by current guidance (e.g., Environment Agency report P5-065/TR (2000); Environment Agency LFTGN02 (2002); BS 10175:2001).

Alternative QA procedures to the generic approach presented in this appendix may be specified for a project, provided case-specific justification is given.

QA checking procedure (data validation)

The responsible Engineer and Project Reviewer are required to undertake data validation and provide comment on data quality within the main body of the report(s) issued, when noteworthy matters arise. This QA checking should involve:

Confirming that data reported by the laboratory have achieved the standards specified by the certification scheme (MCERTS or UKAS). This will be indicated on the analytical certificates issued by the laboratory.

Checking that the limit of detection (LoD) and limit of quantification (LoQ) achieved by the laboratory for an individual analyte is appropriate for the purposes of the report. LoD and LoQ will vary dependent upon analyte concentrations, sample matrix properties and interference from co-contaminants.

A check that the reported range of concentrations are reasonable for the analyte. For example, the dissolved concentration of an analyte in a water sample should not exceed saturation. If it does, then this merits further consideration (e.g., was colloidal organic matter or other solid-phase material present or could there have been unobserved free-phase organic liquid?) and explicit comment. At its simplest, there may be a unit error.

Where analysis involves reporting of Tentatively Identified Compounds (TICs; normally by mass spectrometry), the reviewers should check that these might reasonably be expected at the site under consideration. The uncertainties in identification by MS mean that it is not uncommon that TICs are incorrectly assigned. In cases of doubt, the analytical laboratory can re-check the raw data and confirm.

A review of the analytical precision by comparing data obtained for duplicate samples. There is no absolute threshold - variability is entirely dependent upon the sample matrix and manner in which the contaminant has entered the sample. Variability that cannot reasonably be assigned to such factors (for example a very high apparent variability in data for sediment-free water samples) should be reviewed with the laboratory. Variability that is attributable to the sample matrix can nevertheless provide important pointers to improve understanding of contaminant transport pathways and the risks posed by pollutant linkages (e.g., soil heterogeneity, the association of contamination with particular soil fractions, the presence of residual NAPL within soil pores or the role of suspended sediments in contaminant transport).

Confirmation that no errors have been introduced by data transcription, unit conversion or corrections between preliminary and certificates issued by the laboratory. The reviewer should audit a proportion (typically 5-10%) of all data from the original (final) certificates of analysis through to the equivalent values in the report for those specific samples.

It is important to consult the analytical laboratory if apparent QA issues arise. Many apparent concerns can be adequately resolved on the basis of revisiting the raw analytical data or by obtaining a better understanding of the inherent limitations of the analysis for a particular matrix or sample type.

APPENDIX O - COMPLYING WITH CONTROL OF ASBESTOS REGULATIONS 2012

Complying with Control of Asbestos Regulations (CAR): Risk Assessments, Licensing and Training

This appendix outlines CAR risk assessments and where they should be applied in relation to assessing and remediating brownfield sites. The information below details the different classifications of work with asbestos under CAR, summarises the legal requirements for asbestos awareness training for all involved in the investigation and management of asbestos containing soil (ACS), and details the potential requirements for suitable proficiency training relating specifically to ACS.

CAR RISK ASSESSMENTS

A CAR Risk Assessment is required for any work which may expose employees to asbestos. It is recommended that a precautionary approach is adopted if there is any doubt about risks associated with asbestos.

There are three main activities for potential asbestos exposure during work on brownfield sites:

- Site reconnaissance visits;
- Site investigation works; and
- Site remediation.

CAR risk assessments are needed at each stage but may be incorporated during the site investigation stage into the overarching health and safety risk assessments.

The CAR risk assessment must:

- Identify the type of asbestos to which employees are liable to be exposed, where possible, or assume it is present in different forms;
- Determine the type and extent of exposures to asbestos that may occur during the work
- Identify the steps to be taken to prevent exposure or reduce it to the lowest level reasonably practicable; and,
- Consider the effects of control measures that have been or will be taken.

The CAR risk assessment should include any information used to inform the risk assessment such as asbestos reports or desk study information. In the event that this information is not available, the assessor should be assumed that all forms of asbestos may be present on Site.

For all investigation and remediation of ACSs, a detailed written work plan should be produced and followed as detailed on the HSE website and in the CAR.

The CAR risk assessments for specific investigations or remediation projects, will determine whether or not work is 'licensable work' (LW), notifiable non-licensable work' (NNLW) or 'non-licensed work' (NLW). In addition, training requirements are also defined by the CAR risk assessment.

Some examples of control measures that apply during site reconnaissance, site investigation works, and site remediation are given below and should be applied depending on the asbestos risks identified for the Site at each stage of investigation:

- Avoiding stirring up dust;
- Cleaning footwear after site works;
- Removing and bagging any overalls for disposal/laundry;
- Respirators and hygiene facilities for high risk sites;
- Segregated welfare units;
- Wetting ground
- Minimising soil disturbances;
- Implementation or retention of capping/break layers;
- Implementation of awareness training;
- Air monitoring;
- Managing stockpiles;
- Area segregation;
- Wheel washing
- Road washing/cleaning

It is important to note that during Site reconnaissance visits, Site investigation works and Site remediation that asbestos should not be considered in isolation and control measures are likely to form part of a wider health and safety precautions.

Respiratory protective equipment (RPE)

RPE is the last line of defence and its requirement would be defined by the CAR risk assessment. HSE (2013b) advises that RPE should have an assigned protection factor of 20 or more for all work with asbestos. In certain instances, full face-piece, positive pressure respirators with a protection factor of 40 are necessary (to EN 12942:1998, TM3).

Suitable types of RPE for most **short** duration non-licensed asbestos work:

- Disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3)
- Half mask respirator (to standard EN140) with P3 filter
- Semi-disposable respirator (to EN405) with P3 filter

These filters are not suitable for people with beards/stubble or for long or continuous use.

LICENSING

CAR defined certain types of activities involving asbestos as 'licensable work' (LW) or as 'notifiable non-licensable work' (NNLW). All other work would be 'non-licensable work' (NLW).

LW is defined as:

- work where exposure is not 'sporadic and low intensity'
- work where the risk assessment cannot demonstrate that the control limits (four hour and 10 minute limits) will not be exceeded
- work on asbestos coating
- work on AIB or insulation where risk assessment is either of first two points above or not of short duration (where short duration is defined for any work liable to disturb asbestos as taking less than two hours per week (including ancillary work) and no one person carries out that work for more than one hour').

NNLW includes work with:

- AIB or asbestos insulation of short duration that is not licensable
- fire-damaged asbestos cement or asbestos cement damaged so as to create significant dust and debris
- asbestos ropes, yarns, woven cloths in poor condition or handling cutting or breaking up the materials
- asbestos papers, felts and cardboard in poor condition, unencapsulated or not bound into another material.

Work with weathered asbestos cement, air monitoring and collecting samples of ACM in buildings would not normally be notifiable.

It is impossible to specify definitively what activities will and will not be licensable. This decision should be made as part of the CAR risk assessment. CAR is not primarily aimed at work with ACSs and there is little published information on airborne asbestos concentrations during work with ACSs. Nevertheless, CAR will require some remediation projects, and occasionally site investigations, to be LW. Investigations on other sites may involve NNLW. The decision as to whether work is LW or NNLW should be made during the CAR risk assessment by those in charge of the brownfield site investigations and remediation projects.

TRAINING REQUIREMENTS

Asbestos health and safety courses are offered by a number of providers in the UK. Training courses that include the problem of identifying ACMs in soil should be undertaken at regular intervals by those involved in the investigation, assessment and management of sites where ACs are known or suspected. It is the role of the employer to identify the level of training required for an employee based on their role, experience and duties. Reference to Regulation 10 of CAR should be referred to for more information on training requirements.

Recognising asbestos within soils is challenging due to the heterogeneity of such soils and the discolouration of asbestos by smeared soil. Specific training for ground workers should include understanding fibre release potential, potential control measures in the field, how to take representative ACSs safely, sample labelling and what analytical tests are available and when they should be implemented.

Health and safety training required under CAR includes asbestos awareness, non-licensable work (including notifiable non-licensable work) and licensable work with asbestos.

In addition to health and safety training, some staff involved in the technical identification on site of ACMs, sampling and analysis may require technical proficiency training (competency training).

Training vs. Competence

HSE (2005) identifies that 'training alone does not make people competent. Training must be consolidated by practical experience so that the person becomes confident, skilful and knowledgeable in practice on the job'. It is critical that ACS surveyors demonstrate competency with details of relevant field experience alongside training and examples of previous works/references.