

COWM TOP, CASTLETON

STAGE 1

Geoenvironmental Appraisal

For: GLP Ltd & Barratt Homes

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CONTENTS

1. Introduction
2. Information Sources
3. Development History and Current Status
4. Site Characterisation
5. Conceptual Model and Risk Assessment
6. Conclusion and Recommendations

DRAWINGS

- D01 Summary Site Layout and Features
- D02 Historical Plan 1851
- D03 Historical Plan 1910-1911
- D04 Historical Plan 1938
- D05 Historical Plan 1956
- D06 Historical Plan 1975-1979
- D07 Historical Plan 1983-1988

APPENDICES

- A. Site Photographs
- B. Envirocheck Report
- C. Ground Stability Report
- D. Coal Authority Report

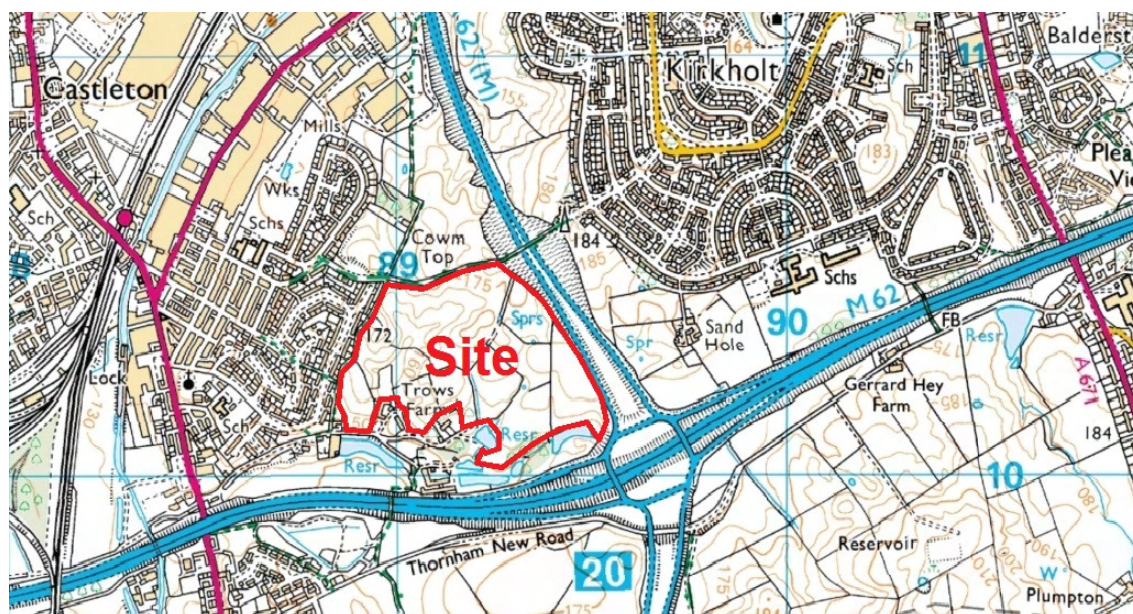
1. Introduction

1.1. Smith Grant LLP (SGP) was instructed by GLP Ltd & Barratt Homes to undertake a Stage 1 Geoenvironmental Appraisal of a parcel of land to the north of Trows Lane Farm, Castleton, Rochdale. Site details are:

Table 1.1: Site details

Address	Land to north of Trows Farm, Trows Lane, Castleton, OL11 2UF
National Grid Reference	389188, 410262
Local Authority	Rochdale Borough Council
Site Area	Approximately 20 Ha
Current Nature of Site	Open fields use for grazing
Site Access	Off Trows Lane via Trows Farm from south or Cripple Gate Lane from north
Proposed use	Residential development

Figure 1.1: Site Location



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1.2. This report has been produced to identify potential constraints to redevelopment associated with ground conditions at the site and within the surrounding environs. The report describes the findings of Stage 1 Ground Contamination Assessment (Desk Study) and site inspection from external vantage points undertaken by SGP to identify the previous and current uses of the site and surrounding area and the potential contaminants that may be present. The report methodology follows the framework described in the EA / DEFRA Contaminated Land Report 11: 'Model Procedures for the Management of Land Contamination 2004'.

- 1.3. This report also considers potential constraints to redevelopment resulting from physical ground conditions and stability. The assessment relies on information on likely ground conditions provided by various third parties, as no intrusive works (trial pits, boreholes) or geotechnical testing has been carried out.

- 1.4. The assessment comprises a review of readily available information on the environmental setting and the historical development of the site and surrounding land, along with a limited site inspection. Given constraints relating to the timescale available it has not been possible to carry out consultations with third parties such as the Local Authority. This report contains a qualitative risk assessment and where appropriate makes recommendations for further investigations appropriate to the current use and future development.

2. Information Sources

2.1. The principle sources of information consulted in the preparation of this report include:

reference and date	author and source	purpose and information content
Topography, geology, hydrogeology and hydrology		
Explorer Sheet 277: Manchester & Salford 2007	Ordnance Survey (OS), Explorer Map, 1:25,000	general mapping information including topography, ground features, rights of way, communications, water features, etc
http://mapapps.bgs.ac.uk/geologyofbritain/home.html 2015	British Geological Survey (BGS)	distribution of geological units at surface and depth and borehole database records
http://mapapps.bgs.ac.uk/geologyofbritain/home.html?mode=boreholes 2015	British Geological Survey (BGS)	Scanned borehole logs
77317590_1_1 2015	Landmark Information Group	Information relevant to ground stability hazards including mining and natural cavities data, historical land use, ground stability data and ground movement
51001057857001 2015	The Coal Authority	Information and past and present underground, shallow, and open cast mining, locations of mine entries, coal mining subsidence claims, and mine gas emissions
http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&language=e 2014	Environment Agency	Aquifer designations, groundwater Source Protection Zones and details of abstractions
HPA-RPD-033: Indicative Radon Atlas of England and Wales 2007	Health Protection Agency	mapping defining radon affected areas in England & Wales

reference and date	author and source	purpose and information content
Historical data		
77317590_1_1 2015	Landmark Information Group	historical mapping at various scales scale from 1849 onwards
Aerial/satellite photography 2000-2013	Various sources	Historical images of site from 2003 & 2006
http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&language=e 2014	Environment Agency	Historical landfills
Environmental Sensitivity		
77317590_1_1 2015	Landmark Information Group	Information on Environment Agency and hydrogeological records, waste, hazardous substances, geology , industrial land use and sensitive land uses
http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&language=e 2016	Natural England	general information on watercourses, groundwater source protection zones and vulnerability, pollution and landfills
www.magic.gov.uk 2016	DEFRA	web-based interactive map containing information on nature conservation areas

2.2. Previous Site Investigations and Consultations

2.2.1. SGP has used a sketch plan of the site boundary provide by GLP Ltd & Barratt Homes. for the purposes of defining the site boundary; all referenced features in relation to the site boundary (including those in the attached Envirocheck and Coal Authority search reports) are therefore approximate. Attached drawings are indicative only and should not be scaled or used for design purposes. Drawing D01 shows the site features as shown on the most recent OS mapping available at the time of writing.

2.2.2. SGP is unaware of any site investigations having been undertaken at the site. SGP has not carried out any consultations with the Local Authority, the Animal & Plant Health Agency, Environment Agency or other regulatory bodies.

2.2.3. SGP carried out a brief consultation with the current site owner, who advised that the site had remained farmland throughout its' recent history as far as they were aware, and had not been subject to potentially contaminative land uses or waste disposal.

2.2.4. SGP has requested plans from the relevant utility providers regarding the major energy infrastructure observed on the site but has not received a response at the time of writing or carried out a comprehensive utility/services search including water supplies, drainage or communications equipment.

2.3. Site Inspection

2.3.1. A preliminary inspection of the site was carried out by Ben Thomas (Partner) of SGP on the 21st December 2015. The inspection was limited to areas visible from viewpoints around the west and north site boundaries.

3. Development History and Current Status

3.1. Historical Uses

3.1.1. A summary of significant historical features, developments, and land uses identified is provided in Table 1 below.

Table 1: Summary of Relevant Development History

Map	Site	Surrounds
1851 1:10,560 Drawing D02	The site is divided into several fields and a lane/pathway crosses from a central part of the southern boundary to a building in the north east corner of the site annotated 'Grange Barn'. In the southwest of the site it appears that a building straddles the southern boundary. Lower Trows Lane runs along the inside of the western boundary and Cripple Gate Lane runs along the inside of the northern boundary.	Fields surround the site to the north, west, east and southeast of the site. To the south west of the site 'Trows' and 'Higher Trows' are annotated indicating the presence of a water body. A lane also runs parallel to the western part of the southern border beyond which is the presence of a small collection of buildings approximately 15m from the site boundary. Bordering the centre of the southern boundary is a small collection of buildings and a pond beyond which, 40m from the site, is 'Grange Mill Print Works'.
1890-93 1:2,500	The building which straddles the southern boundary appears to be part of 'Trows Farm'.	The buildings mapped previously which lie adjacent to the southern boundary are annotated 'Trows Farm' and 'The Grange' appearing to be either residential properties or farmhouses. 'Trows House' is now indicated bordering the southwest of the site. Beyond 'Trows Lane' directly to the south of the site a reservoir is mapped. Further reservoirs and 'Mill pond' lie in close proximity to the centre and eastern parts of the southern boundary, bordering the site in some locations. The buildings 15m to the southwest of the site appear to be part of 'Castleton Print Works' which also appear to incorporate the former 'Grange Mill Print Works'. Within the vicinity of these buildings a tank is annotated 120m to the southwest of the site. An 'Old Gravel Pit' is mapped 40m to the northwest of the site.

Map	Site	Surrounds
1894 1:10,560	No significant changes to site.	No significant changes to site.
1910 1:2,500	A feature that appears to be a pond is situated near the northern boundary in the centre of the site.	The 'Castleton Print Works' are now annotated as 'disused'. The circular feature bordering the south of the site is now labelled as a reservoir. The reservoirs to the south of the site appear to be fed by two streams coming from the east and south east. The reservoirs then appear to discharge westwards via a stream along which, 140m to the southwest of the site, is a building labelled 'Filter Tanks'. The stream then flows towards Rochdale Canal. The 'Old Gravel Pit' to the northwest is now mapped as 'Old Sand Pit' and two other 'Old Sand Pits' are now present between 80 and 160m west of the site boundary. The tank 120m to the southwest of the site is no longer annotated. A tank is indicated 140m to the north east of the site just south of the property 'Top o' th' Hill'.
1910-1911 1:10,560 Drawing D03	No significant changes to site.	No significant changes to surrounds.
1929-1930 1:2,500	The property previously annotated 'Grange Barn' in the north east corner has been demolished. A small unidentified building is now present in the north west corner.	The 'Filter Tanks' are now labelled as 'Disused'. 40m south and 80m southwest of the site, to the east and south of the former 'Castleton Works' building tanks are indicated. To the west of the site two features which appear to be ponds are indicated 100m and 140m from the site boundary. A spring is mapped 140m to the east of the site. A sand pit is annotated 180m south of the site.
1931-32 1:10,560	No significant changes to site.	No significant changes to surrounds.
1937 1:10,560 1938 1:10,560	No significant changes to site.	The buildings 40m south of the site, formerly 'Grange Mill Print Works', are now referred to as 'Trows Upper Works (Engineering)' with an associated chimney. 200m to the southwest of the site a large area

Map	Site	Surrounds
		annotated 'Sand & Gravel Pits' is present. A second tank associated with the property 'Top o' th' Hill' is indicated 140m to the north east of the site. Residential development has expanded to the southwest of the site.
1938 1:10,560 Drawing D04	No significant changes to site.	No significant changes to surrounds.
1956 1:10,000 Drawing D05	No significant changes to site.	The 'Castleton Works' are no longer annotated as 'disused'. Markings indicative of significant residential development to the northeast are present.
1956 1:2,500	The pond feature to the north of the site appears to have been in-filled. Three springs are now annotated in the eastern part of the site one of which is situated in marshy ground towards the northeast of the site. An electricity pylon is indicated along the western boundary.	The reservoir directly to the southeast of the site appears to have shrunk with increased vegetation indicated in the area. The 'Castleton Works' buildings to the southwest of the site are labelled as 'Trows Die-casting Works' and 'Sheet Metal Works' and incorporates an electric sub-station. The tanks indicated to the east of these buildings in previous maps are now annotated as 'Old Tanks'. The 'Filter Tanks' building is now annotated as 'Engineering Works'. The 'Sand & Gravel Pits' to the southwest of the site have expanded and now includes a reservoir. Tanks are no longer indicated surrounding 'Top o' th' Hill'. A spring is mapped 60m to the east of the site. Significant residential development has occurred to the northeast and northwest of the site.
1965-1968 1:10,000	No significant changes to site.	Residential development has expanded to the northeast of the site.
1970 1:2,500 (limited mapping south of site)	No significant changes to site.	No significant changes to surrounds.
1975	Embankments are present along the eastern	A dual carriageway and junction sliproads

Map	Site	Surrounds
1:1,250 (limited mapping southeast of site)	boundary which lead to a road adjacent to the site.	borders the site to the east, in a cutting. To the south of the site another motorway with embankments is present running east to west. This road has been built over part of the 'Sand and Gravel Pits' noted to the southwest of the site in previous mapping. Residential development has expanded to the west and southwest of the site.
1975-1979 1:10,000 Drawing D06	No significant changes to site.	The sand pit annotated 180m south of the site beyond Thornham New Road in previous mapping is now described as 'Active Workings' and is surrounded by a number of ponds.
1983-1988 1:10,000 (limited mapping northwest of site) Drawing D07	No significant changes to site.	The 'Active Workings' to the south are now described as 'Disused Workings'. What remained of the 'Sand and Gravel Pits' to the southwest of the site appears to have been infilled and no development appears to have taken place over this area.
1992 1:1,250	The building which straddled the southern boundary in previous mapping no longer appears to encroach onto the site however another structure forming part of 'Trows Farm' does appear to be present.	'Trows Die-casting Works', the 'Sheet Metal Works' and the 'Engineering Works' to the south and southwest of the site are now generically described as 'Works' and 'Upper Works'. Residential development has expanded to the west of the site with properties lying adjacent to the western boundary.
1990-1993 1:10,000 (limited mapping south and northeast of site)	No significant changes to site.	No significant changes to surrounds.
2000 Satellite Imagery	The structure forming part of 'Trows Farm' in the southwest corner of the site no longer appears to be present.	No significant changes to surrounds.
2003 Satellite Imagery	No significant changes to site.	No significant changes to surrounds.
2005 Satellite Imagery	No significant changes to site.	No significant changes to surrounds.

Map	Site	Surrounds
2006 1:10,000	No significant changes to site.	No significant changes to surrounds.
2013 Satellite Imagery	No significant changes to site.	Two large unidentified buildings are now present to the north at approximate distances of 120m and 200m from the site boundary.
2015 1:10,000	No significant changes to site.	No significant changes to surrounds.

3.1.2. Whilst there are some gaps in the historical map coverage it is considered that the available information provides adequate coverage of the development history of the site and its' immediate surroundings.

3.2. Current land condition

3.2.1. A summary of existing significant features noted during SGP's inspection and examination of contemporary records is presented below.

Table 3.2: Present Land Condition

Site Description	The site currently comprises open fields, divided by stock fencing. The fields appear to be in use for grazing.
Access	Access to the various areas is gained from Trows Farm off Trows Lane
Boundaries	North: Stock fencing and hedgerows onto a public footpath/track known as Cripple Gate Lane. East: Stock fencing onto top of cutting for A627(M) road. South: Stock fencing and hedgerows onto Trows Lane or properties/land (Trows House, Trows Farm, The Grange) off Trows Lane. West: Stock fencing and hedgerows onto a public footpath to rear of adjacent housing
Drainage	No surface water was observed on the site during the inspection which was carried out in winter during a period of wet weather. A number of reservoirs are present to the south of the site over Trows Lane, occupying the base of a valley which appears to form the upper reaches, or a tributary of Trub Brook. Although not seen during the inspection from external areas, a number of springs, and issues are mapped as arising on the site which appear to flow to the south to the ponds and reservoirs.
Rights of Way	SGP did not identify any public right of way crossing the site, although the site is readily assessable from the adjacent public footpaths to the west and north.
Structures	The only above ground structures visible or identifiable from contemporary satellite imagery is a dilapidated small building in the northwest corner of the site. The dwellings and outbuildings of Trows House, Trows Farm and the Grange all appear to lie outside the site boundary provided to SGP.

Services and Utilities	SGP noted warning signs and marker posts for a high pressure gas main near the western ends of the southern and northern site boundaries: a number of marker posts are also present within the site which appear to link these two locations, indicating the presence of a high pressure gas pipeline crossing the west of the site. Two overhead electricity lines enter the site from the northeast corner and cross the northeast part of the site although the location where they exit the site to the east or south was not confirmed during the site walkover. Other indicators of utilities crossing the site were not observed, however the survey does not constitute a comprehensive utility services search and other energy, drainage, water supply and communications equipment may be present on the site.
Industrial Land Use	There are no contemporary trade directory entries or indications of industrial use within the site itself. A small commercial estate to the southwest appears to be used for various garage/vehicle repair services and car sales and is associated with four trade directory entries which also include a manufacturer and distributor of floor polishing equipment. Although not listed in the trade directory, the larger industrial premises immediately to the south of the southwest corner of the site is signed as a die casting and metal fabrication works; this facility contains a number of bulk above ground storage tanks, workshops and yards and is subject to of Local Authority Air Pollution Controls. Trows House at the southwest corner of the site is a nursery and Trows Farm and the Grange are farm buildings with residential dwellings, vehicle storage areas and various outbuildings of unknown use.
Surfaces / Vegetation	The large fields which make up the majority of the site areas appear to be grassed with hedgerows and trees internally present at the various field boundaries. Some parts of the site appear to be rough scrub or heath. No invasive species were recorded during the limited site inspection however the survey does not constitute a comprehensive ecological assessment.

3.2.2. Appendix A includes some photographs of the parts of the site visible during the site walkover inspection carried out on the 21st December 2015: only limited parts of the site could be viewed from the external locations accessed.

4. Site Characterisation

4.1. Present land condition

Table 4.1: Environmental Setting

Surrounding Landuse	The site is located immediately west and within 100m (to the north) of two major Roads, the A627(M) and M62 motorways, respectively. In the land between the south of the site and the M62 motorway, a number of buildings, used for farms, dwellings and light industrial use (vehicle repair, manufacturing and metal processing) are present in the base of a valley containing several reservoirs formerly associated with a historical print works. Beyond the motorways is agricultural land, predominantly rough grazing with the residential areas of Balderstone to the northwest. To the north a number of modern warehousing and storage units are present in the Crown Business Park beyond the footpath with further commercial development to the northwest and beyond the residential area of East Castleton which extends to the public footpath bounding the west of the site.
Topography	The site generally slopes down from the highest point at the northeast corner (180m AOD) to the south towards the tributary of Trub Brook and the associated reservoirs in the base of the Valley to the south of Trows Lane (150m AOD). However the site exhibits significant undulations with a series of internal valleys and spurs changing levels locally by up to 20m in the western areas.
Natural Conditions / Geology	The site lies within a large area of glacial sands and gravels extending from Rochdale to the North of Oldham and west to Heywood. Locally the deposits are classified as Hummocky Glacial Terrane comprising moraines and mounds deposited by meltwaters and subject to scouring and erosion to form undulating deposits of variable sediments but dominated by sands and gravels. In the southwest parts of the site glacial till, likely to be dominated by more cohesive (clay) sediments may be present as these outcrop along the southern boundary. The nearest available borehole log immediately to the north of the site adjacent to Cripple Gate Lane (BHSD81SE421), indicates sandy clay forms an significant depth of the superficial deposits, whereas the nearest borehole to the west, around 100m away off Vicarage Road (BHSD81SE333) indicates sand, clay and gravel overlying stiff clays. Bedrock geology is mapped as the Pennine Lower Coal Measures comprising mudstone siltstone and sandstone. Two thicker, named sandstone units are mapped as sub cropping beneath the site, both marked as the Lawrence Rock formation.
Hydrogeology / Groundwater	Soils on the site are of high leaching potential. The underlying superficial deposits are classed as a Secondary A aquifer. These designations reflect the likely presence of permeable strata within the granular sand and gravel deposits mapped on the site. The bedrock underlying the site is classed as a Secondary A Aquifer, of variable permeability. The Coal Measures are probably mainly of low primary permeability, although the thicker sandstone units mapped on the site may contain more mobile groundwater. The site is not within the catchment of a Groundwater Source Protection Zone within an area classed as of Low Groundwater Vulnerability. The nearest recorded ground water abstraction is over 800m from the site.

Hydrology / Drainage	The soils on the site may be seasonally waterlogged; one small area of standing water was observed within a low point in the site and soils around the various springs and issues are likely to be saturated. The site contains two surface watercourses fed by springs or issues, one of which is classed as a Tertiary River. Both of these flow through gully's or valleys in a south-westerly direction across the site exiting through the southern boundary and feeding the ponds, reservoirs and channels in the base of the adjacent valley which form part of a tributary, or the upper reaches of Trub Brook, itself a tributary of the River Irk, and part of the Irwell/Mersey Catchment.
Flood Risk	The EA flood risk map shows the site to be at very low risk (less than 1 in 1,000 annually) from river flooding events. The site has not been designated by the EA as being at risk of flooding from reservoirs: the reservoirs and ponds near the site are all downgradient in the base of the valley below the site to the south. The vast majority of the site is designated as having a very low risk of flooding from surface water (less than 1 in 1,000 annually) however there are two narrow channels associated with the spring-fed surface watercourses present running north-northeast to south-southwest where the risk ranges from a low (1 in 1,000 to 1 in 100 annually) to a high (greater than 1 in 30 annually) risk of flooding from surface water. The higher risk category is restricted to the southern ends of the channels adjacent to the site southern boundary.
Radon	The radon atlas indicates the site is in an area where <1% of dwellings may be at or above the action level. No radon protection measures are necessary in the construction of new dwellings or residences.
Ecology and Conservation	The site is in a Nitrate Vulnerable Zone. The site lies within 100m of an area of Adopted Green Belt. No statutory nature conservation sites, such as SSSIs, SPAs etc have been identified within 250m of the site.
Natural Ground Stability Hazards	The site has been assessed by BGS as being at very low risk or no hazard of collapsible ground, landslide, running sand and shrinking or swelling clay, and with no compressible or dissolution ground hazards. Given the potential variability of the hummocky glacial deposits and the presence of springs and issues on the site, SGP considered there may be some risk of running sands and excavation stability in parts of the site and that the stability of some of the steeper slopes could require assessment where these would lie within or adjacent to any development proposals. It is also possible that cohesive soils may be present at or near the surface near the southern boundary, although these locally have a very low potential for generating shrinking or swelling instability hazards. The site would presumably require significant regrading to provide sensibly level development platforms in any case so the engineering properties of the superficial deposits would require assessment to determine their potential for re-use and the impacts of changes in moisture content and density on ground stability taking into account final development levels.

Mining	The site is in an area unaffected by historical coal mining activity according the Coal Authority as no worked seams have been identified at depths with the potential to influence the site. A number of sand pits are marked on the historical plans of the area, the nearest of which is 45m to the northwest of the northwest corner of the site, with several others indicated at greater distances in excess of 100 to the west, south west and south.
Excavation and Land filling	The development history of the site does not indicate that significant extraction of materials or filling has taken place within the site. No Local Authority information on landfills has been identified and the Environment Agency mapping indicates an active inert landfill (Ashfield Valley) around 500m to the north and the nearest historical landfills (Thornhall Old Road & Newhay Farm) being relatively small and at similar distances to the southeast and southwest. There is evidence of significant earthworks in the surrounding area on the available historical plans; a number of workings, reservoirs and sand pits to the south of the site were backfilled as part of the M62 road construction. A marsh to the northwest may have been infilled to construct the modern industrial estate at the Crown Business Park. The other works to construct the motorways appear to have mainly involved excavations of deep cuttings to the east of the site.
Industrial Land use and Infrastructure	On-site activities appear to have been restricted to agricultural uses of the land. Infrastructure identified within the site are restricted to the high pressure gas pipeline and overhead electricity lines observed during the site walkover, although other utility services could exist. Off-site to the south a large former print works was present, parts of which are now used for vehicle repair, light manufacturing and metal processing. A large, modern industrial estate has been constructed to the north of the site which appears to be mainly used for warehousing and storage. It appears unlikely that either of these would have impacted the site in any way. Major roads exist to the east and south of the site, although these are not immediately adjacent to the potentially developable areas being separated by a large steep cutting slope and the Trows Lane and the adjacent reservoirs and embankment.

4.2. Development Proposals

4.2.1. The site is being considered for residential development. For the purposes of defining future receptors with the potential to be impacted by land contamination it is assumed that most parts of the site could contain residential properties with private gardens, or amenity land with landscaping, public open space and infrastructure to support any of these uses.

4.2.2. It must therefore be assumed that, in addition to the environmentally sensitive receptors already existing on the site and the surrounds, that development, construction and maintenance workers, and future occupants will be introduced to the site, resulting in the creation of exposure pathways which do not currently exist.

4.2.3. It is also assumed that disturbance of the site necessary to prepare the land for redevelopment

could result in the temporary creation of new exposure pathways.

- 4.2.4. The use of the site for residential purposes necessitates the construction of numerous new buildings, which are assumed to be of low-rise, traditional construction, and supporting infrastructure including roads, drains sewers and utility services. The potential for physical damage to these structures caused by ground movement, or attack of vulnerable materials by aggressive ground conditions is also considered.

5. Preliminary Conceptual Model and Risk Assessment

5.1. Methodology

5.1.1. Information from the desk study has been used to identify the likely source-pathway-target relationships that may exist at the site during and following the proposed development. Principal factors that may determine potential sources of contaminants at the site, receptor vulnerability and potential pathways have been identified and each assessed in turn to derive a Conceptual Site Model (CSM).

5.2. Site Source Risk Assessment

5.2.1. Natural sources of ground contamination appear to be limited, based on the available evidence; the potential for organic soils and peat appears to be limited and the site is an area where less than 1% of residential dwellings can be anticipated to be impacted by radon gas. Natural background levels of specific metals and metalloids are unlikely to approach generic soil criteria for residential land use.

5.2.2. The historical mapping indicates that the site was open fields, and no indications of previous industrial activity, (including Coal Mining) have been identified within the site. There is a low potential for contamination as a result of agricultural activities and these are usually limited to spills or leaks of relatively transient chemicals such as fertiliser, pesticides, small volumes of fuel and oil assuming the site has not been subject to uncontrolled waste disposal activities.

5.2.3. Several buildings have been identified in the historical mapping and satellite imagery around the perimeter of the site, although given the resolution of the available mapping and the boundary location provided to SGP, most of these could have been on the boundary or just outside the site. Some of these buildings were removed before the use of asbestos in structures became widespread however some remained during this time, including the building still present in the northwest corner. It is possible that asbestos residues could be present locally within the remaining building or around the demolished former structures, however volumes are likely to be minimal.

5.2.4. A pond towards the north of the site appears to have been in-filled around 60 years ago. This could contain waste materials, although readily degradable materials would be expected to have largely broken down in the intervening period. There is also a minor possibility that polluting substances in liquid wastes deposited in drums or discharged directly has taken place. There is always a small possibility of animal burial on former agricultural sites.

5.2.5. Apart from the locations of the former pond and buildings it would be difficult to identify any minor random waste deposits using discreet investigation entries. Given the size of the site any of the sources considered above, if present, would be likely to be of limited significance.

5.3. Off-Site Sources

5.3.1. Several areas of infilled land in the immediate surrounds may similarly contain degradable materials with the potential to produce hazardous gas, although it is noted that most of these areas have been developed, mainly for residential use. The nearest such potential source deposits are approximately 50m from the northwest corner of the site, and in excess of 100m, to the other side of a valley to the south, southeast and southwest.

5.3.2. Bulk Storage tanks of unknown content are present in the metal works/die-casting works within the former print works buildings close to the west end of the southern parts of the site of the site. The facility also has a number of Local Authority Air Pollution Controls in place suggesting that emissions may take place.

5.3.3. Minor volumes of fuels, hydrocarbons and other potentially mobile contaminants may be associated with the light industry and vehicle repair further up the valley to the south of the eastern parts of the south boundary.

5.3.4. The other identified local industrial land uses generally have a limited potential to cause significant ground contamination, particularly of mobile pollutants with the potential to migrate towards the site.

5.3.5. Although not related to land quality, it is noted that the entire site falls within a Air Quality Management Area (AQMA) designated by the local authority due to the probability of local air quality failing one or more national air quality objectives (see http://www.gmtu.gov.uk/gam_maps/). This is due to the proximity of major highways and the effects of vehicle exhaust emissions. It is likely that an air quality assessment will be required in support of any planning application for the site.

5.4. Potential Receptors

5.4.1. The site is in an area of medium/low environmental sensitivity as far as groundwater is concerned; the underlying bedrock supports a Secondary A Aquifer which may be locally extracted but no nearby abstractions for groundwater supply have been identified. The aquifer and the overlying superficial deposits, probably readily allow infiltration and migration, and therefore probably generate sufficient flows to feed springs on the site which give rise to two small watercourses and also probably support matrix base flow to the watercourse to the south. The surface watercourses are also likely to receive surface water run-off or field drainage and are therefore sensitive to potential site sources of pollution, if present.

5.4.2. The surrounding area consists of residential land use to the west, and also to the east although this area is separated from the site by a major road. A small number of dwellings, a nursery

and small number of dwellings is present off the site's southern boundary and public rights of way bound the west and north boundary, although there is no evidence that public access to the site takes place.

5.4.3. A number of commercial properties exist nearby including a number of commercial properties to the south and a larger industrial estate primarily used for storage and warehousing to the north.

5.4.4. Apart from farm workers and the potential for some occupation of the various enclosures and buildings in the south of the site, there is probably minimal potential for exposure of people to soils on the site under existing conditions, however redevelopment of the site will introduce new receptors, comprising a construction workforce, maintenance workers, visitors and residents, the latter being the most sensitive due to the presence of children resident on the site for long periods of time.

5.4.5. The principal vulnerable receptors for the existing and proposed uses will be:

- the surface watercourses on the site and the larger watercourse/reservoirs to the south;
- construction workers who may be exposed to any contaminants during preparatory and construction works, via direct contact and dust ingestion/inhalation;
- future site users and building occupants, primarily assumed to be residents including infants and children; exposure routes may through ingestion of soil and soil-derived dust, direct skin contact, inhalation of any ground gases / vapours, and uptake of soil contaminants to garden vegetables with subsequent consumption; and,
- future maintenance workers via direct contact

5.5. Controlled Waters Risk Assessment

5.5.1. Mobile groundwater is likely to be present within the underlying natural superficial deposits, and appears to emerge locally at springs and seeps within and adjacent to the site. Groundwater flows within the underlying Coal Deposits are likely to be minimal and are considered to be of low sensitivity.

5.5.2. Flow to the watercourses is probably via surface runoff or preferential flow paths such as drains, however sufficient shallow groundwater flow exists to feed permanent springs and probably also provides base flow to the larger watercourse to the south. Where such pathways exist these could form routes for direct migration of pollutants released from discrete sources (such as spills and leaks of fuel from storage facilities, or releases of other chemicals such as fertilisers or pesticides), however the potential for significant storage facilities within the site itself (which excludes most of the farm buildings and yards off Trows lane) is considered low and risks are consequently also assessed as low.

5.6. Human Health Risk Assessment

- 5.6.1. A development layout has not been produced for the site; for the purposes of human health risk assessment it is assumed that most parts of the site are intended to contain dwellings or areas of publicly accessible land.
- 5.6.2. The potential for significant contamination to be present that may pose an acute risk to construction workers during the development is low. Similarly future maintenance workers are unlikely to be exposed to materials with the potential to cause short-term impacts.
- 5.6.3. Asbestos containing materials could be present in the fabric of the single remaining building on the site and if so could include damaged and therefore friable materials. Any loose fibrous asbestos on the site could pose a health risk to site workers if disturbed and not properly managed; furthermore the potential from off-site migration via wind blown dust exists from such materials. If the historical buildings present on or near the site boundary contained such materials and were demolished in an uncontrolled manner asbestos residues could be present in shallow soils. There is a general requirement to reduce asbestos exposure to as low as is reasonably practicable and the presence of any detectable concentrations of asbestos is not generally tolerated in shallow soils in a residential setting, in the absence of robust and defensible risk assessment techniques/criteria.
- 5.6.4. Should any elevated contamination caused through fuel spillages / leakages or storage drums, other discharges of other liquids including pesticides have occurred there could be a potential risk of exposure through direct contact, inhalation and ingestion site users. Again, these are likely to be dominated by long term exposure of residents, particularly children.
- 5.6.5. Gas generation rates within the natural soils are probably very low; and there is no evidence of significant thicknesses of uncharacterised made ground, although this should be confirmed by site investigation, particularly in the former pond location. Risks associated with other ground gasses are likely to be low; however the presence of deep fills associated with a former sand pit in close proximity to the site to the northwest may requires gas monitoring adjacent to this location.
- 5.6.6. Other potential areas of deep made ground at further distances to the west, southwest, south and southeast, have been identified. Whilst under certain circumstances these can pose a high risk of generating significant flows of ground gas with the potential to cause fire, explosion, asphyxia or poisoning, the time since the infilling has taken place, the presence of closer residential dwellings or intervening barriers such as cohesive soils and a watercourse means migration onto the site is considered unlikely.

5.6.7. Similarly off-site sources of pollutants within the farms immediately to the south and the historical and contemporary commercial and industrial sites to the south beyond Trows Lane could be mobile within the environment however these are down (hydraulic) gradient from the site and migration is likely to be to the south or to the southwest/west, away from the site and impacts are not considered likely. Air pollution from the nearby major roads and possibly the adjacent metal works could influence the site.

5.7. Site Conceptual Model

5.7.1. Potential pollution linkages between the identified contamination sources and existing and future receptors are summarised in Table 5.1 below:

Table 5.1: Conceptual Site Model

Hazardous Source		Receptor	Pathway	Risk Assessment			Notes
Origin	Contaminant			Consequence	Probability	Risk	
Hazardous substances present as discrete deposits as a result of uncontrolled waste disposal	metals, PAHs, fuels, oils, organic pesticides and asbestos present as discrete deposits within made ground as a result of uncontrolled waste disposal	current / future site users including residents construction workers / future maintenance workers	direct contact / dust & soil ingestion and inhalation	severe	unlikely	low	Solid or adsorbed contaminants may be locally present; relatively low concentrations could be unacceptable within residential garden soils. The potential for more significant sources is difficult to quantify, risks are likely to be dominated by long term exposure of future residents rather than transient and short term exposure of construction or maintenance workers confirm absence through investigation in former pond and building areas and/or watching brief during development but readily mitigated under most reasonably anticipated circumstances through provision of clean soils in areas of soft landscaping and gardens
		Controlled water receptors, mainly the watercourse to the south and its tributaries within the site	leaching and infiltration through unsaturated zone, enrichment of groundwater and discharge into the site watercourses	medium	unlikely	low	Most readily anticipated sources are of low solubility and mobility in the sub-surface environment, here is a low probability that more polluting materials such as tipped drums or tanks may be present confirm through monitoring of receptors and/or intermediate pathways; but readily mitigated through source removal if encountered
Hazardous ground gas from sources within made ground or similar off-site sources	Methane, carbon dioxide, carbon monoxide and depressed oxygen conditions	Site workers: construction stage or future maintenance workers	inhalation risk	severe	unlikely	low	The potential for sources within discrete areas of made ground and fill both externally and internally to the site is recognised but is considered low. Further assessment of risks from ground gas is only likely to be required in the northwest corner or if organic soils/wastes are encountered in investigations in the former pond or other areas during preparatory earthworks; but readily mitigated under most reasonably anticipated circumstances through provision of basic gas protection measures
		future site users / unventilated voids in future buildings	inhalation risk	severe	unlikely	low	
		Buildings and structures	Accumulation to explosive concentrations	severe	unlikely	low	

Note: Risk Assessment based on guidance provided in CIRIA 552, 2001, 'Contaminated Land Risk Assessment: Guide to Good Practice'

5.8. Property Risk Assessment

- 5.8.1. The underlying natural strata are classed by the BGS as being at very low or no risk of collapsible ground, landslide, running sand and shrinking or swelling clay, compressible or dissolution ground hazards. It is noted, however that the local superficial deposits are characteristically variable and the likely presence of a shallow water table in lower-lying areas (as indicated by the presence of several springs) could locally contain soft ground where hollows have been filled with soft sediment or plant materials / peat, and possible instability in steep slopes via spring-sapping. Glacial sands can be loose in nature and subject to immediate settlement when loaded, whereas any pockets of soft silts, clays or peats may be subject to longer-term consolidation. However, in general it is considered that the superficial deposits are likely to be competent and amenable to traditional construction techniques if undisturbed.
- 5.8.2. The site does not appear to have has been subject to significant land-raising or infilling; there is one recorded pond on the site which has been backfilled and other low areas may have been infilled. These activities are unlikely to have been carried out in a controlled manner and therefore any fills present must be assumed to contain variously oversized materials, voids and possibly otherwise deleterious or degradable materials. These are likely to be highly localised, and in the context and scale of any redevelopment of the whole site, readily addressed during preparatory earthworks.
- 5.8.3. Such potential conditions, and the existing topography raise uncertainty as to the likely appropriate foundation solution and infrastructure design for particular areas; furthermore the land on the site undulates substantially and is likely to require significant regrading. An assessment of the above risks must take into account the cut/fill profiles of proposed preparatory earthworks and proven ground conditions rather than placing reliance on mapped deposits and existing topography.
- 5.8.4. The existing spring fed watercourses, drains and other utilities, in particular the high pressure gas main and overhead electricity cables present on the site will form constraints to building and infrastructure layout.
- 5.8.5. There is a significant risk of surface water flooding in localised, low-lying areas around the existing watercourses in the south of the site.
- 5.8.6. Aggressive ground conditions for concrete are considered unlikely to be present but should be assessed through site investigation. It is unlikely that any hydrocarbon or other organic contamination is present which could constrain the use of certain polymers or require protected water mains.

6. Conclusions and Recommendations

6.1. Conclusions

- 6.1.1. The historical uses of the site appear to have been solely agricultural. No significant potential natural or manmade sources of contamination have been identified within or adjacent to the site. There is therefore a generally low level of risk associated with ground contamination within the site.
- 6.1.2. The shallow ground conditions on the site are likely to be mainly granular (glacial sands and gravels) and to therefore allow the lateral and vertical migration of drainage and any pollutants, including off-site sources; the latter are distant or isolated from the site in areas which have been redeveloped for housing and are therefore unlikely to pose very high risks. Gas sources could exist within the made ground deposits in an infilled pond within the site or externally near the northwest boundary.
- 6.1.3. Some asbestos-containing materials may be present on the site within residues from demolition of the few buildings historically present on the site (or very near the boundary), or the only remaining building which is in an advanced state of disrepair or collapse. In these locations the suspect materials are likely to be damaged and have a greater potential for the release of fibres than within intact buildings. There is always the possibility of discreet deposits of asbestos containing materials within pits or more recently deposited made ground formations such as farm tracks made from recycled aggregate; given the size of the site these, if present, are likely to be of relatively low significance provided they are appropriately managed.
- 6.1.4. There is limited potential for the presence of other contaminants and pollutants; if uncontrolled waste deposition has occurred on the site there is a low potential for hazardous substances or materials within infilled pits, ponds etc. Volumes of impacted materials are likely to be limited within the context of the overall potential development area. The land surrounding the site does not appear to have been subject to significant polluting industrial land use or surface tipping, and migration from sources in the nearby environment is probably precluded by the local hydrological and hydrogeological gradients.
- 6.1.5. The ground on the site is therefore probably dominated by undisturbed natural strata which has been assessed as generally unlikely to cause instability due to compressible, collapsible or otherwise unstable soils away from steep valley sides and low-lying areas.
- 6.1.6. The site is therefore currently assessed as presenting generally low risks associated with land contamination and ground stability.

6.1.7. The site is likely to require significant regrading to achieve viable development levels and gradients. Although low or very low risks from ground stability hazards have been identified, the combination of the characteristically variable glacial deposits present, potential soft deposits in valley bases, shallow groundwater and associated springs and issues requires further assessment to allow outline design of development foundations and infrastructure.

6.1.8. The high pressure gas main and overhead electricity cables are existing constraints within the site; externally the impacts on the development from noise and pollution from the nearby major roads and nearby industrial/commercial land use should be taken into consideration.

6.1.9. The declared AQMA encompassing the site may present a constraint to residential development that could require assessment and possible mitigation measures. Mitigation might entail the adoption of a stand-off zone for development near to the motorways.

6.2. Recommendations

6.2.1. An intrusive site investigation to characterise the geotechnical properties of the ground and confirm the contamination status of the site is required; the design of this must be informed by a complete site inspection carried out by an appropriately qualified and experienced person and should preferably be carried out over multiple phases allowing an iterative approach to assessing risks on the site to be adopted.

6.2.2. A preliminary intrusive investigation is likely to include drilling of percussion type, boreholes to at least 30m depth on a wide grid over all parts of the site, supplemented by trial pits using suitable excavation equipment to allow more detailed evaluation of shallow ground conditions.

6.2.3. The only places where targeted entries are considered necessary are the locations of the former pond and any former buildings which extended into the site. Screening for asbestos should be carried out in samples from these locations. Installation of a small number of gas monitoring wells is considered prudent in the northwest corner of the site at the point nearest the former off-site sand pit. A limited surface water monitoring programme involving collection of samples from the springs and watercourses arising on the site is considered the most cost effective means of determining if viable pollution sources exist on the site as these form the only likely migration routes to sensitive environmental receptors further downgradient.

6.2.4. The descriptions of ground conditions and test results from the site investigation should be considered in a reassessment of the site conceptual model as regards ground contamination. If significant deposits of made ground or fill are encountered, or other contamination indicators such as odours, staining or waste materials described, the scope of the investigation may require alteration to include soils sampling and analysis and gas and groundwater monitoring.

- 6.2.5. The Local Authority should also be given the opportunity to comment on any schedule for intrusive assessment and may recommend that the Environment Agency be consulted although this is considered unlikely given the low sensitivity of controlled waters receptors associated with the site.
- 6.2.6. The drainage requirements for any development should be considered carefully: the presence of a number of springs and issues within the site indicates the presence of a shallow water table and locally saturated ground in low-lying areas, and should inform the geotechnical assessment of the site given the implications for local instability and running sands.
- 6.2.7. A hydrological assessment to determine the drainage requirements for the site following any planned redevelopment, and any attenuation to reduce impacts downstream should be carried out. The existing high risk of surface water flooding in two small areas of the site should inform the drainage proposals. An assessment of the feasibility of soakaways should form part of the intrusive site investigation, as although the superficial deposits are mapped as sand and gravel, these can show significant local variation and where silt and clay content is high, these options may be less feasible.
- 6.2.8. Consultation with the Animal & Plant Health Agency should take place before any excavations in farmland but in any case the provision set out in the DEFRA "Code of Practice for Civil Engineers, Surveyors and Contractors: Precautions to Prevent the Spread of Animal & Poultry Disease" should be adhered to.
- 6.2.9. Significant earthworks may also be required and a Materials Management Plan will be required to allow bulk movement of materials to achieve sensible development platforms and acceptable gradients for site access roads. A feasibility assessment of the likely regrade requirements and cut and fill volumes should be carried out to inform the likely scope and cost of preparatory earthworks.
- 6.2.10. The high pressure gas main present in the east of the site probably forms a significant constraint to development as it will require a substantial stand-off and/or diversion. Given the size of the site it may be cost effective to leave the surrounding land as open space, however the depth to the pipe must be taken into consideration when designing local regrade levels. In the context of a large development, diversion could be considered, particularly if the pipeline requires upgrading or replacement in any case. A stand-off, diversion or rerouting to underground cables could be considered for the overhead electricity lines present on the site. Searches for the presence of other services will need to be carried out.
- 6.2.11. Any assessment of future foundations solutions for planned development must take into account proposals for regrading the site. Where undisturbed soils of uniform type are present at

shallow depth following stripping or regrading, then traditional strip footings should be appropriate. If suitable granular material is present and conditions confirmed through intrusive investigations, then engineered placement of fills may allow rafts to be utilised in parts of the site subject to raising, or vibro-replacement stone columns or driven pile methods used for support on deeper fills. However the selection of foundation solution will require appropriate design, supervision and validation at the preparatory earthworks stage.

6.2.12. Apart from geotechnical aspects and infrastructure constraints, and unless significant unanticipated sources are identified, remediation requirements should be limited: topsoil won from the site should only require screening for contaminants at a relatively low frequency and there is no current evidence that measures such as clean cover systems, gas protection or source removal/treatment will be required, although this is subject to confirmation in particular areas of the site - gas testing in the northwest corner and trial pitting in the former pond and building areas.

6.2.13. An asbestos survey of the dilapidated buildings near the northwest corner of the site should be carried out prior to demolition and clearance; however the presence of damaged potential asbestos containing materials or other wastes such as drums, organic wastes or animal carcasses elsewhere within discrete deposits is possible if unrecorded waste disposal activities have been carried out. Given the size of the site, and assuming that no further anecdotal evidence or official records of potential contamination sources are identified by further consultation, these are unlikely to be identified by any intrusive site investigations and appropriate training of construction operatives and supervisors during development is probably the most effective means of ensuring any such constraints are identified, although the risk is considered low.

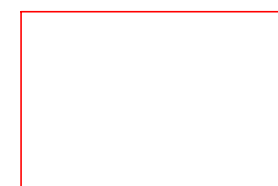
6.2.14. An ecological survey will be required. Consideration of noise and air quality impacts on the development from the surrounding major road infrastructure and local air pollution controls is likely to be required as is assessment of the environmental impact from the development itself. However an air quality assessment is likely to be mandatory in any case as the site is within an Air Quality Management Area. If the development is above a specific threshold number of dwellings or area, these elements will have to form part of a wider Environmental Impact Assessment.

6.3. Limitations

6.3.1. The scope of assessment was selected on the basis of the available development proposals by the client, and may be inappropriate to another form of development or scheme. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.

- 6.3.2. This report partially reviews and relies upon information provided by others. Smith Grant LLP accepts no responsibility for advice given on the basis of incorrect factual information provided to it. It was not possible to carry out an inspection of the internal parts of the site; therefore conclusions drawn from observations of the current status of the site should be treated with caution.
- 6.3.3. This report has been prepared by Smith Grant LLP, for the sole and exclusive use of GLP Ltd & Barratt Homes. The benefit of this report may not be assigned to any other party without the prior agreement in writing of Smith Grant LLP. Reasonable skill, care and diligence have been exercised within the timescale and budget available, and in accordance with the technical requirements of the brief.
- 6.3.4. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context.

DRAWINGS



Indicative Boundary
(based on sketch plan
provided)

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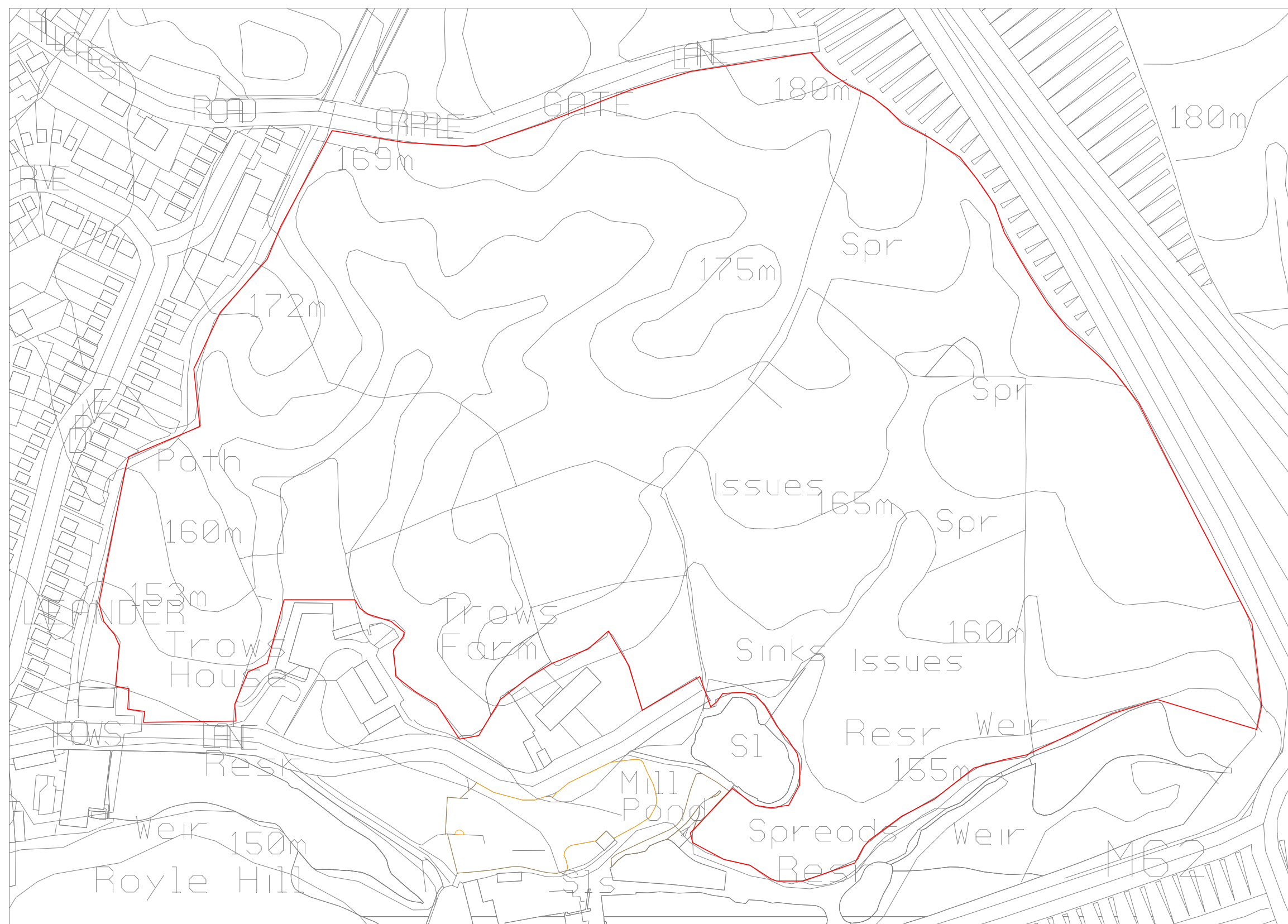
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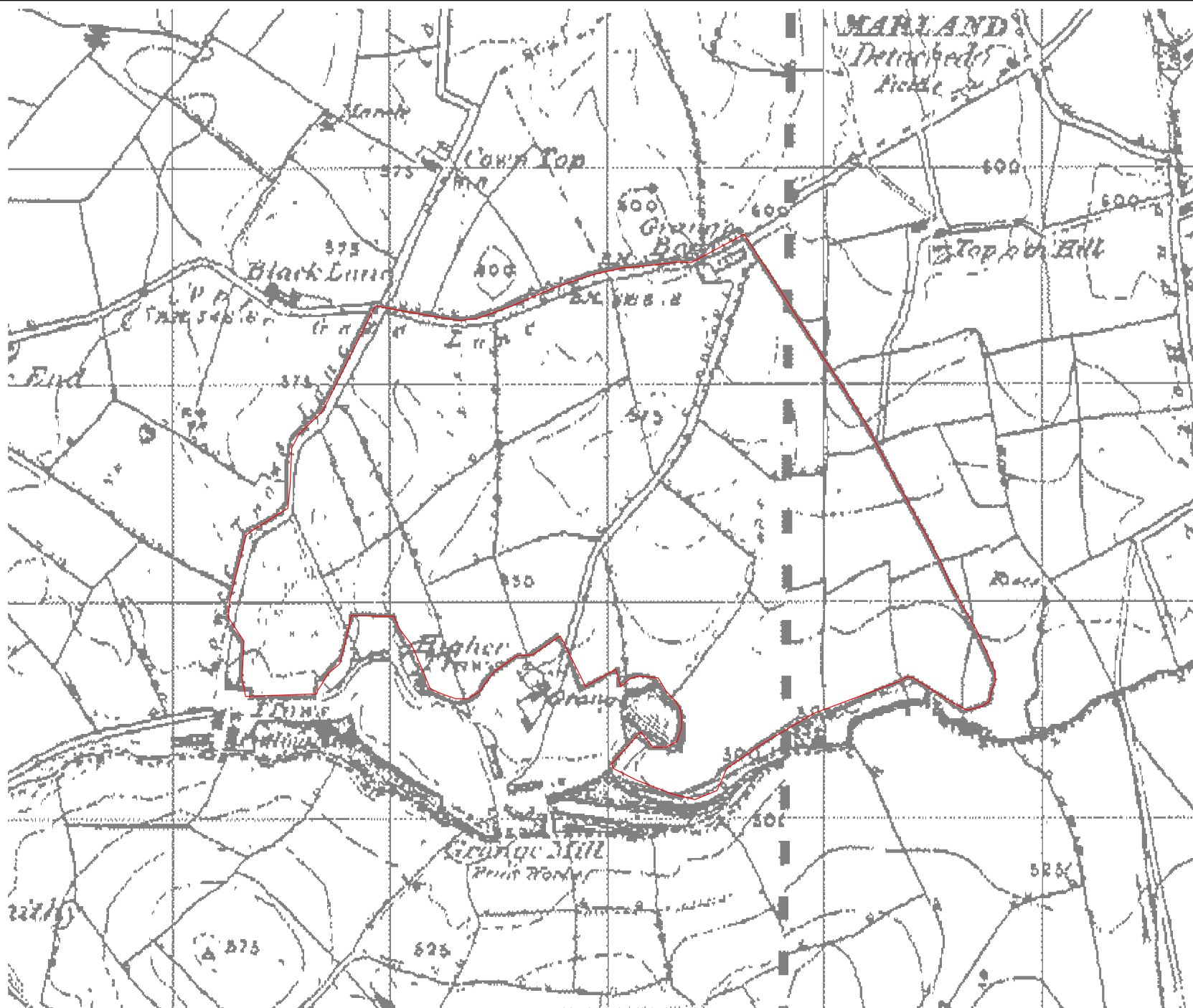
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Historical Map - 1851

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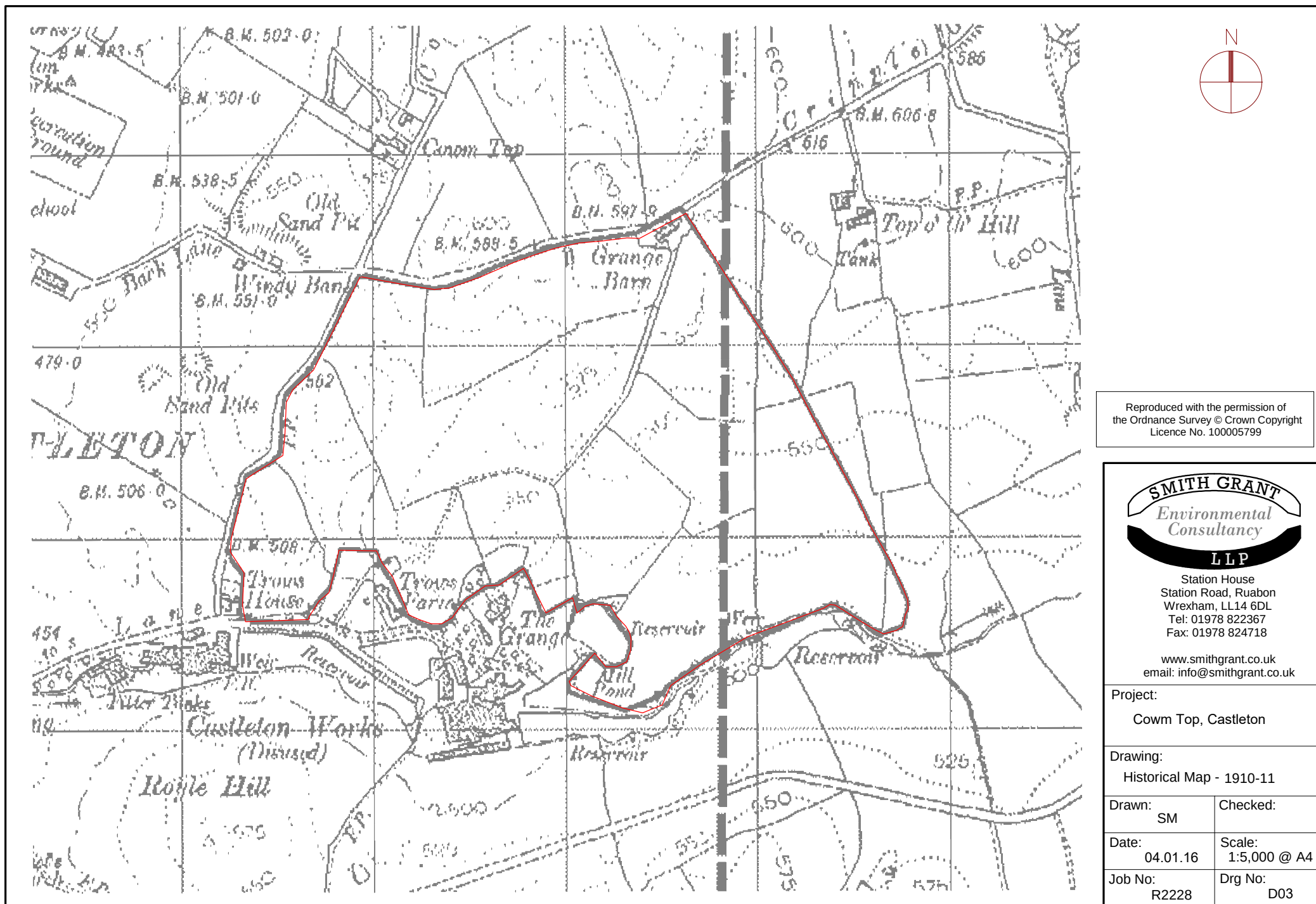
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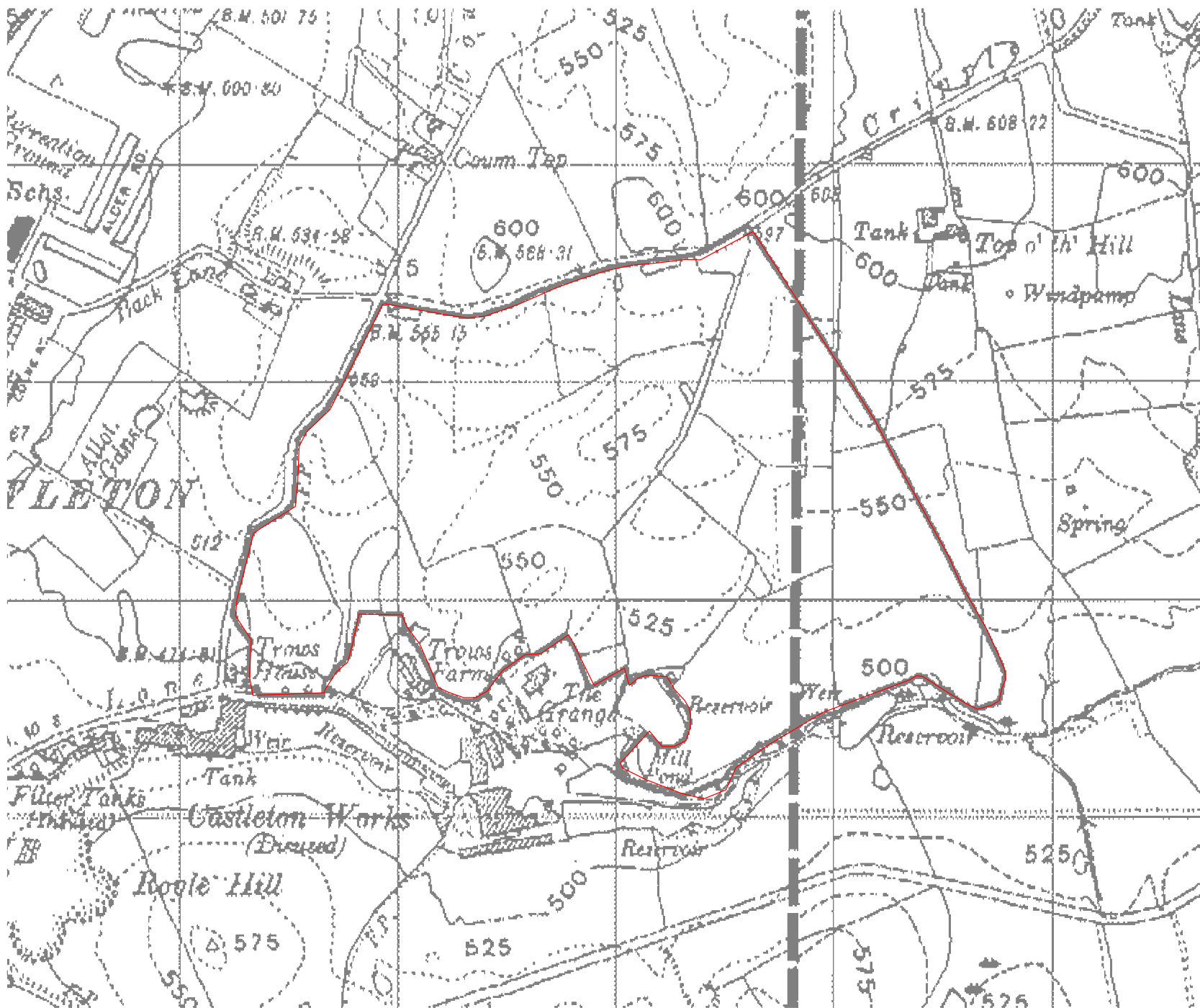
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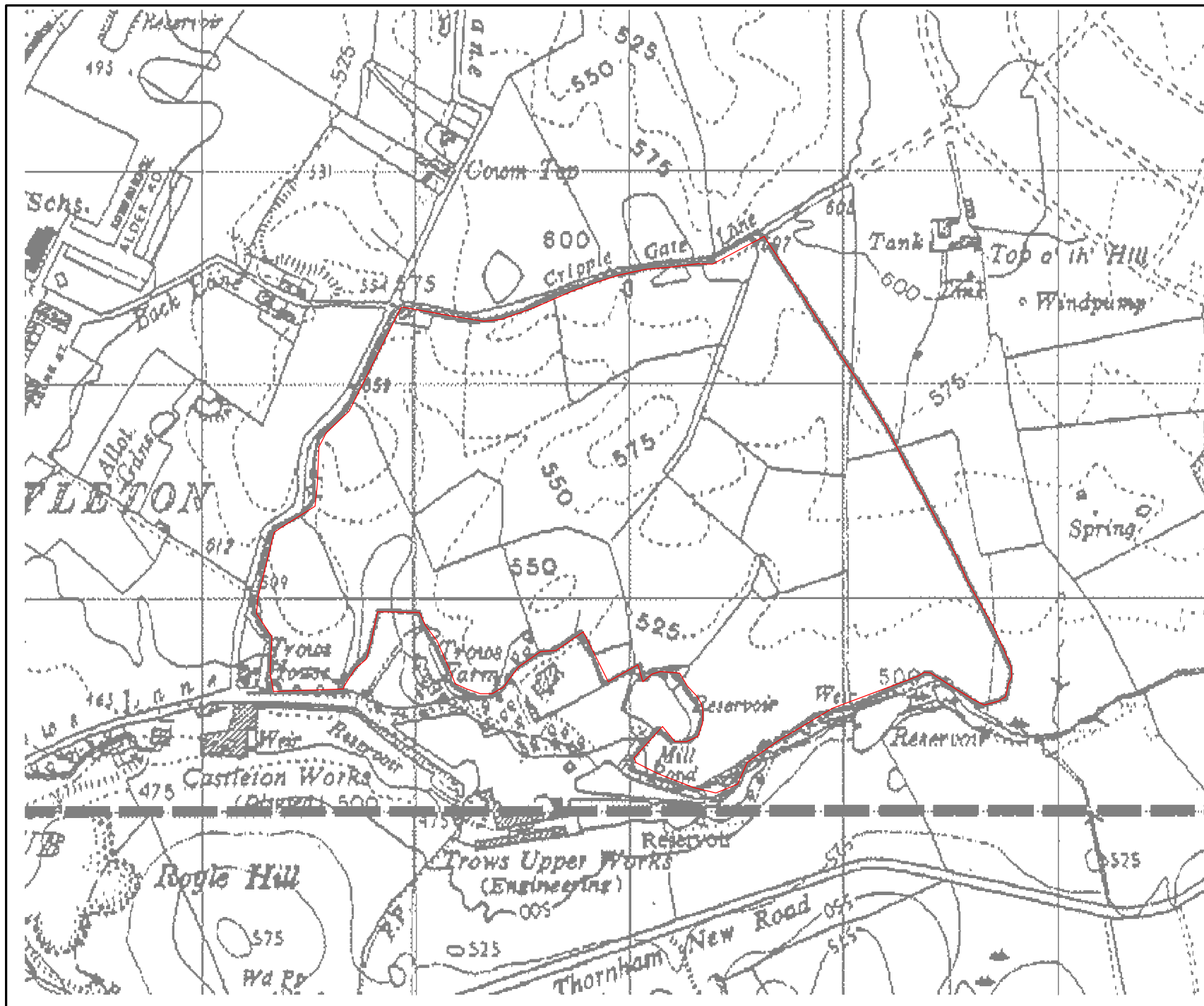
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Historical Map - 1938

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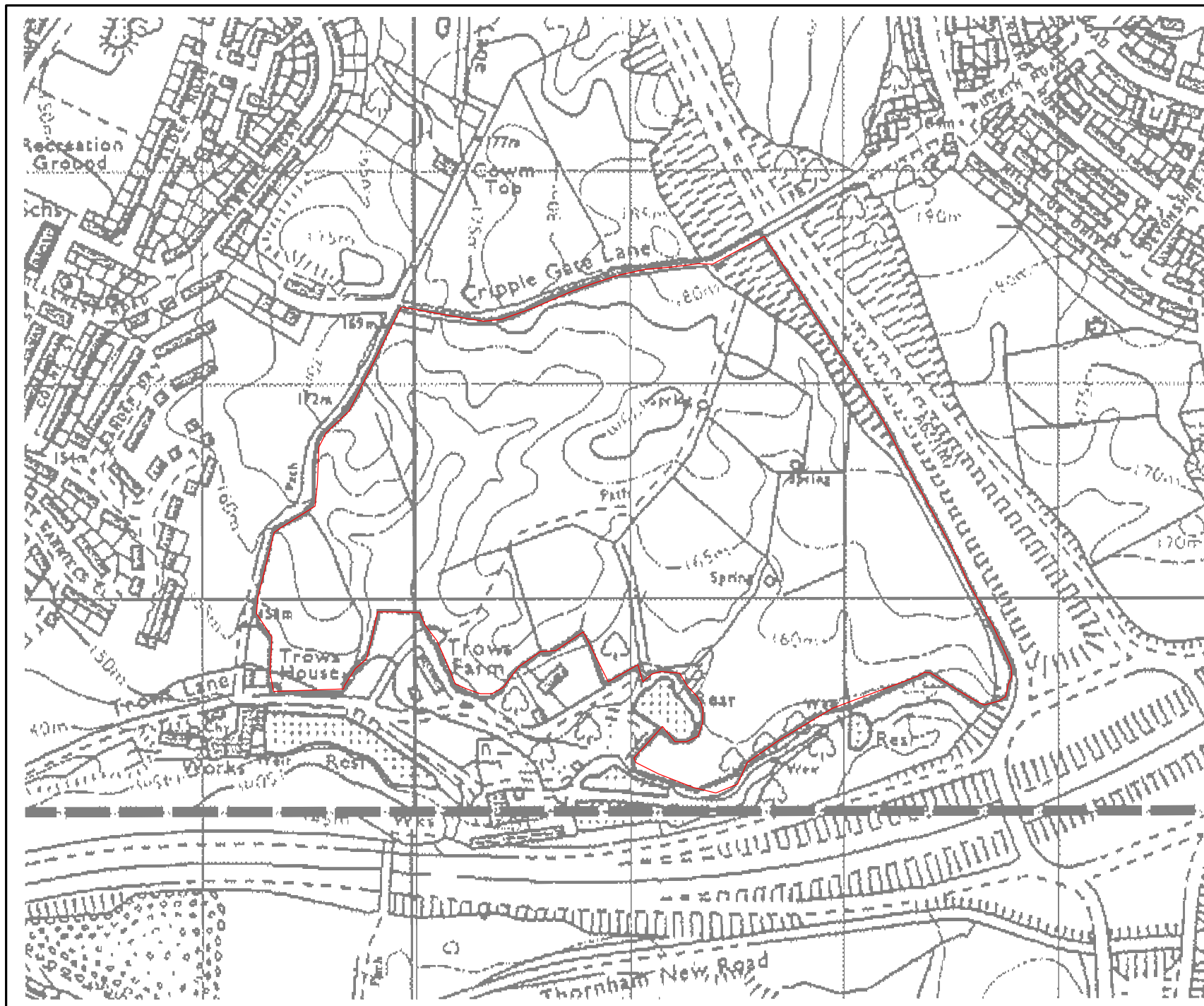
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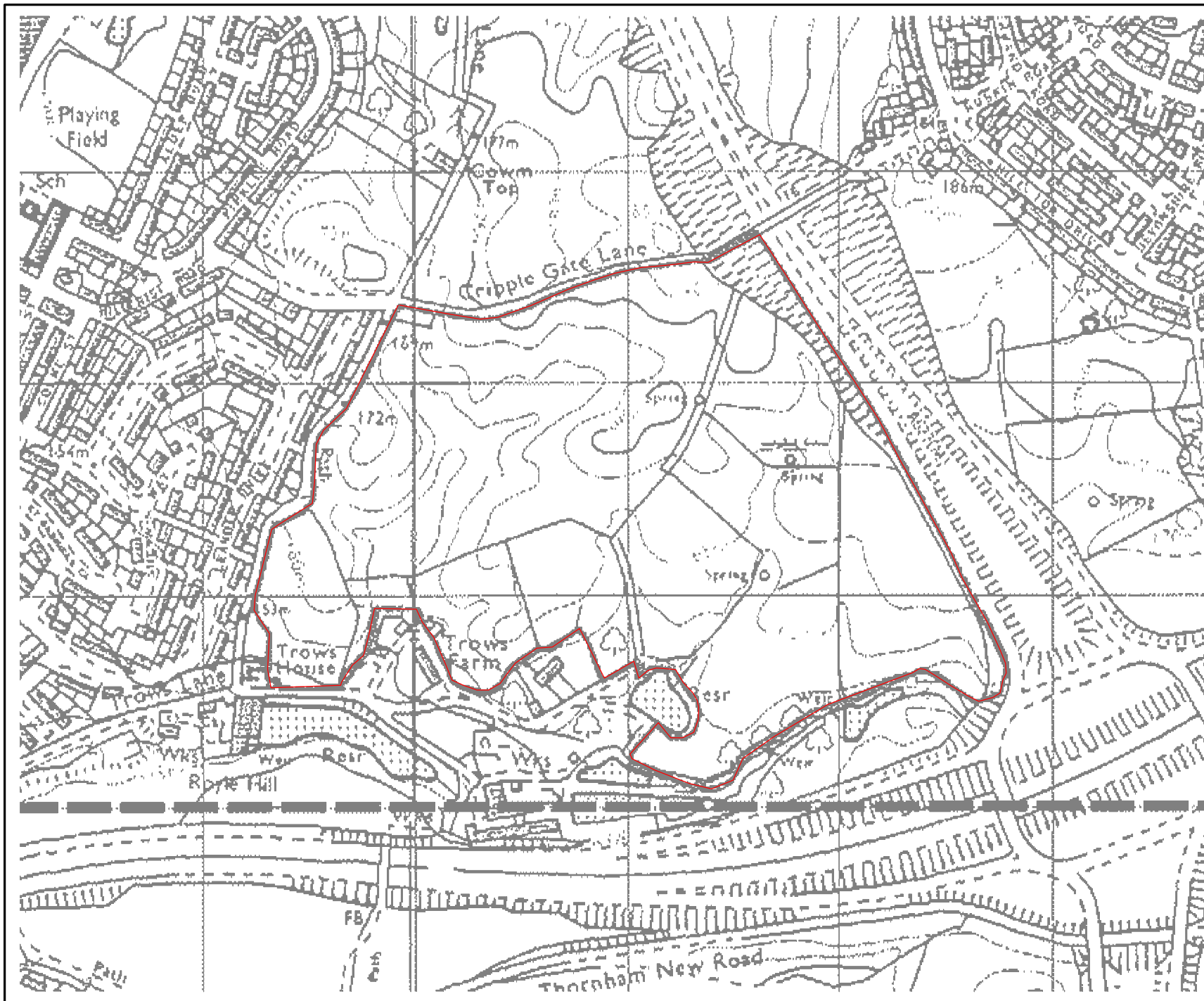
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Historical Map - 1983-88

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D07

APPENDIX A

Site Photographs



View north from mid-way along western boundary. Adjacent housing visible to west with industrial estate visible beyond northern boundary. Significant undulations in level within the site.



View north from mid-way along western boundary. Significant undulations in level within the site.



View east from near northwest corner. Significant undulations in level within the site.



View east from near northwest corner. Significant undulations in level within the site.



Northwest corner of site. Derelict building present in overgrown enclosure.



View east along cripple gate Lane which forms northern boundary.



View south-southeast from central part of northern boundary. Significant undulations in level within the site.



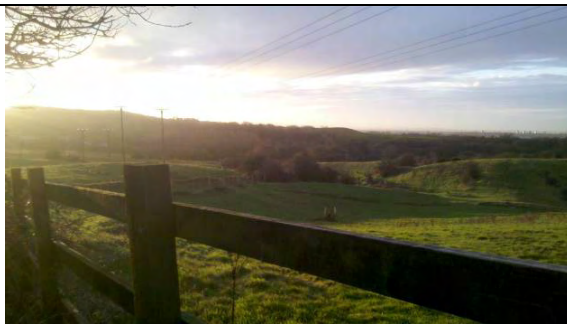
View south-southwest from central part of northern boundary. Significant undulations in level within the site. Farm and dwellings to south of site visible



A627 (M) viewed from footbridge at end of Cripple gate Lane near northeast corner of site.



Large building forming part of adjacent industrial estate to the north of Cripple Gate Lane near northeast corner of site. 2 overhead electricity lines enter site from the north.



View south from northeast corner of the site. Overhead electricity lines cross eastern parts of site.



View south from northeast corner of the site.



View south from southern end of footpath which bounds west of site. Trows house (off site) to east. Die cast works with bulk storage tanks opposite on south of Trows Lane



Marker for high pressure gas pipeline on north of Trows Lane at western end of southern boundary.

APPENDIX B

Envirocheck Report

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

77317590_1_1

Customer Reference:

R2228

National Grid Reference:

389200, 410260

Slice:

A

Site Area (Ha):

21.43

Search Buffer (m):

500

Site Details:

Site at 389190, 410260

Client Details:

Mr S Miller
Smith Grant Partnership
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	9
Hazardous Substances	-
Geological	10
Industrial Land Use	16
Sensitive Land Use	17
Data Currency	18
Data Suppliers	22
Useful Contacts	23

Introduction

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

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v50.0

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

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Waste				
BGS Recorded Landfill Sites				
Historical Landfill Sites				
Integrated Pollution Control Registered Waste Sites				
Licensed Waste Management Facilities (Landfill Boundaries)				
Licensed Waste Management Facilities (Locations)				
Local Authority Recorded Landfill Sites				
Registered Landfill Sites				
Registered Waste Transfer Sites				
Registered Waste Treatment or Disposal Sites				
Hazardous Substances				
Control of Major Accident Hazards Sites (COMAH)				
Explosive Sites				
Notification of Installations Handling Hazardous Substances (NIHHS)				
Planning Hazardous Substance Consents				
Planning Hazardous Substance Enforcements				
Geological				
BGS 1:625,000 Solid Geology	pg 10	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 10	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 13		3	1
BGS Urban Soil Chemistry				
BGS Urban Soil Chemistry Averages				
Brine Compensation Area			n/a	n/a
Coal Mining Affected Areas	pg 14	Yes	n/a	n/a
Mining Instability	pg 14	Yes	n/a	n/a
Man-Made Mining Cavities				
Natural Cavities				
Non Coal Mining Areas of Great Britain				n/a
Potential for Collapsible Ground Stability Hazards	pg 14	Yes	Yes	n/a
Potential for Compressible Ground Stability Hazards	pg 14		Yes	n/a
Potential for Ground Dissolution Stability Hazards				n/a
Potential for Landslide Ground Stability Hazards	pg 14	Yes	Yes	n/a
Potential for Running Sand Ground Stability Hazards	pg 14	Yes	Yes	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 14	Yes	Yes	n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Industrial Land Use				
Contemporary Trade Directory Entries (50m)	pg 16		4	n/a
Fuel Station Entries				
Sensitive Land Use				
Areas of Adopted Green Belt	pg 17		1	
Areas of Unadopted Green Belt				
Areas of Outstanding Natural Beauty				
Environmentally Sensitive Areas				
Forest Parks				
Local Nature Reserves				
Marine Nature Reserves				
National Nature Reserves				
National Parks				
Nitrate Sensitive Areas				
Nitrate Vulnerable Zones	pg 17	1		
Ramsar Sites				
Sites of Special Scientific Interest				
Special Areas of Conservation				
Special Protection Areas				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	Integrated Pollution Controls Name: Dale Joinery Ltd Location: Queensway, ROCHDALE, Lancashire, OL11 2PR Authority: Environment Agency, North West Region Permit Reference: AV5071 Dated: 2nd December 1996 Process Type: IPC new application Description: 6.7 A (A) Timber processes within Miscellaneous Industries Status: Authorisation superseded by a substantial or non substantial variationSuperseded Positional Accuracy: Unknown	A10NW (NW)	431	2	388705 410800
1	Integrated Pollution Controls Name: Dale Joinery Ltd Location: Queensway, ROCHDALE, Greater Manchester, OL11 2PR Authority: Environment Agency, North West Region Permit Reference: BD5771 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 6.7 A (A) Timber processes within Miscellaneous Industries Status: Authorisation revokedRevoked Positional Accuracy: Unknown	A10NW (NW)	435	2	388700 410800
2	Local Authority Pollution Prevention and Controls Name: Lew Diecasting Ltd Location: Trows Lane, Castleton, ROCHDALE, Lancashire, OL11 2UF Authority: Rochdale Metropolitan Borough Council, Environmental Health Department Permit Reference: 37/05 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG2/4 Iron, steel and non-ferrous metal foundry processes Status: Authorised Positional Accuracy: Manually positioned to the address or location	A6NW (SW)	52	3	388838 410073
2	Local Authority Pollution Prevention and Controls Name: Lew Diecasting Ltd Location: Trows Lane, Castleton, ROCHDALE, Lancashire, OL11 2UF Authority: Rochdale Metropolitan Borough Council, Environmental Health Department Permit Reference: 37/05 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG2/3 Electrical and rotary furnaces Status: Authorised Positional Accuracy: Manually positioned to the address or location	A6NW (SW)	52	3	388838 410073
2	Local Authority Pollution Prevention and Controls Name: Lew Diecastings Ltd Location: Trows Lane, Rochdale, Lancashire, OL11 2UF Authority: Rochdale Metropolitan Borough Council, Environmental Health Department Permit Reference: 37/05 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG2/8 Copper and copper alloy processes Status: Permitted Positional Accuracy: Manually positioned to the address or location	A6NW (SW)	52	3	388838 410073
3	Local Authority Pollution Prevention and Controls Name: Omc Ford Location: Manchester Road, Castleton, ROCHDALE, Lancashire, OL11 2TR Authority: Rochdale Metropolitan Borough Council, Environmental Health Department Permit Reference: 58/10 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles Status: Authorised Positional Accuracy: Manually positioned to the address or location	A5NE (W)	374	3	388500 410026
	Nearest Surface Water Feature	A7NW (SE)	0	-	389270 410147
	River Quality Name: Rochdale Canal GQA Grade: River Quality B Reach: Qsl At Summit To Empress Processing Estimated Distance (km): 27.6 Flow Rate: Flow greater than 80 cumecs Flow Type: Canal Year: 2000	A10SW (NW)	408	2	388545 410544

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Sonoco Industrial Packaging Licence Number: 2569002024 Permit Version: Not Supplied Location: Rochdale Canal, Castleton, ROCHDALE, Lancashire Authority: Environment Agency, North West Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 123 Yearly Rate (m3): 30458 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A9SE (W)	524	2	388400 410500
	Water Abstractions Operator: Mr M Gadhi And Mr A Raazaq Licence Number: 2569002074 Permit Version: Not Supplied Location: Rochdale Canal At Queensway, Castleton, ROCHDALE, Lancashire Authority: Environment Agency, North West Region Abstraction: Boiler Feed Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 114 Yearly Rate (m3): 36368 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14SE (N)	722	2	389000 411200
	Water Abstractions Operator: M S Gadhi & A Raazaq Licence Number: 2569002026 Permit Version: Not Supplied Location: Borehole, Crest Mill, Queensway, ROCHDALE, Lancashire Authority: Environment Agency, North West Region Abstraction: Manufacturing Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 655 Yearly Rate (m3): 91829 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14NE (N)	817	2	389005 411300
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 11 South Pennines Scale: 1:100,000	A10SE (W)	0	2	388949 410341
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (H2) - Deep, permeable, coarse textured soils which readily transmit a wide range of pollutants because of their rapid drainage and low attenuation potential Map Sheet: Sheet 11 South Pennines Scale: 1:100,000	A6NE (N)	0	2	389200 410258
	Drift Deposits Drift Deposit: Low permeability drift deposits occurring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium Map Sheet: Sheet 11 South Pennines Scale: 1:100,000	A6NE (SW)	0	2	389024 410112
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A6NE (N)	0	4	389200 410258
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A6NE (N)	0	4	389200 410258

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
4	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (SE)	0	2	389270 410147
5	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (SW)	0	2	389188 410251
6	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (S)	3	2	389214 410070
7	Detailed River Network Lines River Type: Secondary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (S)	4	2	389225 410081

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	Detailed River Network Lines River Type: Lake/Reservoir River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (S)	5	2	389231 410090
9	Detailed River Network Lines River Type: Secondary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (SE)	5	2	389351 410061
10	Detailed River Network Lines River Type: Lake/Reservoir River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (S)	6	2	389215 410119
11	Detailed River Network Lines River Type: Lake/Reservoir River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (S)	7	2	389246 410114
12	Detailed River Network Lines River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NW (SE)	10	2	389523 410086
13	Detailed River Network Lines River Type: Lake/Reservoir River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (S)	12	2	389193 410044

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
14	Detailed River Network Lines River Type: Lake/Reservoir River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (S)	17	2	389182 410003
15	Detailed River Network Lines River Type: Lake/Reservoir River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (SW)	32	2	389017 410028
16	Detailed River Network Lines River Type: Secondary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (S)	51	2	389156 410024
17	Detailed River Network Lines River Type: Secondary River River Name: Trub Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (SW)	55	2	388858 410060
18	Detailed River Network Lines River Type: Secondary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (S)	63	2	389150 410006
19	Detailed River Network Lines River Type: Secondary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (S)	73	2	389141 410003

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	Detailed River Network Lines River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NE (S)	84	2	389129 410003
21	Detailed River Network Lines River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SE (S)	218	2	389088 409840
22	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SE (SW)	224	2	388885 409887
23	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NE (E)	228	2	389782 410168
24	Detailed River Network Lines River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NE (E)	228	2	389782 410168
25	Detailed River Network Lines River Type: Secondary River River Name: Drain Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SE (S)	235	2	389073 409844

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SE (SW)	259	2	388945 409848
27	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SW (SW)	291	2	388856 409787
28	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SW (SW)	291	2	388706 409874
29	Detailed River Network Lines River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SW (SW)	292	2	388675 409896
30	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7NE (E)	297	2	389850 410084
31	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6SW (SW)	327	2	388865 409785

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
32	Detailed River Network Lines River Type: Secondary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (SW)	343	2	388550 409978
33	Detailed River Network Lines River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D011 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A7SE (SE)	457	2	389703 409675
	Detailed River Network Offline Drainage None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Rochdale Metropolitan Borough Council - Has no landfill data to supply		0	3	389200 410258

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pennine Lower Coal Measures Formation And South Wales Lower Coal Measures Formation (Undifferentiated)	A6NE (N)	0	4	389200 410258
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (W)	0	4	389000 410258
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (N)	0	4	389200 410258
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (S)	19	4	389200 410000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: 150 - 300 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (SW)	22	4	389000 410080
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: 150 - 300 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (SW)	43	4	389094 410045
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: 150 - 300 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (S)	60	4	389158 410000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (SW)	109	4	388922 410000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (SW)	112	4	389000 409957
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: 150 - 300 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (SW)	112	4	389000 410000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: 150 - 300 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A6NE (SW)	113	4	388897 410000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: 150 - 300 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A10SW (NW)	191	4	388788 410502
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A11SE (NE)	246	4	389612 410567

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: 150 - 300 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11NW (N)	361	4	389203 410886
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (E)	444	4	390000 410258
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (E)	456	4	390000 410025
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A15SW (N)	457	4	389260 411000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (E)	461	4	390000 410000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A15SW (N)	462	4	389208 411000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A14SE (N)	472	4	389200 411000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: RuSoilExAs Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A8NW (E)	478	4	390017 410000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A14SE (N)	490	4	389146 411000
34	BGS Recorded Mineral Sites Site Name: Windy Bank Sand Pit Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96584 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A10SE (NW)	99	4	388893 410507
35	BGS Recorded Mineral Sites Site Name: Windy Bank Sand Pit Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96583 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A10SW (W)	107	4	388811 410387
36	BGS Recorded Mineral Sites Site Name: Castleton Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 15322 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A7SW (S)	199	4	389265 409820

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	BGS Recorded Mineral Sites Site Name: Castleton Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 15321 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A6SW (SW)	300	4	388760 409835
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A6NE (N)	0	5	389200 410258
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A6NE (N)	0	-	389200 410258
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	4	389200 410000
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	4	389200 410000
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A6SE (S)	192	4	389200 409830
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	4	389200 410000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	4	389200 410000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	4	389200 410000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (W)	0	4	388874 410127

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (SW)	0	4	389101 410041
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	4	389200 410000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	48	4	389172 410000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	50	4	389172 410000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A7NE (SE)	62	4	389578 410036
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A7NE (SE)	108	4	389575 410000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SW (NW)	187	4	388809 410537
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	4	389200 410258

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	Contemporary Trade Directory Entries Name: Castleton Motor Bodies Location: Grange Mill, Trows Lane, Rochdale, Lancashire, OL11 2UF Classification: Car Body Repairs Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A6NE (SW)	12	-	389016 410134
38	Contemporary Trade Directory Entries Name: L J Autos Location: Unit 1 Grange Works, Trows Lane, Rochdale, Lancashire, OL11 2UF Classification: Garage Services Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A6NE (SW)	12	-	389016 410134
38	Contemporary Trade Directory Entries Name: Discount Cars Of Rochdale Location: 1 Trows La, Rochdale, Lancashire, OL11 2UF Classification: Car Dealers - Used Status: Active Positional Accuracy: Manually positioned within the geographical locality	A6NE (SW)	12	-	389016 410134
39	Contemporary Trade Directory Entries Name: Brushstrokes Location: The Grange, Trows Lane, Rochdale, Lancashire, OL11 2UE Classification: Floor Cleaning & Polishing Equipment - Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A6NE (SW)	28	-	389119 410116

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	Areas of Adopted Green Belt Authority: Rochdale Metropolitan Borough Council Plan Name: Rochdale Unitary Development Plan Status: Adopted Plan Date: 30th June 2006	A7SW (S)	99	6	389245 409918
41	Nitrate Vulnerable Zones Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A6NE (N)	0	9	389200 410258

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Rochdale Metropolitan Borough Council - Environmental Health Department Oldham Metropolitan Borough Council - Environmental Health Department	March 2015 September 2013	Annually Annual Rolling Update
Discharge Consents Environment Agency - North West Region	November 2015	Quarterly
Enforcement and Prohibition Notices Environment Agency - North West Region	March 2013	As notified
Integrated Pollution Controls Environment Agency - North West Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control Environment Agency - North West Region	October 2015	Quarterly
Local Authority Integrated Pollution Prevention And Control Rochdale Metropolitan Borough Council - Environmental Health Department Oldham Metropolitan Borough Council - Environmental Health Department	July 2014 March 2015	Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Controls Rochdale Metropolitan Borough Council - Environmental Health Department Oldham Metropolitan Borough Council - Environmental Health Department	July 2014 March 2015	Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Rochdale Metropolitan Borough Council - Environmental Health Department Oldham Metropolitan Borough Council - Environmental Health Department	July 2014 September 2013	Annual Rolling Update Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	July 2012	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - North West Region	January 2000	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - North West Region	March 2013	As notified
Prosecutions Relating to Controlled Waters Environment Agency - North West Region	March 2013	As notified
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register Environment Agency - North West Region - South Area	October 2015	Quarterly
Water Abstractions Environment Agency - North West Region	July 2015	Quarterly
Water Industry Act Referrals Environment Agency - North West Region	October 2015	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	October 2012	As notified
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	January 2015	As notified
Source Protection Zones Environment Agency - Head Office	October 2015	Quarterly

Agency & Hydrological	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2015	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2015	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	November 2015	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	November 2015	Quarterly
Flood Defences Environment Agency - Head Office	November 2015	Quarterly
Detailed River Network Lines Environment Agency - Head Office	March 2012	Annually
Detailed River Network Offline Drainage Environment Agency - Head Office	March 2012	Annually
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water Suitability Environment Agency - Head Office	October 2013	As notified
Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Integrated Pollution Control Registered Waste Sites Environment Agency - North West Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - North West Region - South Area	August 2014	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - North West Region - South Area	October 2015	Quarterly
Local Authority Landfill Coverage Oldham Metropolitan Borough Council Rochdale Metropolitan Borough Council - Environmental Health Department	May 2000 May 2000	Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Oldham Metropolitan Borough Council Rochdale Metropolitan Borough Council - Environmental Health Department	May 2000 May 2000	Not Applicable Not Applicable
Registered Landfill Sites Environment Agency - North West Region - South Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency - North West Region - South Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency - North West Region - South Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	June 2015	Bi-Annually
Explosive Sites Health and Safety Executive	June 2015	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Oldham Metropolitan Borough Council Rochdale Metropolitan Borough Council	January 2015 September 2014	Annual Rolling Update Annual Rolling Update
Planning Hazardous Substance Consents Oldham Metropolitan Borough Council Rochdale Metropolitan Borough Council	January 2015 September 2014	Annual Rolling Update Annual Rolling Update
Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	January 2010	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2015	Bi-Annually
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	March 2014	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	July 2014	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	November 2015	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2015	Quarterly

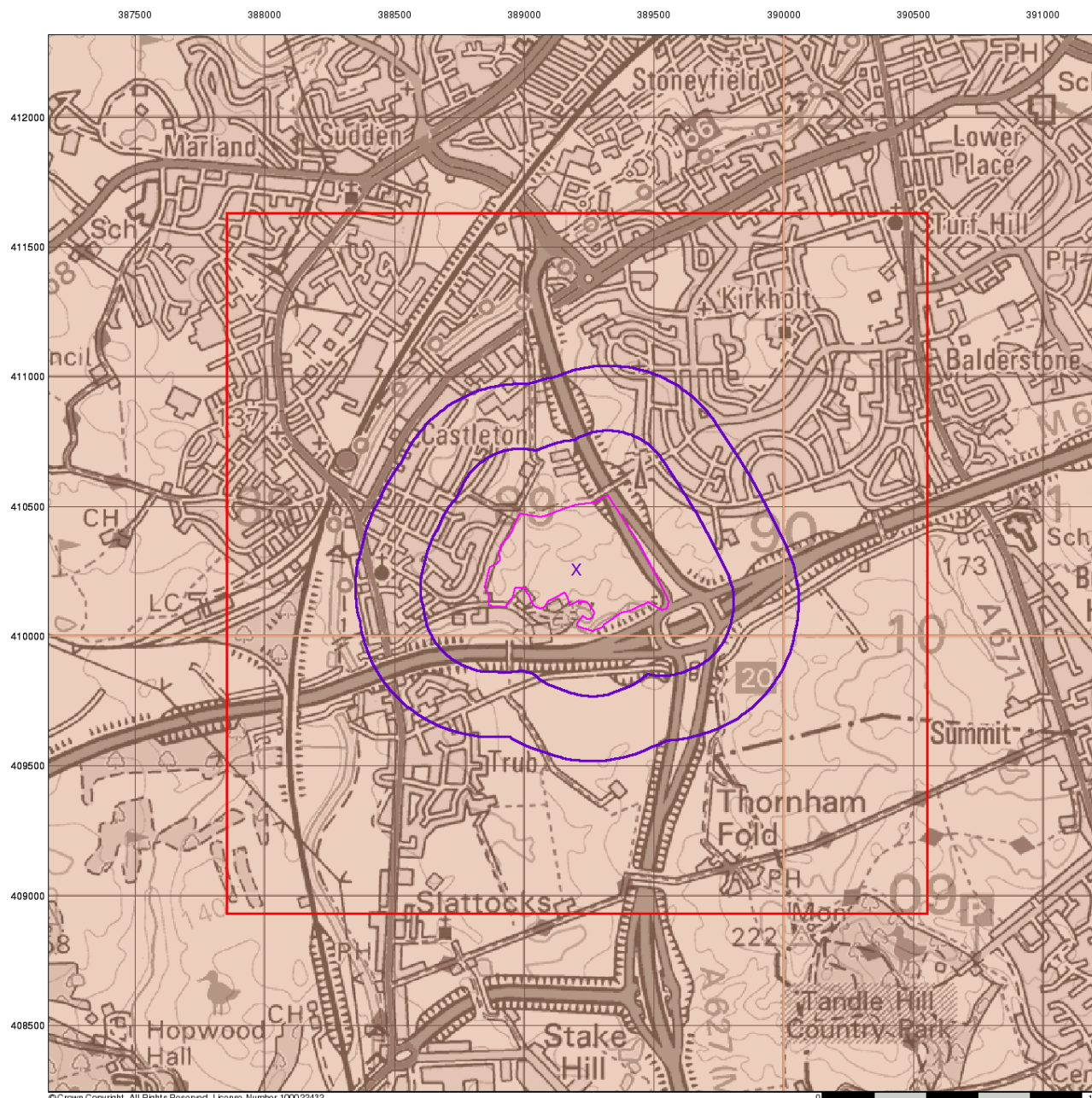
Sensitive Land Use	Version	Update Cycle
Areas of Adopted Green Belt Oldham Metropolitan Borough Council Rochdale Metropolitan Borough Council	November 201 November 201	As notified As notified
Areas of Unadopted Green Belt Oldham Metropolitan Borough Council Rochdale Metropolitan Borough Council	November 201 November 201	As notified As notified
Areas of Outstanding Natural Beauty Natural England	October 2015	Bi-Annually
Environmentally Sensitive Areas Natural England	October 2015	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	October 2015	Bi-Annually
Marine Nature Reserves Natural England	October 2015	Bi-Annually
National Nature Reserves Natural England	October 2015	Bi-Annually
National Parks Natural England	August 2015	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	Annually
Ramsar Sites Natural England	October 2015	Bi-Annually
Sites of Special Scientific Interest Natural England	October 2015	Bi-Annually
Special Areas of Conservation Natural England	October 2015	Bi-Annually
Special Protection Areas Natural England	October 2015	Bi-Annually

A selection of organisations who provide data within this report

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

Contact	Name and Address	Contact Details
2	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	Rochdale Metropolitan Borough Council - Environmental Health Department P O Box 32, Telegraph House, Ballie Street, Rochdale, Greater Manchester, OL16 1JH	Telephone: 01706 864139 Fax: 01706 864185 Website: www.rochdale.gov.uk
4	British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
5	The Coal Authority - Mining Report Service 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0845 7626848 Email: thecoalauthority@coal.gov.uk
6	Rochdale Metropolitan Borough Council PO Box 15, Town Hall, Rochdale, Greater Manchester, OL16 1AB	Telephone: 01706 647474 Fax: 01706 59475 Website: www.rochdale.gov.uk
7	Oldham Metropolitan Borough Council Civic Centre, P O Box 55, West Street, Oldham, Lancashire, OL1 1XN	Telephone: 0161 911 3000 Fax: 0161 678 4550 Website: www.oldham.gov.uk
8	Natural England Suite D, Unex House, Bourges Boulevard, Peterborough, Cambridgeshire, PE1 1NG	Telephone: 0845 600 3078 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
10	Environment Agency - Head Office Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



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0 1 km



Bedrock Aquifer Designation

General

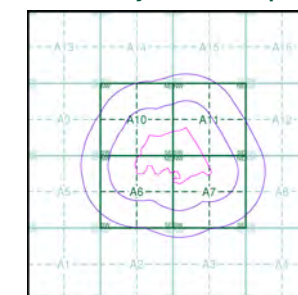
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- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



Order Details

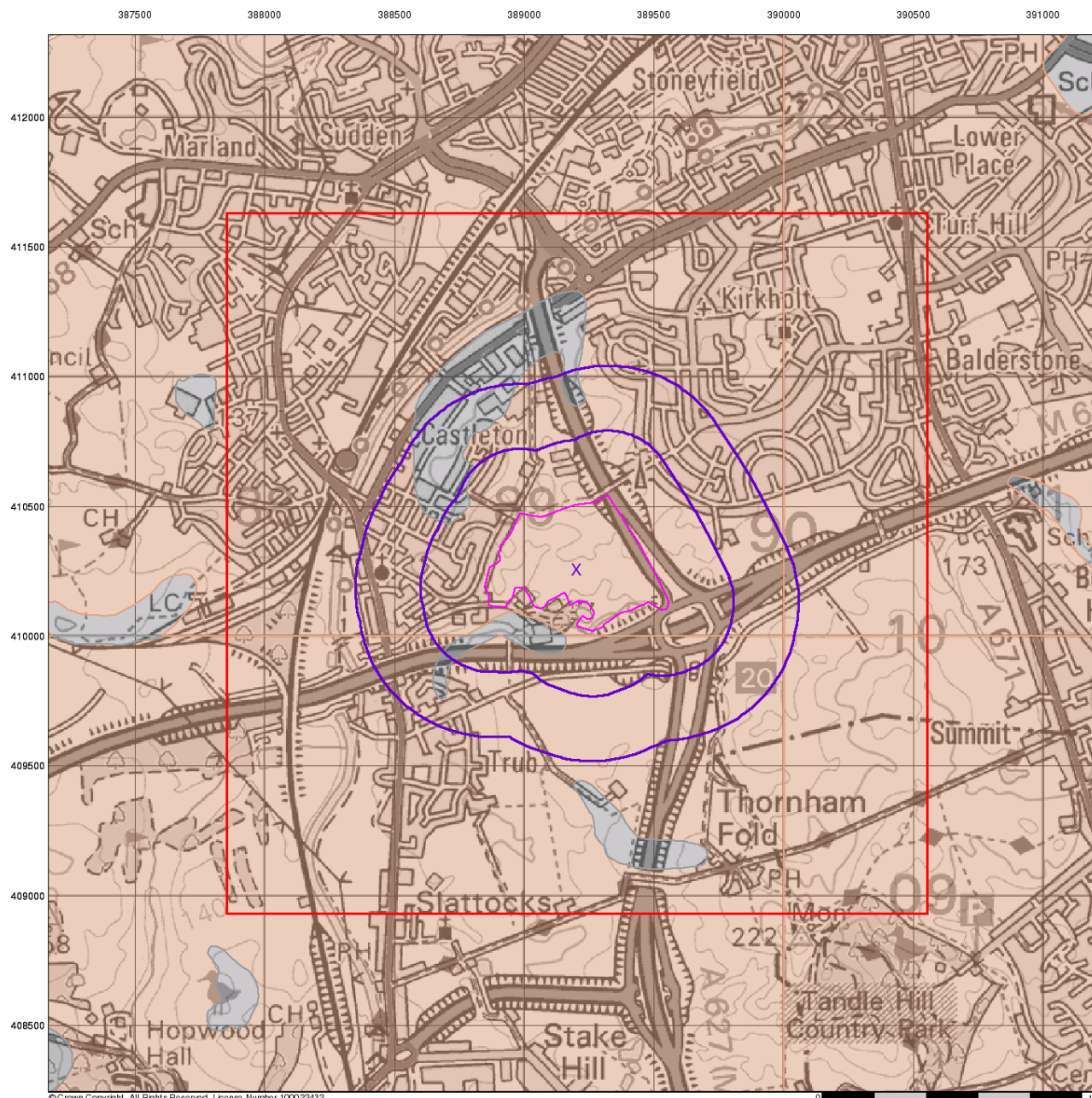
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 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260



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



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0 1 km



Superficial Aquifer Designation

General

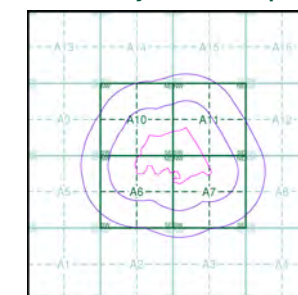
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- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- B Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



Order Details

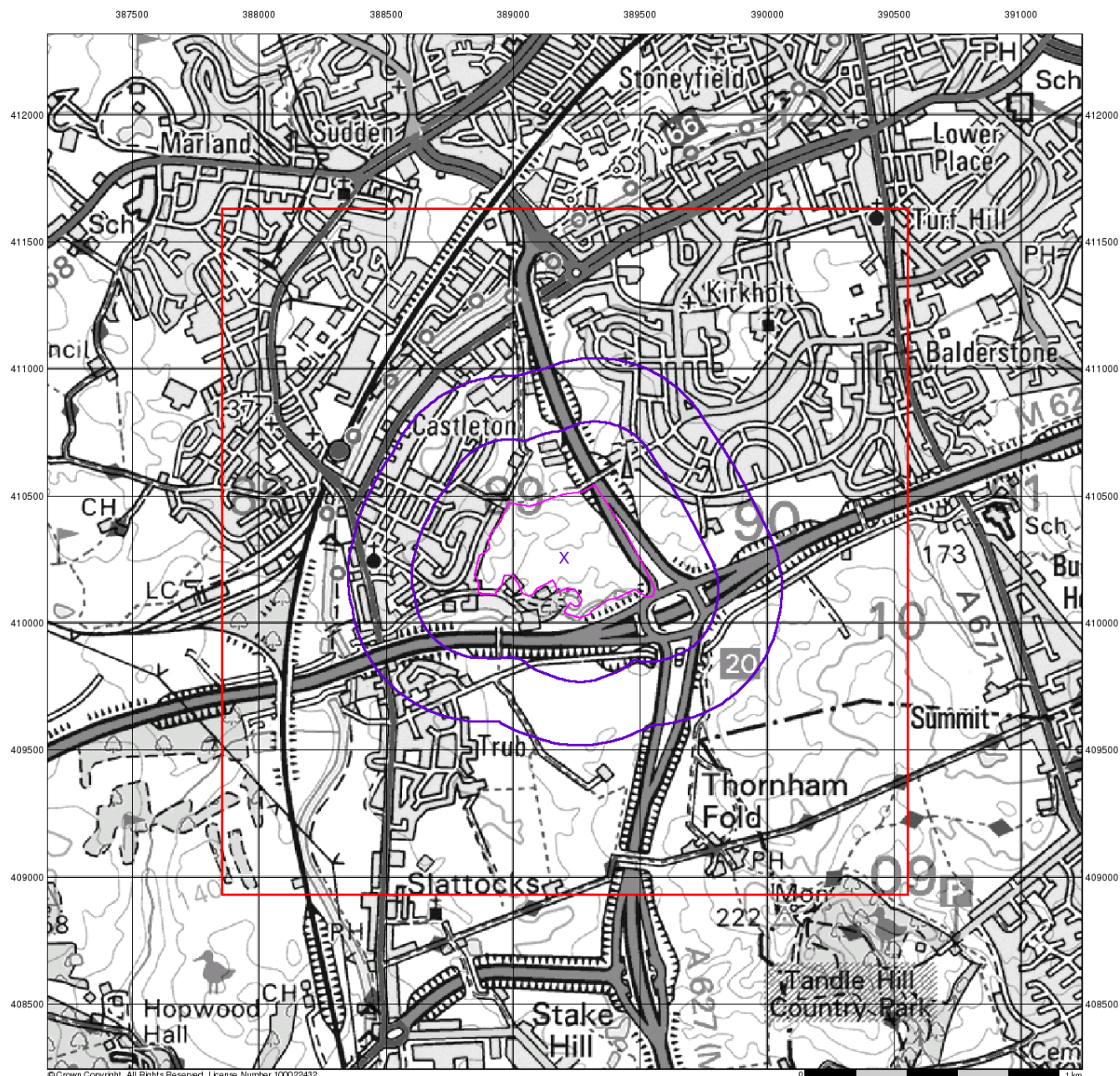
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Source Protection Zones

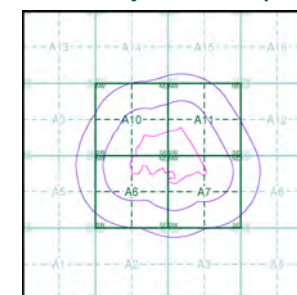
General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



Order Details

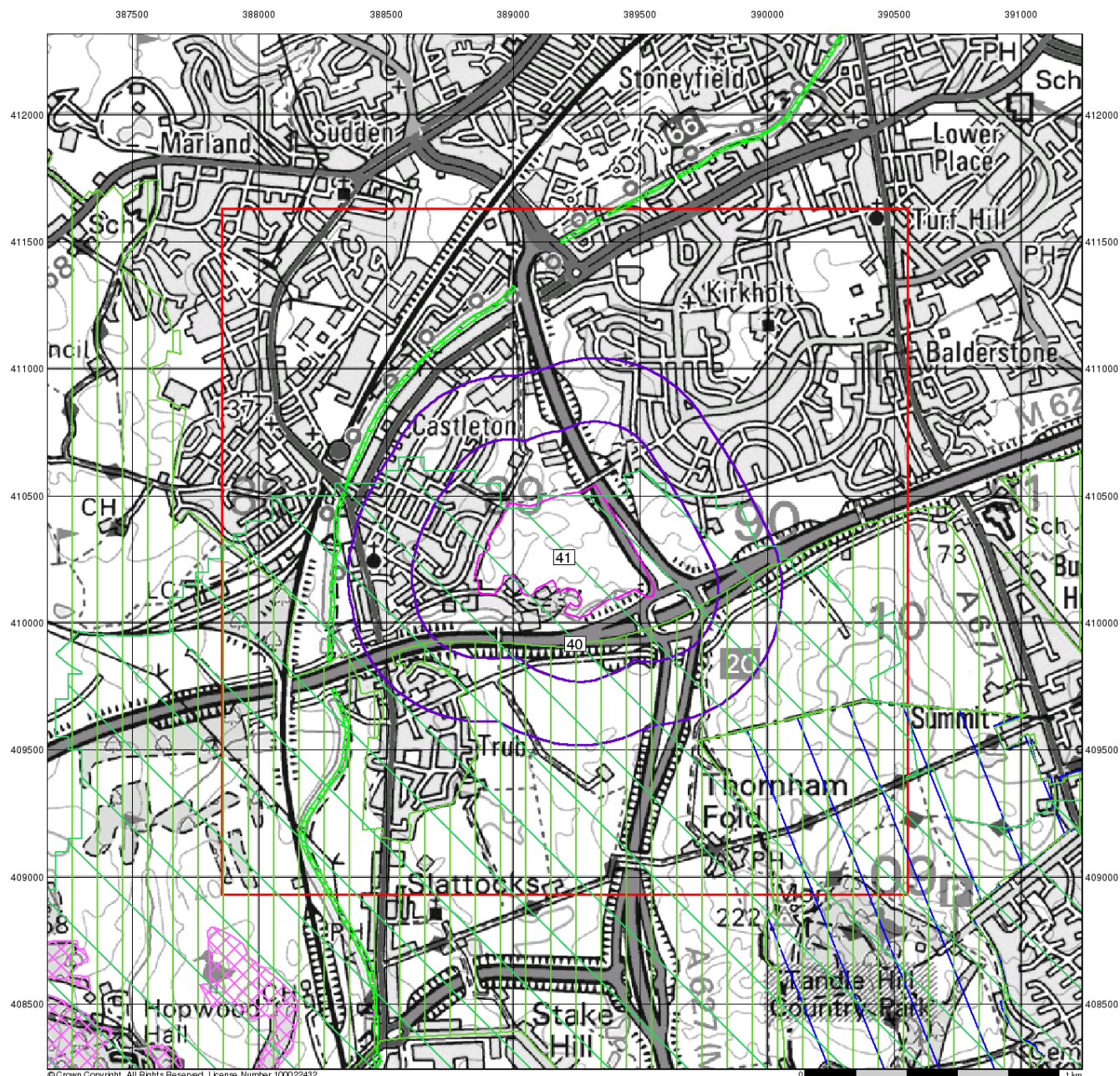
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 Slice: A
 Site Area (Ha): 21.43
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Sensitive Land Uses

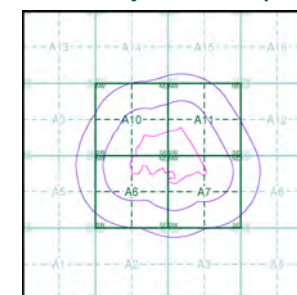
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260



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

General

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

Agency and Hydrological

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

Waste

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

Hazardous Substances

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

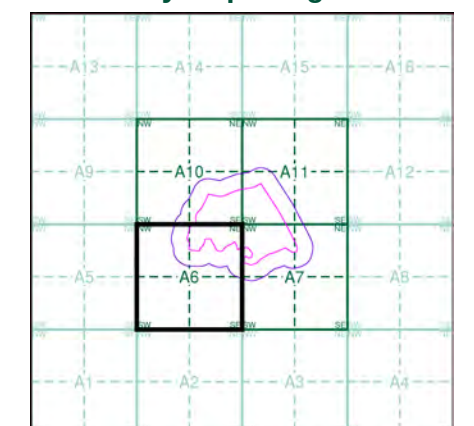
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Segment A6

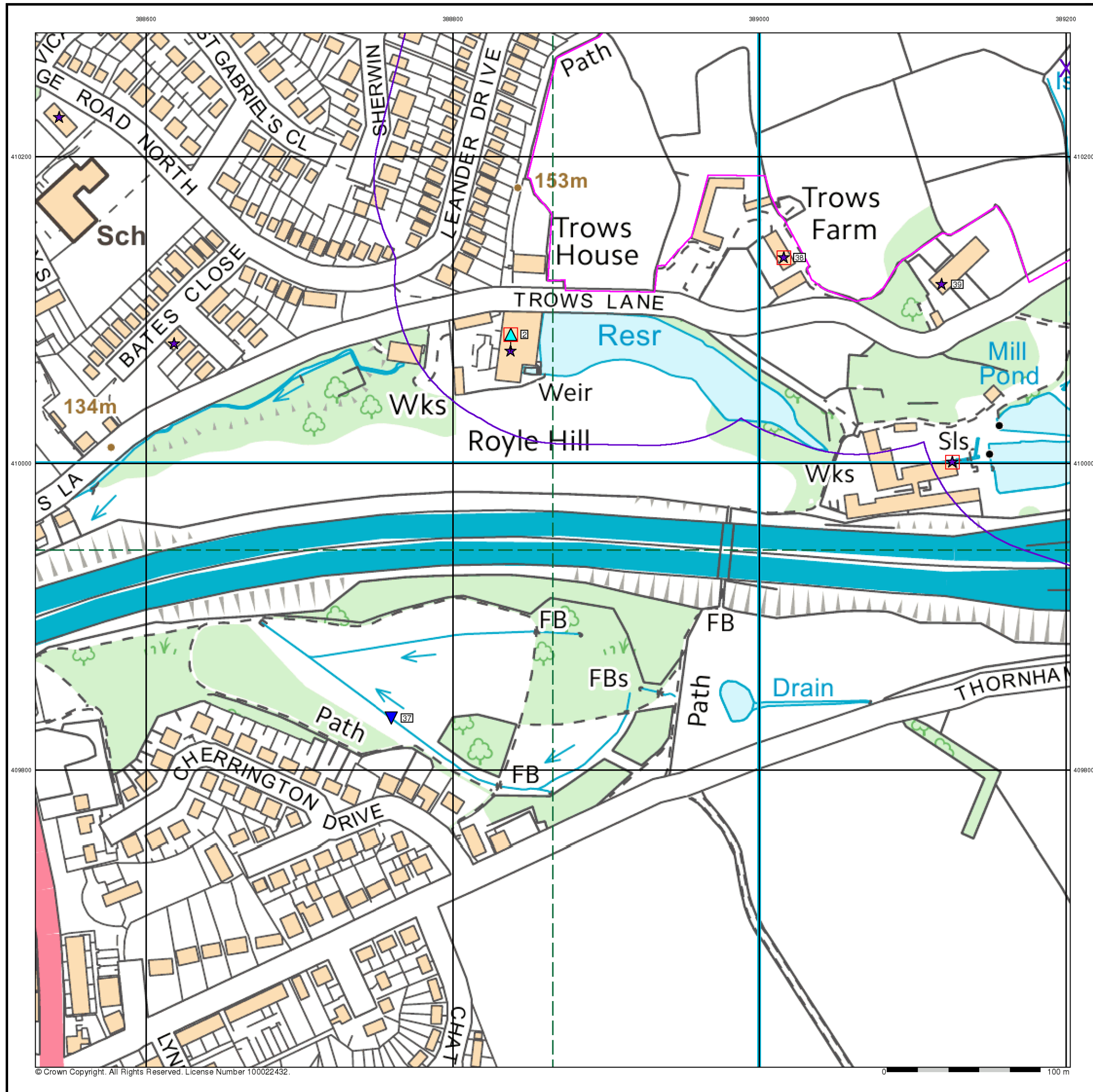


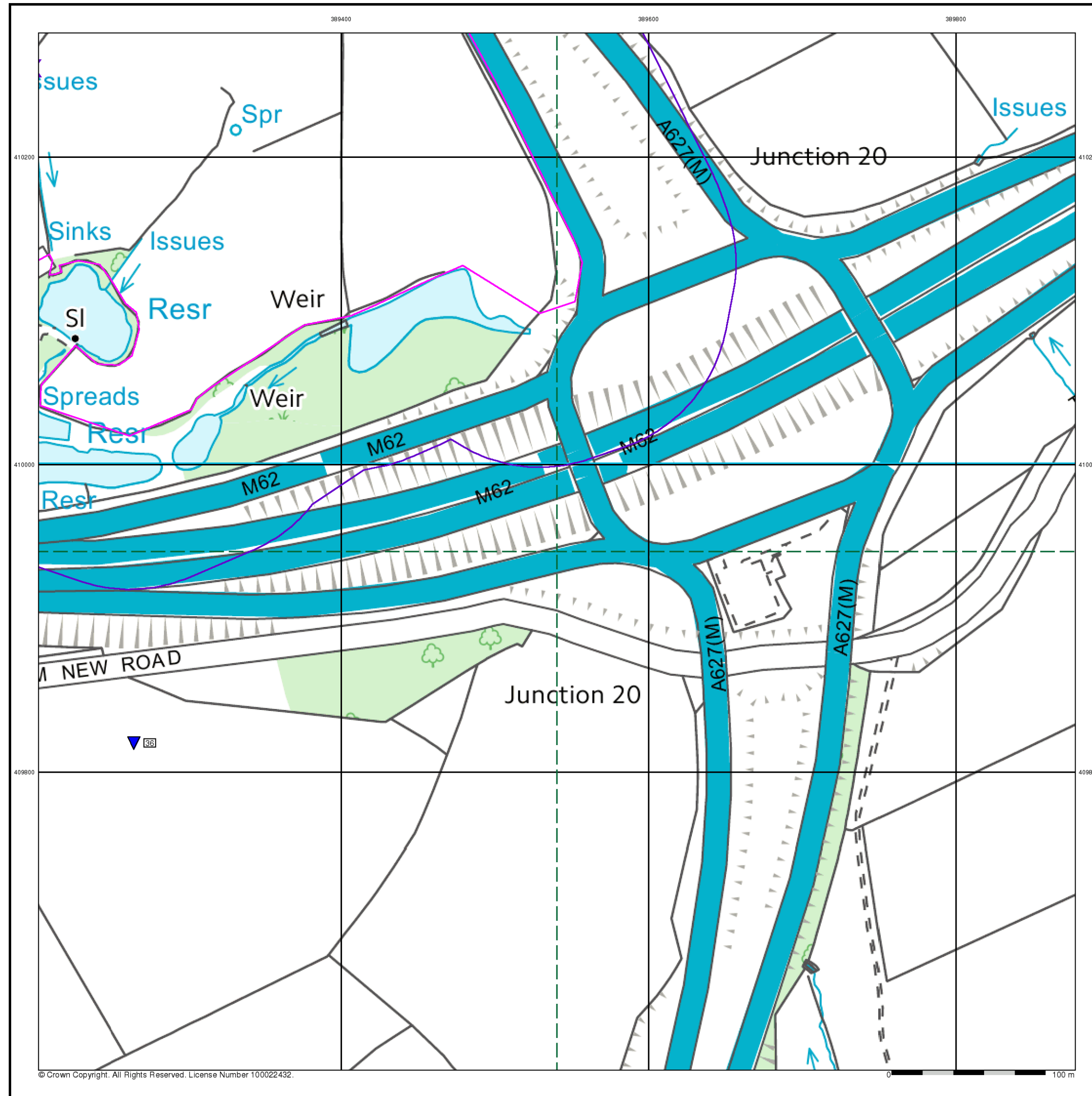
Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43

Site Details

Site at 389190, 410260





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0 100 m



General

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

Agency and Hydrological

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

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

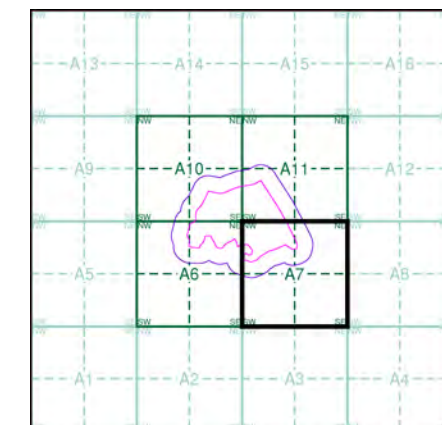
Waste

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

Hazardous Substances

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

Site Sensitivity Map - Segment A7



Order Details

Order Number: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410260
Slice: A
Site Area (Ha): 21.43

Site Details

Site at 389190, 410260



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

General

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

Agency and Hydrological

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

Waste

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

Hazardous Substances

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

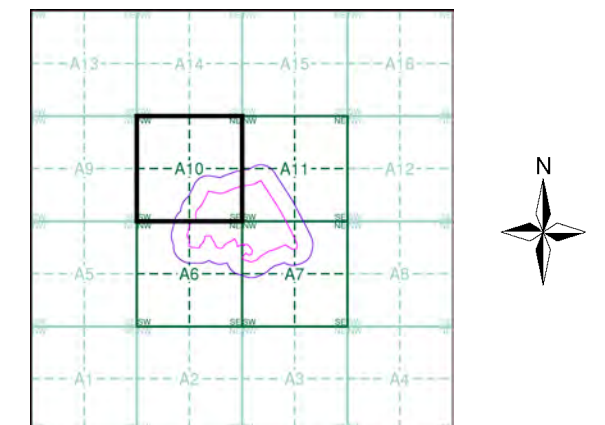
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Segment A10

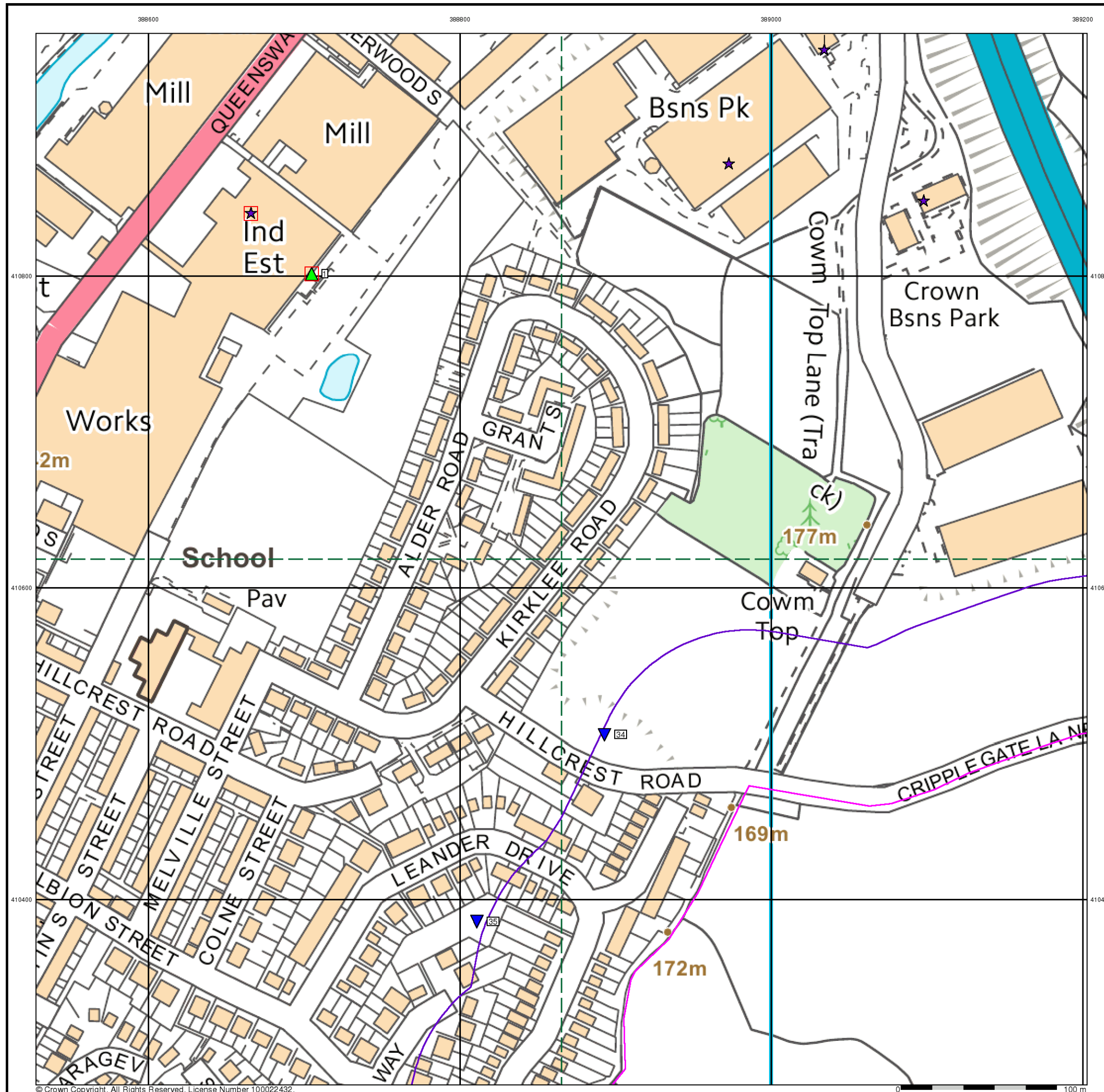


Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43

Site Details

Site at 389190, 410260



General

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

Agency and Hydrological

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

Waste

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

Hazardous Substances

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

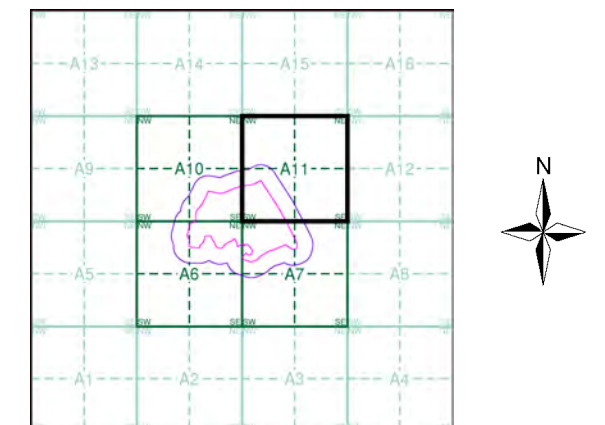
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Segment A11

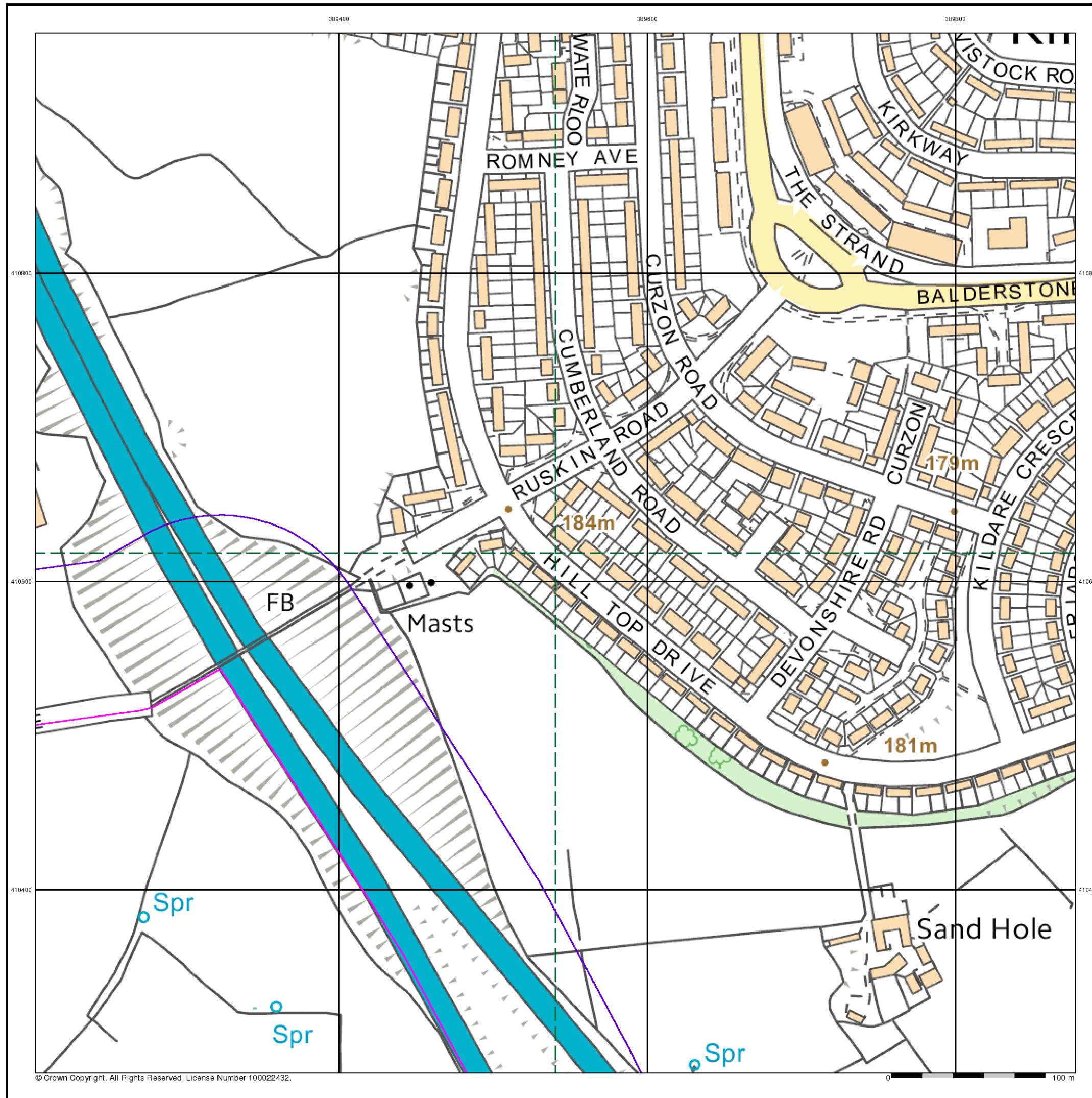


Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43

Site Details

Site at 389190, 410260



General

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

Agency and Hydrological

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

Waste

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

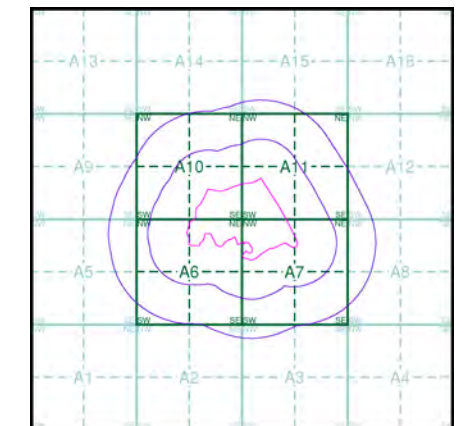
Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Site Sensitivity Map - Slice A



Order Details

Order Number: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410260
Slice: A
Site Area (Ha): 21.43
Search Buffer (m): 500

Site Details

Site at 389190, 410260

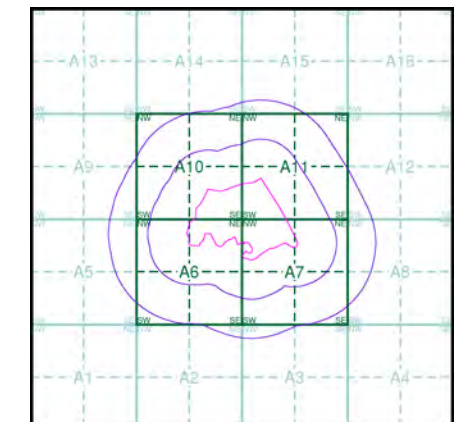
General

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

Agency and Hydrological (Flood)

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

Flood Map - Slice A



Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260



General

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

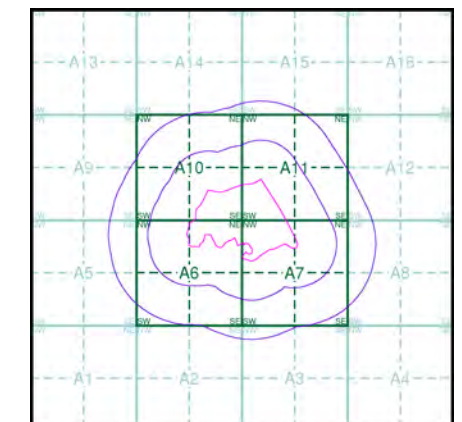
Agency and Hydrological (Boreholes)

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

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

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

Borehole Map - Slice A



Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260

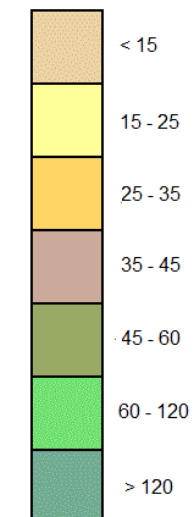


General

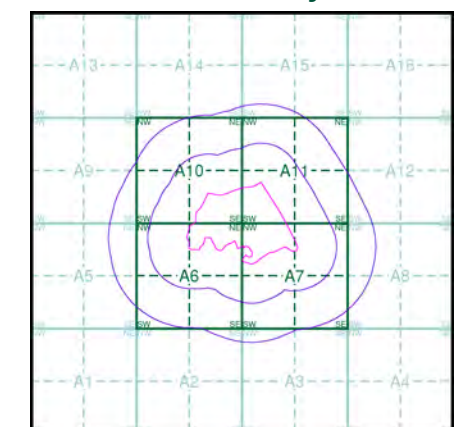
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



Estimated Soil Chemistry Arsenic - Slice A

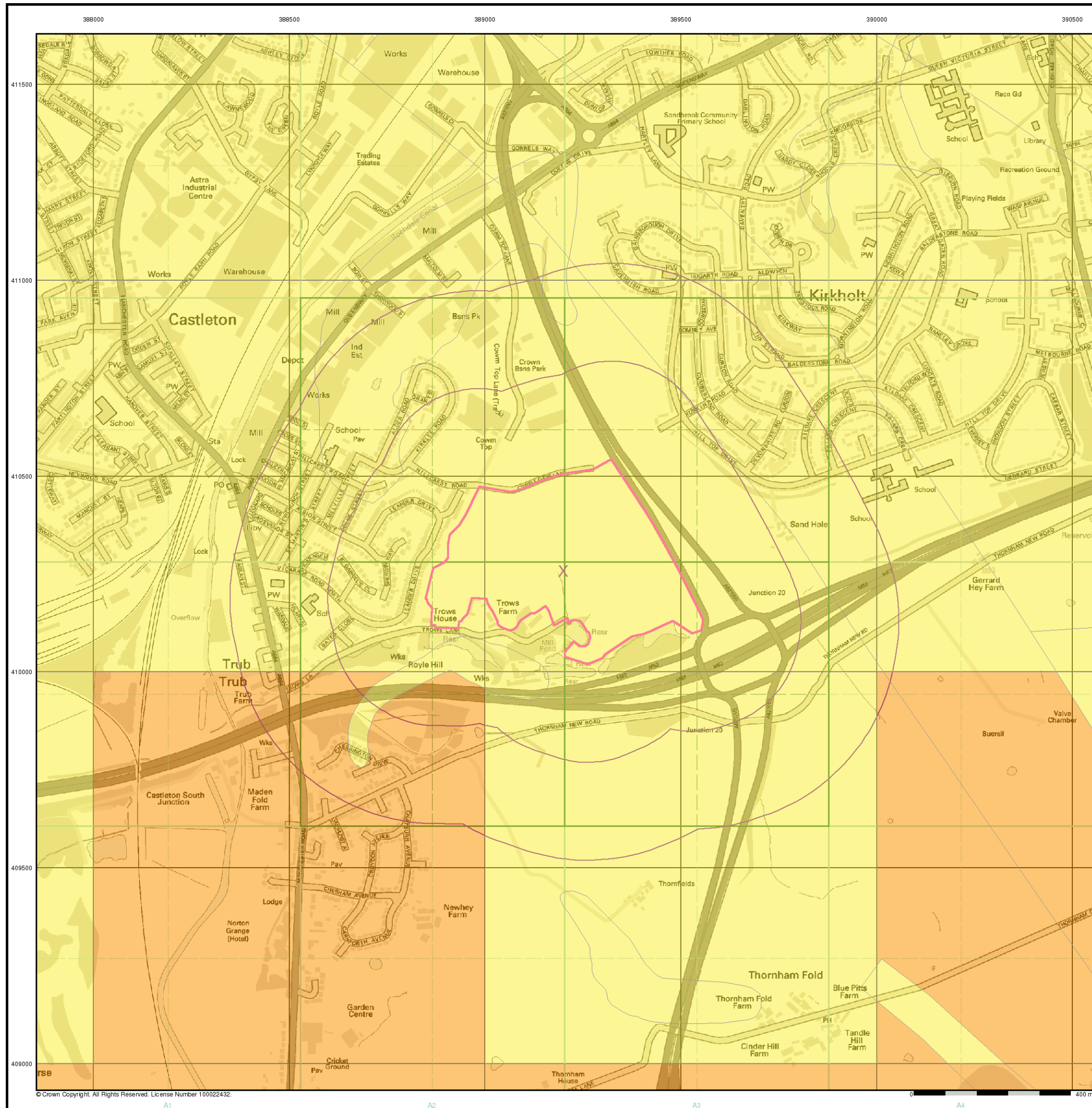


Order Details

Order Details: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260

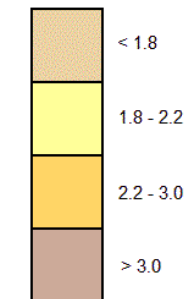


General

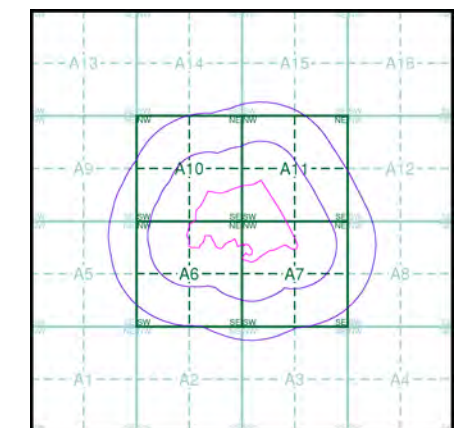
○ Specified Site
 ○ Specified Buffer(s)
 X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A

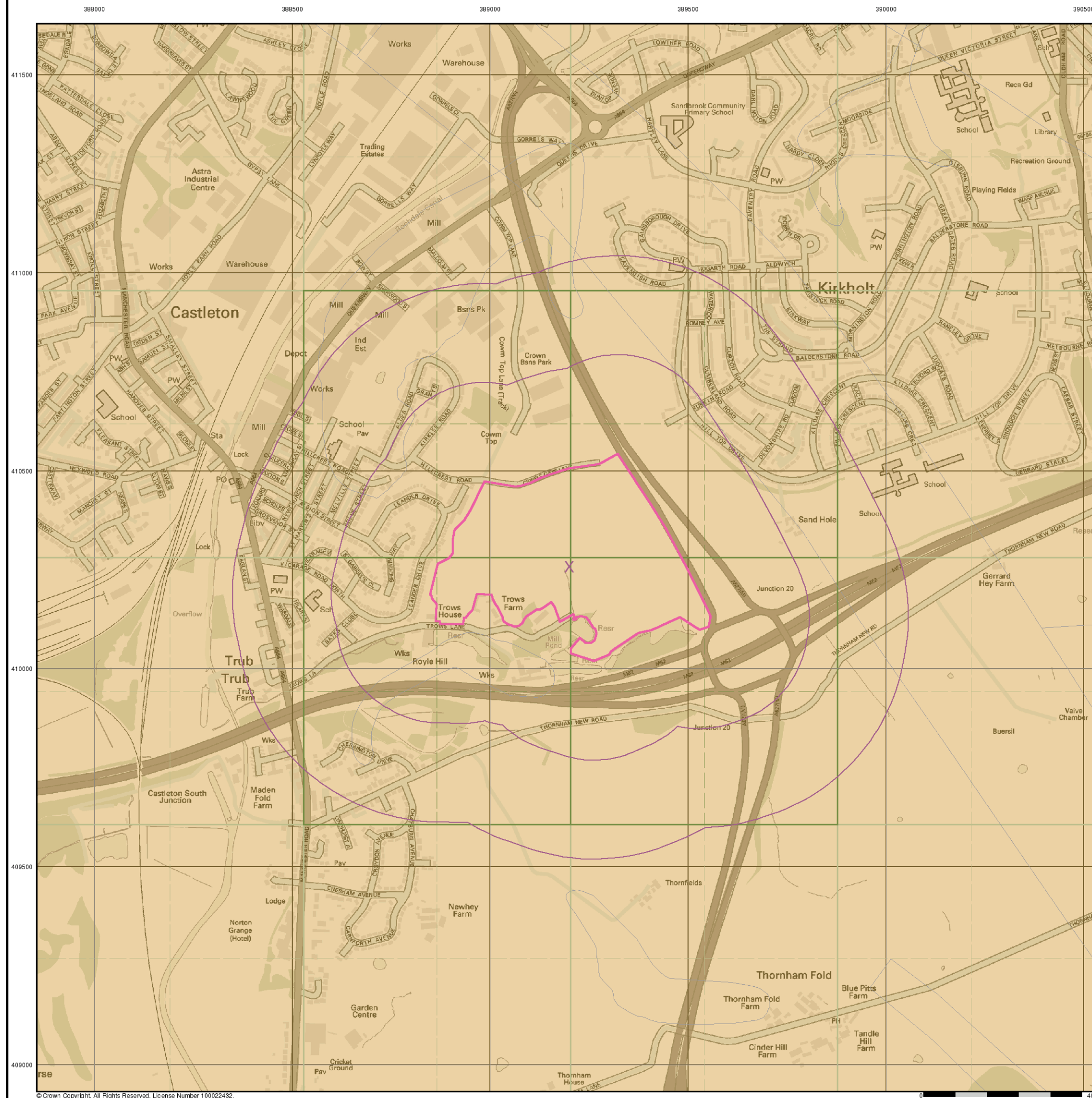


Order Details

Order Details: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260

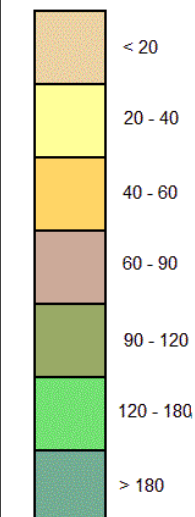


General

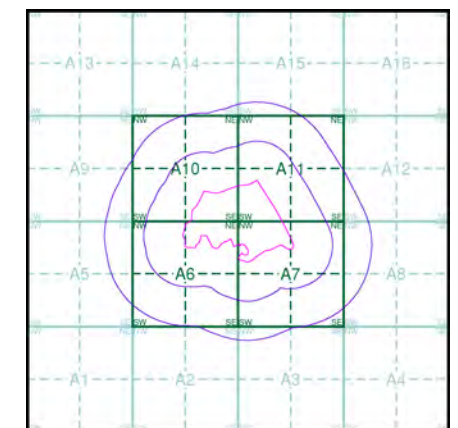
 Specified Site  Specified Buffer(s)  Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



Estimated Soil Chemistry Chromium - Slice A



Order Details

Order Details: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410260
Slice: A
Site Area (Ha): 21.43
Search Buffer (m): 500

Site Details

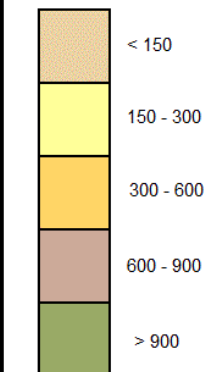
Site at 389190, 410260

General

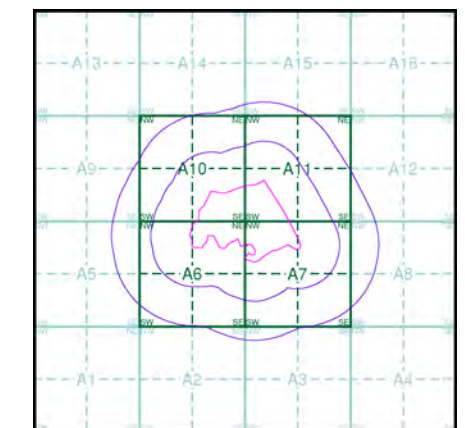
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A

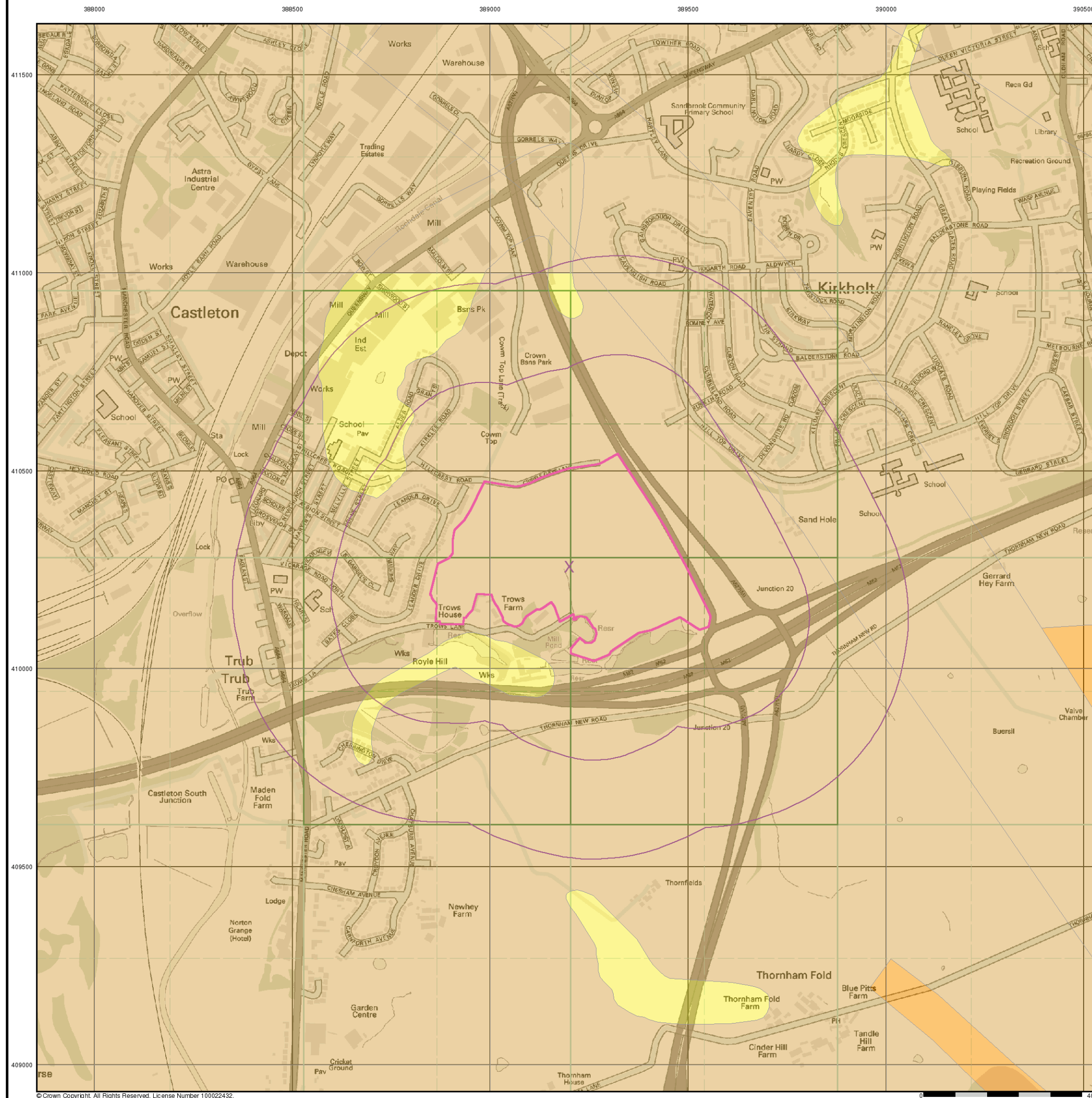


Order Details

Order Details: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260





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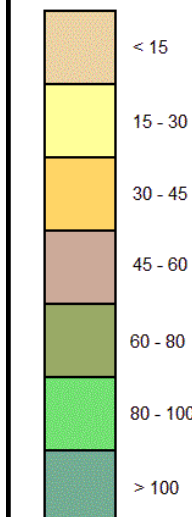


General

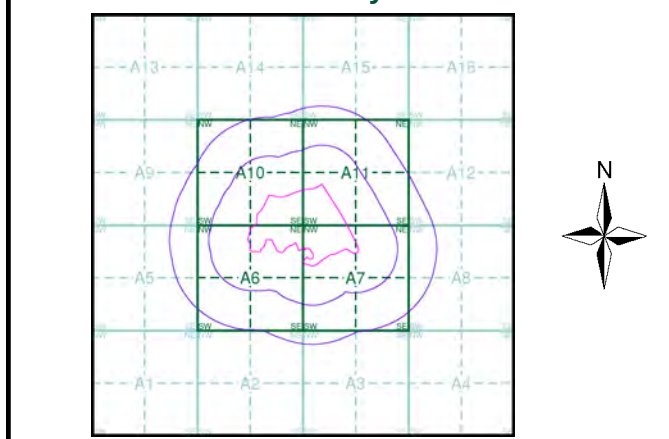
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A



Order Details

Order Details: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410260
Slice: A
Site Area (Ha): 21.43
Search Buffer (m): 500

Site Details

Site at 389190, 410260



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

Envirocheck[®] Report:

BGS Boreholes Datasheet

Order Details:

Order Number:

77317590_1_1

Customer Reference:

R2228

National Grid Reference:

389200, 410260

Slice:

A

Site Area (Ha):

21.43

Borehole Search Buffer (m):

50

Site Details:

Site at 389190, 410260

Client Details:

Mr S Miller
Smith Grant Partnership
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

Data Type	Page Number	On Site	0 to 50m
BGS Boreholes (50m)	pg 1	None	3

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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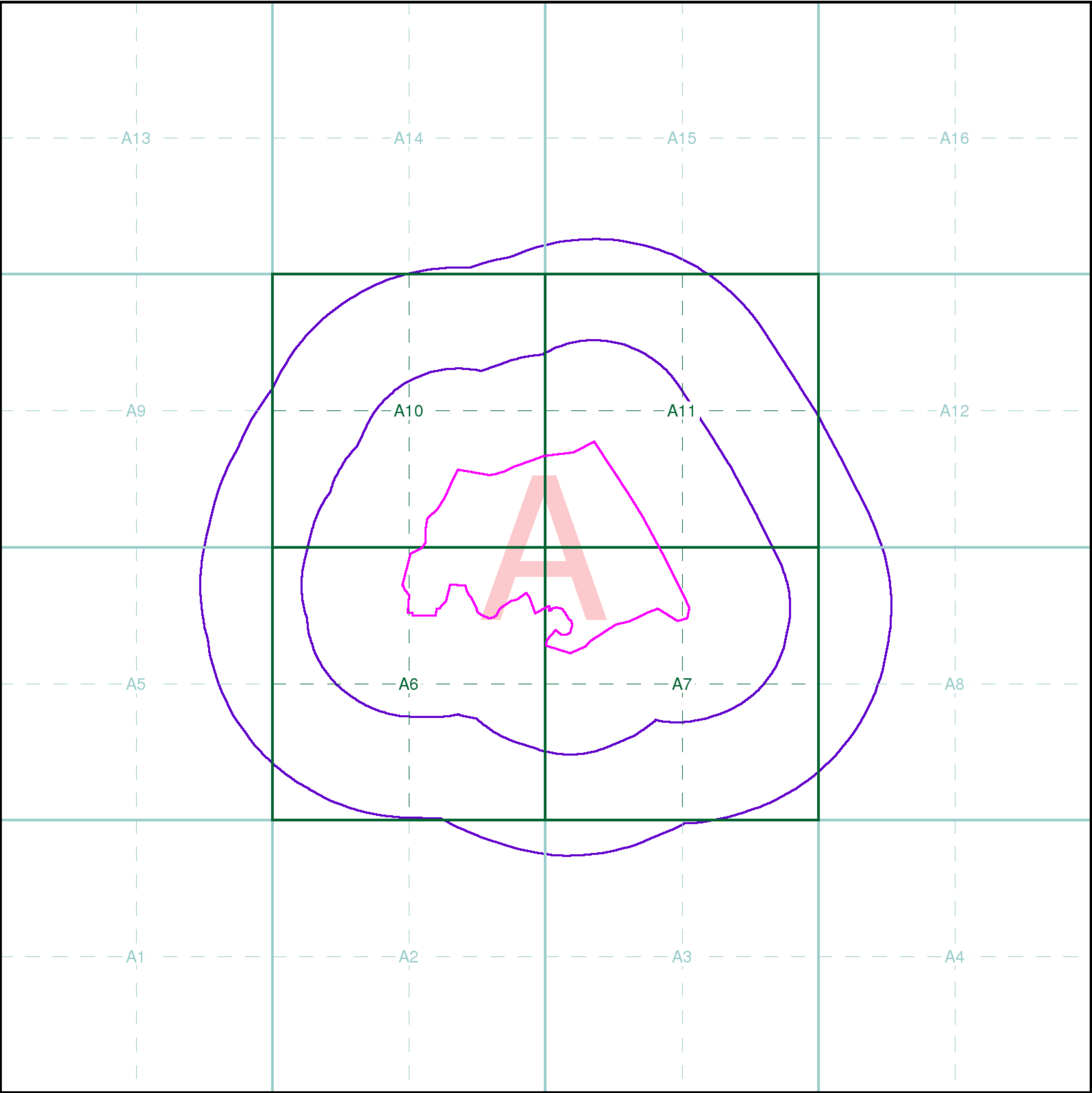
A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Report Version v50.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	BGS Boreholes BGS Reference: Sd81se421 Drilled Length (m): 8 Borehole Name: Junction 20 Project Rochdale 1 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/30147/	A10SE (NW)	20	4	389100 410490
43	BGS Boreholes BGS Reference: Sd81se423 Drilled Length (m): 12 Borehole Name: Junction 20 Project Rochdale 3 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/30149/	A11SW (N)	41	4	389220 410550
44	BGS Boreholes BGS Reference: Sd81se429 Drilled Length (m): 3.9 Borehole Name: Junction 20 Project Rochdale Tp1 Link to Borehole Scan: http://scans.bgs.ac.uk/sobi_scans/boreholes/30155/	A10SE (NW)	46	4	389040 410510

BGS Boreholes	Version	Update Cycle
BGS Boreholes British Geological Survey - National Geoscience Information Service	November 2015	Quarterly

Contact Details	Contact Logo
4 British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
- Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk	 LANDMARK [®] Information Group



Index Map

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

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

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

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

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr S Miller, Smith Grant Partnership, Station House,
Station Road, Ruabon, Wrexham, LL14 6DL

Order Details

Order Number: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410280
Site Area (Ha): 21.43
Search Buffer (m): 500

Site Details

Site at 389190, 410260

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



APPENDIX C

Ground Stability Report

Envirocheck[®] Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:

77317590_1_1

Customer Reference:

R2228

National Grid Reference:

389200, 410260

Slice:

A

Site Area (Ha):

21.43

Search Buffer (m):

500

Site Details:

Site at 389190, 410260

Client Details:

Mr S Miller
Smith Grant Partnership
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

Report Section and Details	Page Number
Summary	-
The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer selected. For ease of reference, the report is broken down into 4 sections of data; Mining and Natural Cavities Data, Historical Land Use Information (1:2,500), Historical Land Use Information (1:10,000) and Ground Stability Data (1:50,000).	
Mining and Natural Cavities Data	1
The Mining and Natural Cavities Data section features data sets related to the existence of mining areas and their potential hazards; and details of naturally formed cavities. Data sets within this section are not plotted, with the exception of BGS Recorded Mineral Sites and Potential Mining Areas which feature on the Historical Land Use Information (1:10,000) map.	
Historical Land Use Information (1:2,500)	2
The Historical Land Use Information (1:2,500) section contains data captured from analysis carried out by Landmark of 1:1,250 and 1:2,500 scale historical Ordnance Survey mapping, identifying areas where, historically, the land uses were potentially contaminative. For the purpose of this Envirocheck module, only historical data relating to mining and ground stability has been included and plotted on the corresponding Historical Land Use Information (1:2,500) map. This section also includes the Subterranean Features data set, which details various man-made and man-used underground spaces obtained from the Subterranea Britannica society.	
Historical Land Use Information (1:10,000)	6
The Historical Land Use (1:10,000) section covers data captured from the systematic analysis carried out by Landmark of 1:10, 560 and 1:10,000 scale historical Ordnance Survey mapping dating back to the mid-19th century, identifying potentially contaminative past industrial land uses. For the purpose of this Envirocheck module, only data relating to mining and ground stability has been included and plotted on the accompanying Historical Land Use Information (1:10,000) map.	
Ground Stability Data (1:50,000)	7
The Ground Stability (1:50,000) section includes the BGS Geosure data suite, reporting features to 250m and plotted onto 3 separate maps. Also reported is brine subsidence, brine mining and salt mining data sets, of which Brine Pumping and Salt Mining Related Features are plotted, and subsidence insurance claims and insurance investigations data, which is not plotted.	
Motion Map Data (1:2,500)	9
The Motion Map Data (1:2,500) section contains data which is plotted to indicate long-term stability trends from analysis of satellite radar data.	
Historical Map List	10
The Historical Map List section details the historical mapping that has been analysed for your site, in relation to the Historical Land Use Information sections.	
Data Currency	12
Data Suppliers	14
Useful Contacts	15

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The brine subsidence data relating to the Driotwich area as provided in this report is derived from JPB studies and physical monitoring undertaken annually over more than 35 years. For more detailed interpretation contact enquiries@jpb.co.uk. JPB retain the copyright and intellectual rights to this data and accept no liability for any loss or damage, including in direct or consequential loss, arising from the use of this data.

Data Type	Page Number	On Site	0 to 250m	251 to 500m
Mining and Natural Cavities Data				
BGS Recorded Mineral Sites	pg 1		3	1
Coal Mining Affected Areas	pg 1	Yes	n/a	n/a
Man Made Mining Cavities				
Mining Instability	pg 1	Yes	n/a	n/a
Natural Cavities				
Non Coal Mining Areas of Great Britain				n/a
Potential Mining Areas				
Historical Land Use Information (1:2,500)				
Extractive Industries or Potential Excavations from 1855-1909 (100m)	pg 2	1	4	n/a
Extractive Industries or Potential Excavations from 1893-1915 (100m)	pg 2	2	6	n/a
Extractive Industries or Potential Excavations from 1906-1937 (100m)	pg 3	1	7	n/a
Extractive Industries or Potential Excavations from 1924-1949 (100m)	pg 3	1	6	n/a
Extractive Industries or Potential Excavations from 1950-1980 (100m)	pg 4		7	n/a
Subterranean Features (100m)				n/a
Historical Land Use Information (1:10,000)				
Air Shafts				
Disturbed Ground				
General Quarrying				
Heap, unknown constituents				
Mineral Railway				
Mining & quarrying general				
Mining of coal & lignite				
Quarrying of sand & clay, operation of sand & gravel pits	pg 6		5	1
Former Marshes	pg 6		1	
Potentially Infilled Land (Non-Water)	pg 6		5	2
Potentially Infilled Land (Water)	pg 6		2	4

Data Type	Page Number	On Site	0 to 250m	251 to 500m
Ground Stability Data (1:50,000)				
Brine Compensation Area			n/a	n/a
Brine Pumping Related Features				
Brine Subsidence Solution Area				
Potential for Collapsible Ground Stability Hazards	pg 7	Yes	Yes	n/a
Potential for Compressible Ground Stability Hazards	pg 7	Yes	Yes	n/a
Potential for Ground Dissolution Stability Hazards	pg 7	Yes	Yes	n/a
Potential for Landslide Ground Stability Hazards	pg 7	Yes	Yes	n/a
Potential for Running Sand Ground Stability Hazards	pg 7	Yes	Yes	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 7	Yes	Yes	n/a
Salt Mining Related Features				
Subsidence Insurance Claims				n/a
Subsidence Investigations	pg 8		1	n/a
Motion Map Data (1:2,500)				
Motion Map (100m)	pg 9		19	n/a

Report Version v50.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	BGS Recorded Mineral Sites Site Name: Windy Bank Sand Pit Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96584 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A10SE (NW)	99	1	388893 410507
2	BGS Recorded Mineral Sites Site Name: Windy Bank Sand Pit Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 96583 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A10SW (W)	107	1	388811 410387
3	BGS Recorded Mineral Sites Site Name: Castleton Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 15322 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A7SW (S)	199	1	389265 409820
4	BGS Recorded Mineral Sites Site Name: Castleton Location: , Castleton, Rochdale, Lancashire Source: British Geological Survey, National Geoscience Information Service Reference: 15321 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Quaternary Geology: Glaciofluvial Deposits, Devensian Commodity: Sand Positional Accuracy: Located by supplier to within 10m	A6SW (SW)	300	1	388760 409835
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A6NE (N)	0	2	389200 410258
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A6NE (N)	0	3	389200 410258
	Non Coal Mining Areas of Great Britain No Hazard				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	Extractive Industries or Potential Excavations from 1855-1909 Use: Mill Pond First Map Published 1893 Date: Last Map Published Not Applicable Date:	A7NW (S)	0	-	389209 410063
6	Extractive Industries or Potential Excavations from 1855-1909 Use: Reservoir First Map Published 1890 Date: Last Map Published Not Applicable Date:	A7NW (SE)	1	-	389408 410096
7	Extractive Industries or Potential Excavations from 1855-1909 Use: Reservoir First Map Published 1893 Date: Last Map Published Not Applicable Date:	A6NE (S)	11	-	389198 410012
8	Extractive Industries or Potential Excavations from 1855-1909 Use: Reservoir First Map Published 1893 Date: Last Map Published Not Applicable Date:	A6NE (SW)	11	-	389053 410025
9	Extractive Industries or Potential Excavations from 1855-1909 Use: Old Gravel Pit First Map Published 1893 Date: Last Map Published Not Applicable Date:	A10SE (NW)	51	-	388934 410484
10	Extractive Industries or Potential Excavations from 1893-1915 Use: Mill Pond First Map Published 1910 Date: Last Map Published Not Applicable Date:	A7NW (S)	0	-	389212 410062
11	Extractive Industries or Potential Excavations from 1893-1915 Use: Reservoir First Map Published 1910 Date: Last Map Published Not Applicable Date:	A7NW (S)	0	-	389230 410126
12	Extractive Industries or Potential Excavations from 1893-1915 Use: Reservoir First Map Published 1910 Date: Last Map Published Not Applicable Date:	A7NW (SE)	1	-	389407 410096
13	Extractive Industries or Potential Excavations from 1893-1915 Use: Reservoir First Map Published 1910 Date: Last Map Published Not Applicable Date:	A6NE (SW)	12	-	389053 410026
14	Extractive Industries or Potential Excavations from 1893-1915 Use: Reservoir First Map Published 1910 Date: Last Map Published Not Applicable Date:	A6NE (S)	14	-	389195 410010
15	Extractive Industries or Potential Excavations from 1893-1915 Use: Old Sand Pit First Map Published 1910 Date: Last Map Published Not Applicable Date:	A10SE (NW)	50	-	388937 410486

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	Extractive Industries or Potential Excavations from 1893-1915 Use: Unspecified Pit First Map Published 1910 Date: Last Map Published Not Applicable Date:	A6NW (W)	60	-	388799 410233
17	Extractive Industries or Potential Excavations from 1893-1915 Use: Old Sand Pits First Map Published 1910 Date: Last Map Published Not Applicable Date:	A10SW (W)	80	-	388834 410373
18	Extractive Industries or Potential Excavations from 1906-1937 Use: Reservoir First Map Published 1929 Date: Last Map Published Not Applicable Date:	A7NW (S)	0	-	389230 410127
19	Extractive Industries or Potential Excavations from 1906-1937 Use: Reservoir First Map Published 1930 Date: Last Map Published Not Applicable Date:	A7NW (SE)	1	-	389404 410096
20	Extractive Industries or Potential Excavations from 1906-1937 Use: Mill Pond First Map Published 1929 Date: Last Map Published Not Applicable Date:	A6NE (S)	3	-	389191 410046
21	Extractive Industries or Potential Excavations from 1906-1937 Use: Reservoir First Map Published 1929 Date: Last Map Published Not Applicable Date:	A6NE (SW)	11	-	389018 410050
22	Extractive Industries or Potential Excavations from 1906-1937 Use: Reservoir First Map Published 1929 Date: Last Map Published Not Applicable Date:	A6NE (S)	12	-	389195 410011
23	Extractive Industries or Potential Excavations from 1906-1937 Use: Unspecified Deposited Material First Map Published 1929 Date: Last Map Published Not Applicable Date:	A10SE (NW)	51	-	388934 410484
24	Extractive Industries or Potential Excavations from 1906-1937 Use: Unspecified Pit First Map Published 1929 Date: Last Map Published Not Applicable Date:	A10SW (W)	80	-	388833 410371
25	Extractive Industries or Potential Excavations from 1906-1937 Use: Unspecified Pit First Map Published 1929 Date: Last Map Published Not Applicable Date:	A6NE (SW)	87	-	389053 410020
26	Extractive Industries or Potential Excavations from 1924-1949 Use: Reservoir First Map Published 1937 Date: Last Map Published Not Applicable Date:	A7NW (S)	0	-	389227 410127

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	Extractive Industries or Potential Excavations from 1924-1949 Use: Reservoir First Map Published 1937 Date: Last Map Published Not Applicable Date:	A7NW (SE)	2	-	389407 410096
28	Extractive Industries or Potential Excavations from 1924-1949 Use: Mill Pond First Map Published 1937 Date: Last Map Published Not Applicable Date:	A6NE (S)	4	-	389188 410047
29	Extractive Industries or Potential Excavations from 1924-1949 Use: Reservoir First Map Published 1937 Date: Last Map Published Not Applicable Date:	A6NE (S)	11	-	389197 410012
30	Extractive Industries or Potential Excavations from 1924-1949 Use: Reservoir First Map Published 1937 Date: Last Map Published Not Applicable Date:	A6NE (SW)	11	-	389043 410032
31	Extractive Industries or Potential Excavations from 1924-1949 Use: Unspecified Pit First Map Published 1937 Date: Last Map Published Not Applicable Date:	A6NW (SW)	79	-	388821 410052
32	Extractive Industries or Potential Excavations from 1924-1949 Use: Unspecified Pit First Map Published 1937 Date: Last Map Published Not Applicable Date:	A10SW (W)	82	-	388832 410375
33	Extractive Industries or Potential Excavations from 1950-1980 Use: Reservoir First Map Published 1956 Date: Last Map Published 1956 Date:	A7NW (S)	1	-	389228 410127
34	Extractive Industries or Potential Excavations from 1950-1980 Use: Reservoir First Map Published 1956 Date: Last Map Published 1956 Date:	A7NW (SE)	3	-	389404 410093
35	Extractive Industries or Potential Excavations from 1950-1980 Use: Mill Pond First Map Published 1956 Date: Last Map Published 1956 Date:	A6NE (S)	5	-	389189 410045
36	Extractive Industries or Potential Excavations from 1950-1980 Use: Reservoir First Map Published 1956 Date: Last Map Published 1956 Date:	A7NW (S)	12	-	389206 410014
37	Extractive Industries or Potential Excavations from 1950-1980 Use: Reservoir First Map Published 1956 Date: Last Map Published 1956 Date:	A6NE (SW)	14	-	389013 410044

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	Extractive Industries or Potential Excavations from 1950-1980 Use: Pond First Map Published 1956 Date: Last Map Published 1956 Date:	A7NW (SE)	67	-	389441 410040
39	Extractive Industries or Potential Excavations from 1950-1980 Use: Unspecified Pit First Map Published 1956 Date: Last Map Published 1956 Date:	A10SW (W)	84	-	388831 410374

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1910	A10SE (NW)	44	-	388942 410481
41	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1910	A10SW (W)	95	-	388822 410383
41	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1910	A10SW (W)	136	-	388776 410367
42	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1956	A6NW (SW)	182	-	388722 410004
43	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1932 - 1956	A7SW (S)	191	-	389284 409830
44	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1894 - 1910	A6SW (SW)	474	-	388725 409663
45	Former Marshes Use: Former Marsh Date of Mapping: 1851	A10NE (NW)	175	-	388945 410643
46	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1993	A10SE (NW)	44	-	388942 410481
47	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1993	A10SW (W)	95	-	388822 410383
48	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1993	A10SW (W)	136	-	388776 410367
49	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A6NW (SW)	182	-	388722 410004
50	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A7SW (S)	191	-	389284 409830
51	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1993	A10NW (NW)	449	-	388743 410850
52	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1984	A6SW (SW)	474	-	388725 409663
53	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A7NW (SE)	85	-	389459 410027
54	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A7NE (E)	181	-	389688 410278
55	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A7SW (SE)	274	-	389518 409825
56	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1931	A11SE (E)	409	-	389830 410499
57	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1910	A10NW (NW)	422	-	388758 410828
58	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1851	A10NW (NW)	500	-	388759 410918

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Brine Compensation Area The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
59	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	389200 410258
60	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	1	389200 410000
61	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A6SE (S)	192	1	389200 409830
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	389200 410258
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	1	389200 410000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	389200 410258
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	1	389200 410000
62	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	389200 410258
63	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	1	389200 410000
64	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	389200 410258
65	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	1	389200 410000
66	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (SW)	0	1	389101 410041
67	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A6NE (N)	0	1	389200 410258
68	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	19	1	389200 410000
69	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	50	1	389172 410000
70	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A7NE (SE)	62	1	389578 410036
71	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A7NE (SE)	108	1	389575 410000
72	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SW (NW)	187	1	388809 410537
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (W)	0	1	388874 410127

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (S)	48	1	389172 410000
	Subsidence Investigations Site Investigation Date: 5th November 2010 Root Survey: No CCTV Drain Survey: No Depth of Foundation: Not Supplied Footing: Soil Classification: Not Supplied			-	

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	Motion Map Average Velocity -0.1 Gradient (mmyear):	A11SW (N)	2	-	389287 410525
73	Motion Map Average Velocity 0.2 Gradient (mmyear):	A11SW (N)	3	-	389291 410528
73	Motion Map Average Velocity -0.1 Gradient (mmyear):	A11SW (N)	4	-	389290 410529
73	Motion Map Average Velocity 0.2 Gradient (mmyear):	A11SW (N)	5	-	389293 410532
74	Motion Map Average Velocity -0.4 Gradient (mmyear):	A11SW (NE)	21	-	389340 410554
74	Motion Map Average Velocity -0.4 Gradient (mmyear):	A11SW (NE)	25	-	389343 410557
75	Motion Map Average Velocity 0.1 Gradient (mmyear):	A11SW (NE)	47	-	389361 410570
75	Motion Map Average Velocity -0.1 Gradient (mmyear):	A11SW (NE)	48	-	389363 410569
75	Motion Map Average Velocity 0.1 Gradient (mmyear):	A11SW (NE)	53	-	389366 410572
76	Motion Map Average Velocity 0.2 Gradient (mmyear):	A6NW (W)	50	-	388813 410110
76	Motion Map Average Velocity 0.0 Gradient (mmyear):	A6NW (W)	50	-	388815 410105
77	Motion Map Average Velocity -2.0 Gradient (mmyear):	A10SW (W)	59	-	388819 410296
78	Motion Map Average Velocity -0.7 Gradient (mmyear):	A11SW (N)	67	-	389328 410609
78	Motion Map Average Velocity -0.6 Gradient (mmyear):	A11SW (N)	67	-	389326 410610
79	Motion Map Average Velocity -0.1 Gradient (mmyear):	A11SW (NE)	68	-	389379 410581
79	Motion Map Average Velocity 0.7 Gradient (mmyear):	A11SW (NE)	69	-	389383 410576
79	Motion Map Average Velocity -0.3 Gradient (mmyear):	A11SW (NE)	73	-	389384 410580
79	Motion Map Average Velocity -0.1 Gradient (mmyear):	A11SW (NE)	76	-	389386 410584
80	Motion Map Average Velocity 0.1 Gradient (mmyear):	A7SW (S)	86	-	389255 409934

The following mapping has been analysed for Historical Land Use Information (1:2,500):

1:2,500	Mapsheet	Published Date
Lancashire And Furness	089_09	1890
Lancashire And Furness	089_09	1890
Lancashire And Furness	088_12	1893
Lancashire And Furness	088_12	1893
Lancashire And Furness	088_12	1893
Lancashire And Furness	088_12	1893
Lancashire And Furness	088_12	1910
Lancashire And Furness	088_12	1910
Lancashire And Furness	088_12	1910
Lancashire And Furness	088_12	1910
Lancashire And Furness	089_09	1910
Lancashire And Furness	089_09	1910
Lancashire And Furness	088_12	1929
Lancashire And Furness	088_12	1929
Lancashire And Furness	088_12	1929
Lancashire And Furness	088_12	1929
Lancashire And Furness	089_09	1930
Lancashire And Furness	089_09	1930
Lancashire And Furness	088_12	1937
Lancashire And Furness	088_12	1937
Lancashire And Furness	088_12	1937
Lancashire And Furness	088_12	1937
Lancashire And Furness	089_09	1937
Lancashire And Furness	089_09	1937
Ordnance Survey Plan	SD8809	1956
Ordnance Survey Plan	SD8810	1956
Ordnance Survey Plan	SD8810	1956
Ordnance Survey Plan	SD8909	1956
Ordnance Survey Plan	SD8909	1956
Ordnance Survey Plan	SD8910	1956
Ordnance Survey Plan	SD8910	1956
Ordnance Survey Plan	SD8910	1956
Ordnance Survey Plan	SD8910	1956

The following mapping has been analysed for Historical Land Use Information (1:10,000):

1:10,560	Mapsheet	Published Date
Lancashire And Furness	088_00	1851
Lancashire And Furness	089_00	1851
Yorkshire	258_00	1854
Lancashire And Furness	088_NE	1894
Lancashire And Furness	088_SE	1894
Lancashire And Furness	089_NW	1894
Lancashire And Furness	089_SW	1894
Lancashire And Furness	088_SE	1910
Lancashire And Furness	089_NW	1910
Lancashire And Furness	089_SW	1910
Lancashire And Furness	088_NE	1911
Lancashire And Furness	089_NW	1931
Lancashire And Furness	089_SW	1931
Lancashire And Furness	088_NE	1932
Lancashire And Furness	088_SE	1932
Ordnance Survey Plan	SD80NE	1956
Ordnance Survey Plan	SD81SE	1956
Ordnance Survey Plan	SD90NW	1956
Ordnance Survey Plan	SD91SW	1956
1:10,000	Mapsheet	Published Date
Ordnance Survey Plan	SD80NE	1984
Ordnance Survey Plan	SD91SW	1989
Ordnance Survey Plan	SD90NW	1990
Ordnance Survey Plan	SD81SE	1993

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2015	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Mining Report Service	March 2014	As notified
Man Made Mining Cavities Peter Brett Associates	October 2015	Bi-Annually
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Natural Cavities Peter Brett Associates	October 2015	Bi-Annually
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	July 2014	Not Applicable
Historical Land Use Information (1:2,500)	Version	Update Cycle
Subterranean Features Landmark Information Group Limited	August 2015	Bi-Annually
Ground Stability Data (1:50,000)	Version	Update Cycle
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Subsidence Insurance Claims SP Property Services	November 2015	Quarterly
Subsidence Investigations CET Structures Ltd	November 2015	Quarterly

Motion Map Data (1:2,500)	Version	Update Cycle
Motion Map		
Nigel Press Associates - Hampshire	February 2011	As notified
Nigel Press Associates - Cambridge	January 2011	As notified
Nigel Press Associates - Ipswich	January 2011	As notified
Nigel Press Associates - Norwich	January 2011	As notified
Nigel Press Associates - Peterborough	January 2011	As notified
Nigel Press Associates - Barnstaple	July 2010	As notified
Nigel Press Associates - Derbyshire	July 2010	As notified
Nigel Press Associates - Humberside	July 2010	As notified
Nigel Press Associates - Kent	July 2010	As notified
Nigel Press Associates - Lincolnshire	July 2010	As notified
Nigel Press Associates - Nottinghamshire	July 2010	As notified
Nigel Press Associates - Birmingham	May 2009	As notified
Nigel Press Associates - Bournemouth	May 2009	As notified
Nigel Press Associates - Brighton	May 2009	As notified
Nigel Press Associates - Bristol	May 2009	As notified
Nigel Press Associates - Cardiff	May 2009	As notified
Nigel Press Associates - Central London	May 2009	As notified
Nigel Press Associates - Cheltenham	May 2009	As notified
Nigel Press Associates - Coventry	May 2009	As notified
Nigel Press Associates - Crawley	May 2009	As notified
Nigel Press Associates - Edinburgh	May 2009	As notified
Nigel Press Associates - Exeter	May 2009	As notified
Nigel Press Associates - Glasgow	May 2009	As notified
Nigel Press Associates - Isle of Wight	May 2009	As notified
Nigel Press Associates - Leeds	May 2009	As notified
Nigel Press Associates - Leicester	May 2009	As notified
Nigel Press Associates - Liverpool	May 2009	As notified
Nigel Press Associates - Manchester	May 2009	As notified
Nigel Press Associates - Milton Keynes	May 2009	As notified
Nigel Press Associates - Newcastle	May 2009	As notified
Nigel Press Associates - Northwich	May 2009	As notified
Nigel Press Associates - Nottingham	May 2009	As notified
Nigel Press Associates - Oxford	May 2009	As notified
Nigel Press Associates - Plymouth	May 2009	As notified
Nigel Press Associates - Portsmouth	May 2009	As notified
Nigel Press Associates - Preston	May 2009	As notified
Nigel Press Associates - Reading	May 2009	As notified
Nigel Press Associates - Sheffield	May 2009	As notified
Nigel Press Associates - Stoke	May 2009	As notified
Nigel Press Associates - Swindon	May 2009	As notified
Nigel Press Associates - Tonbridge	May 2009	As notified
Nigel Press Associates - North London	November 2008	As notified
Nigel Press Associates - Head Office	September 2008	As notified

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
British Geological Survey	
The Coal Authority	
Ove Arup	
Peter Brett Associates	
Wardell Armstrong	
Johnson Poole & Bloomer	

Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	The Coal Authority - Mining Report Service 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0845 7626848 Email: thecoalauthority@coal.gov.uk
3	Ove Arup & Partners Central Square, Forth Street, Newcastle upon Tyne, Tyne and Wear, NE1 3PL	Telephone: 0191 261 6080 Fax: 0191 261 7879
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Historical Land Use Information (1:2,500)

General

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

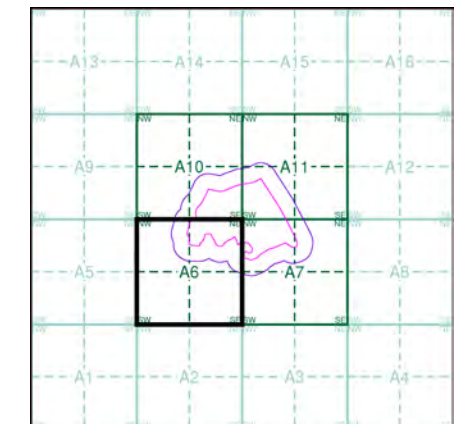
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	■
Extractive Industries Activity from 1893 - 1915	▲	—	■
Extractive Industries Activity from 1906 - 1937	▲	—	■
Extractive Industries Activity from 1924 - 1949	▲	—	■
Extractive Industries Activity from 1950 - 1980	▲	—	■

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	---	■

Mining and Ground Stability - Segment A6

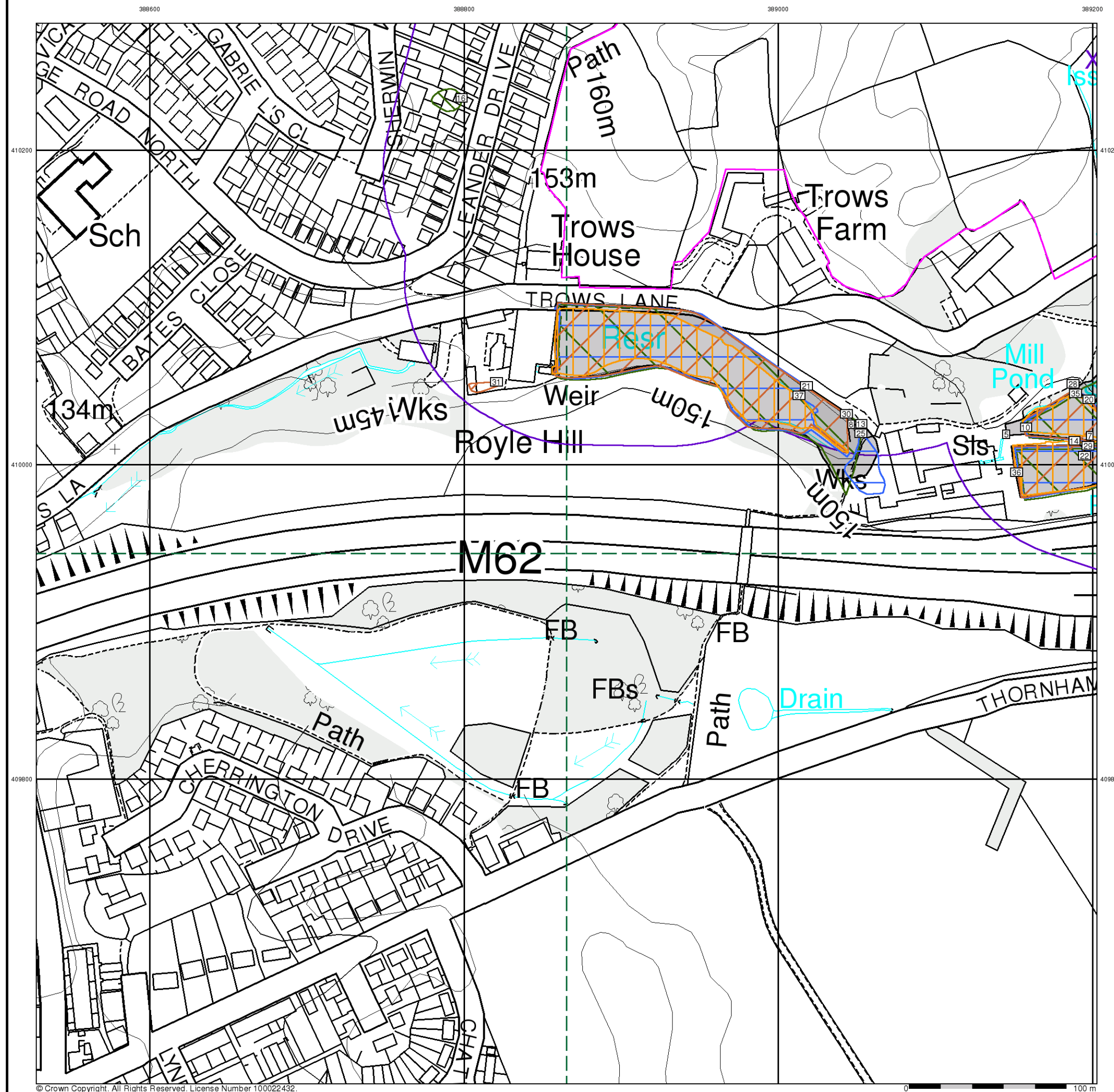


Order Details

Order Number: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410260
Slice: A
Site Area (Ha): 21.43
Plot Buffer (m): 100

Site Details

Site at 389190, 410260



Historical Land Use Information (1:2,500)

General

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

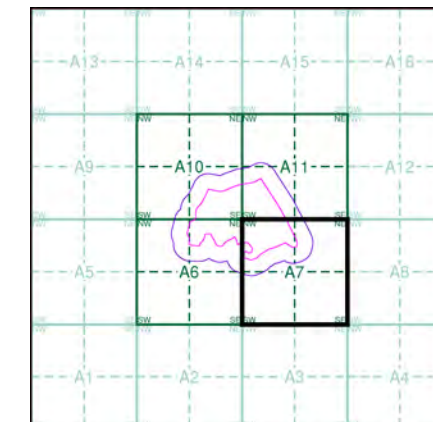
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	■
Extractive Industries Activity from 1893 - 1915	▲	—	■
Extractive Industries Activity from 1906 - 1937	▲	—	■
Extractive Industries Activity from 1924 - 1949	▲	—	■
Extractive Industries Activity from 1950 - 1980	▲	—	■

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	---	■

Mining and Ground Stability - Segment A7

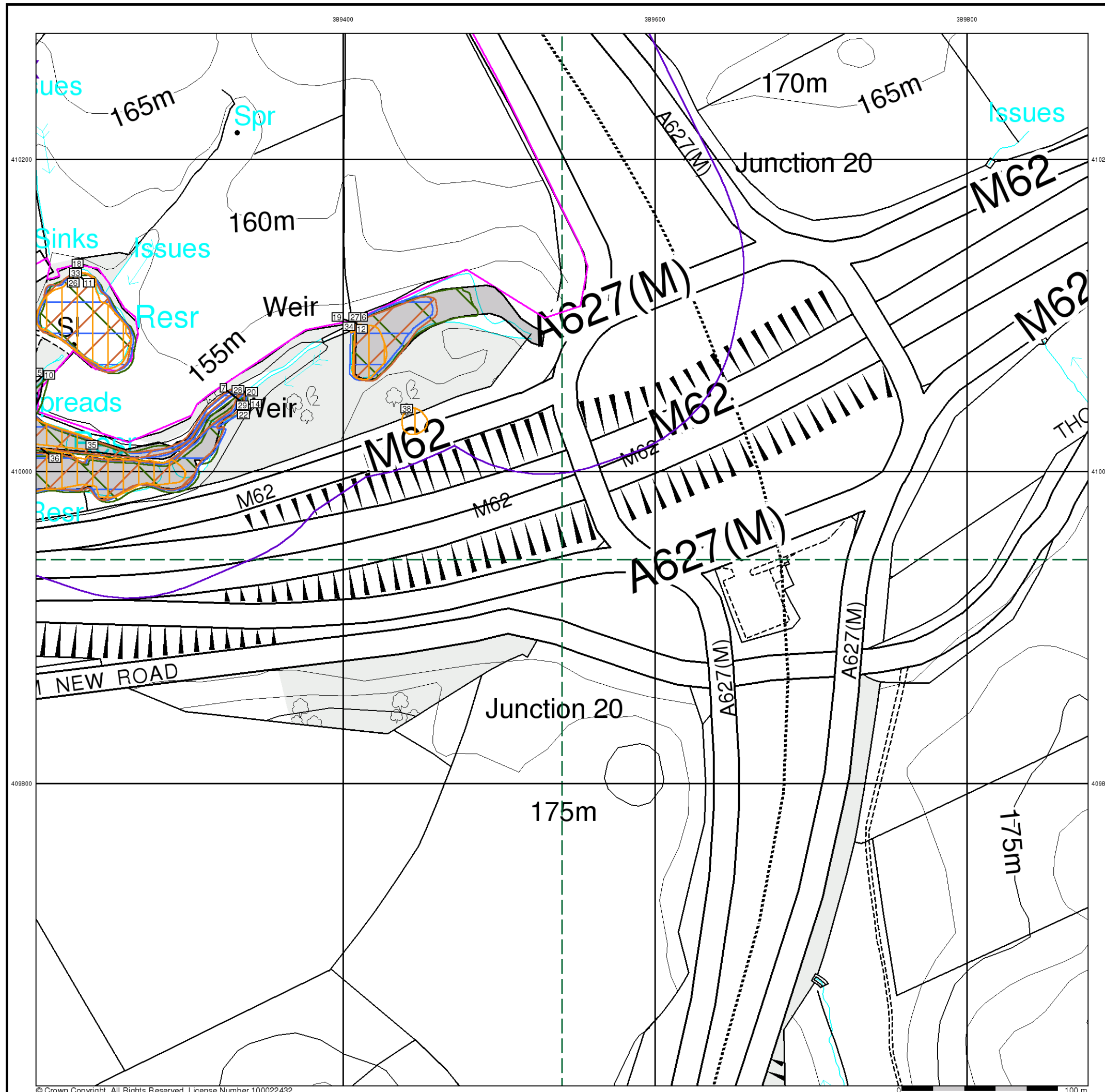


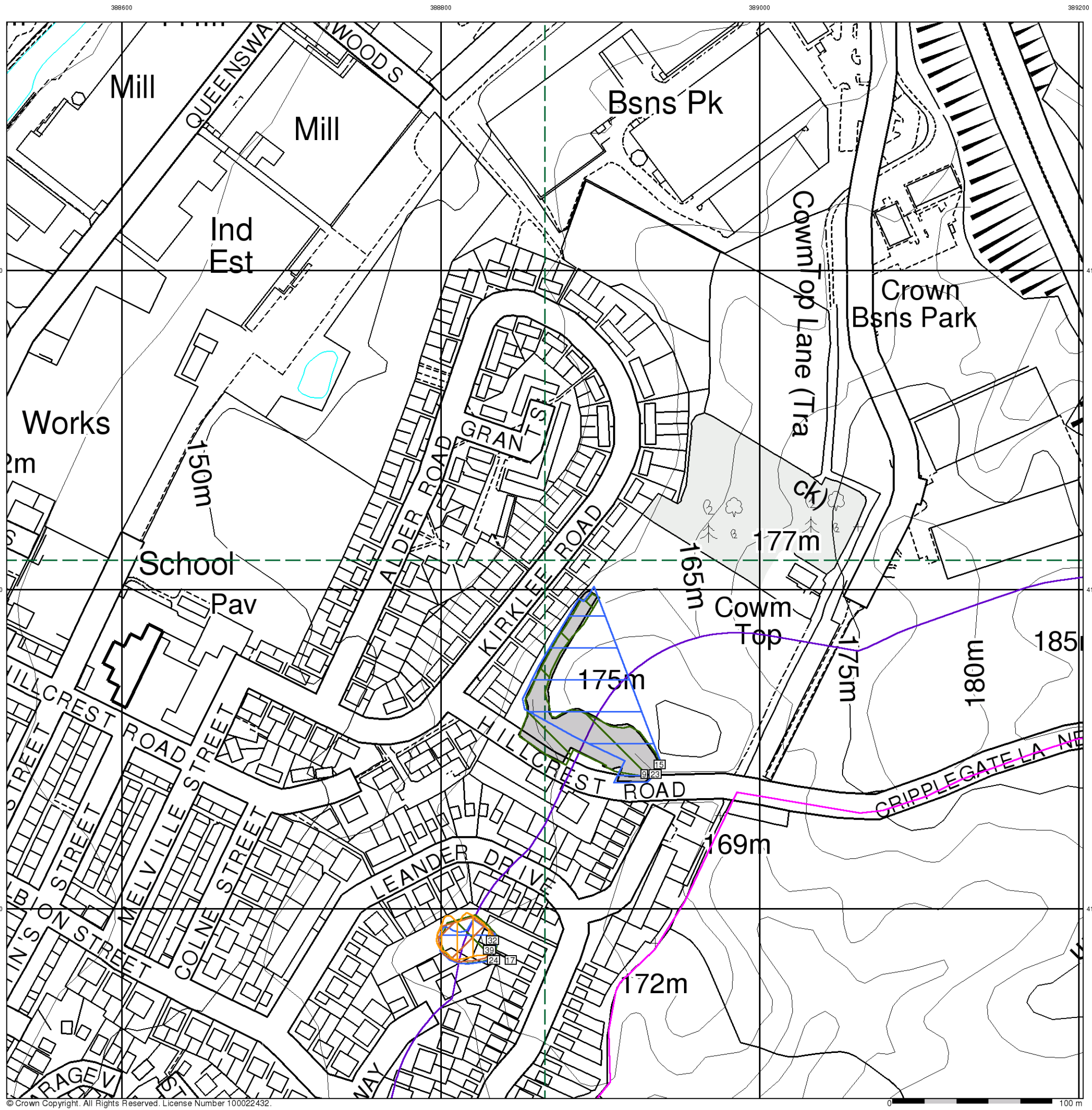
Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Plot Buffer (m): 100

Site Details

Site at 389190, 410260





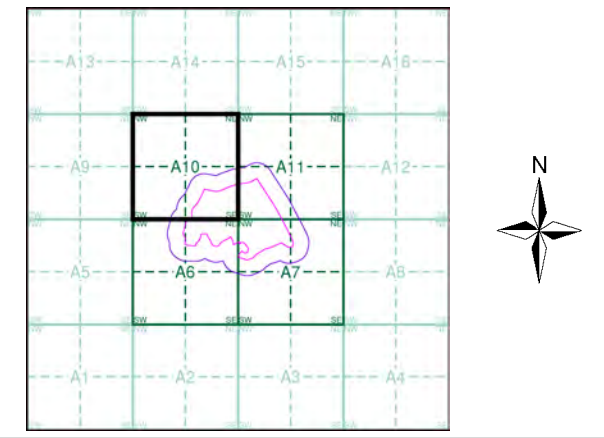
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Historical Land Use Information (1:2,500)

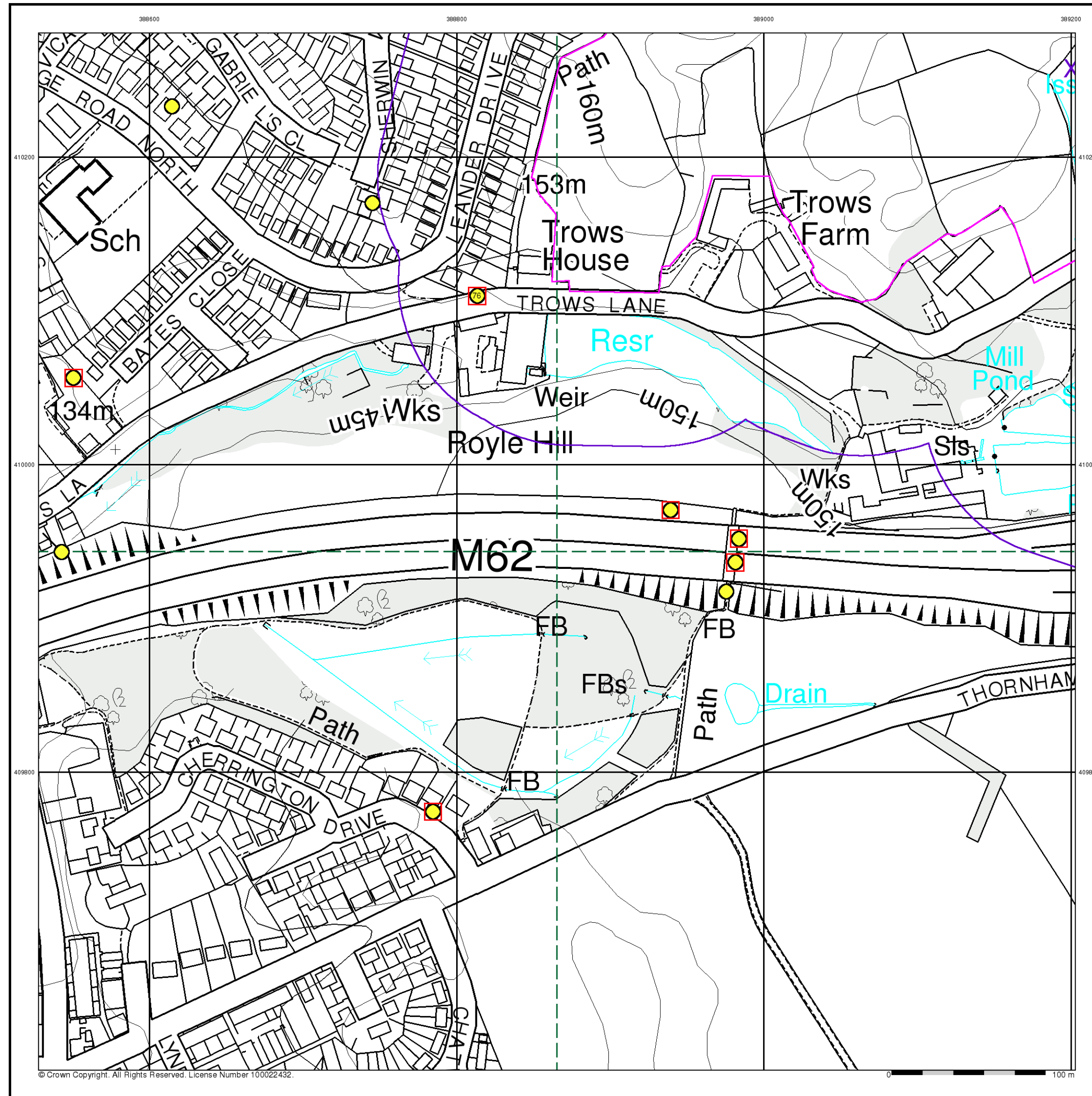
General			
Specified Site	Specified Buffer(s)	Bearing Reference Point	Map ID
Several of Type at Location			
Potentially Contaminative Industrial Uses (Extractive Industries Activity)			
	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909			
Extractive Industries Activity from 1893 - 1915			
Extractive Industries Activity from 1906 - 1937			
Extractive Industries Activity from 1924 - 1949			
Extractive Industries Activity from 1950 - 1980			
Subterranean Features			
	Point	Line	Polygon
Subterranean Features			

Mining and Ground Stability - Segment A10



Order Details	
Order Number:	77317590_1_1
Customer Ref:	R2228
National Grid Reference:	389200, 410260
Slice:	A
Site Area (Ha):	21.43
Plot Buffer (m):	100

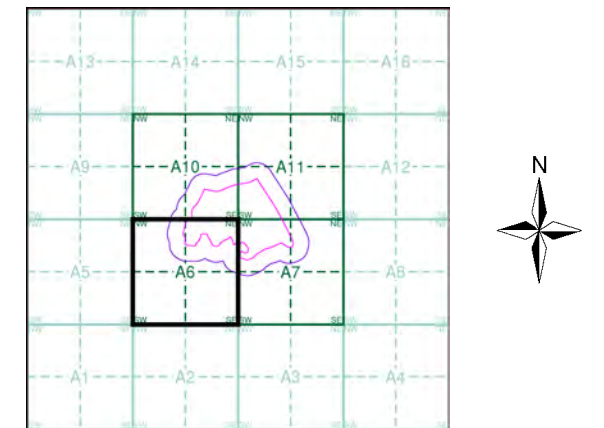
Site Details
Site at 389190, 410260



Motion Map Data (1:2,500)

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
- Average Velocity Gradient**
- Upward Movement > 3.5mm per year
 - Upward Movement 1.5mm to 3.5mm per year
 - Stable 1.5mm to -1.5mm per year
 - Downward Movement -1.5mm to -3.5mm per year
 - Downward Movement > -3.5mm per year

Mining and Ground Stability - Segment A6



Order Details

Order Number: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410260
Slice: A
Site Area (Ha): 21.43
Plot Buffer (m): 100

Site Details

Site at 389190, 410260



Motion Map Data (1:2,500)

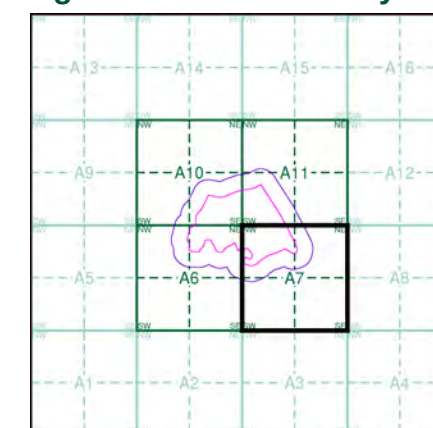
General

- Specified Site □ Specified Buffer(s) X Bearing Reference Point 8 Map ID
- Several of Type at Location

Average Velocity Gradient

- Upward Movement > 3.5mm per year ●
- Upward Movement 1.5mm to 3.5mm per year ●
- Stable 1.5mm to -1.5mm per year ●
- Downward Movement -1.5mm to -3.5mm per year ●
- Downward Movement > -3.5mm per year ●

Mining and Ground Stability - Segment A7

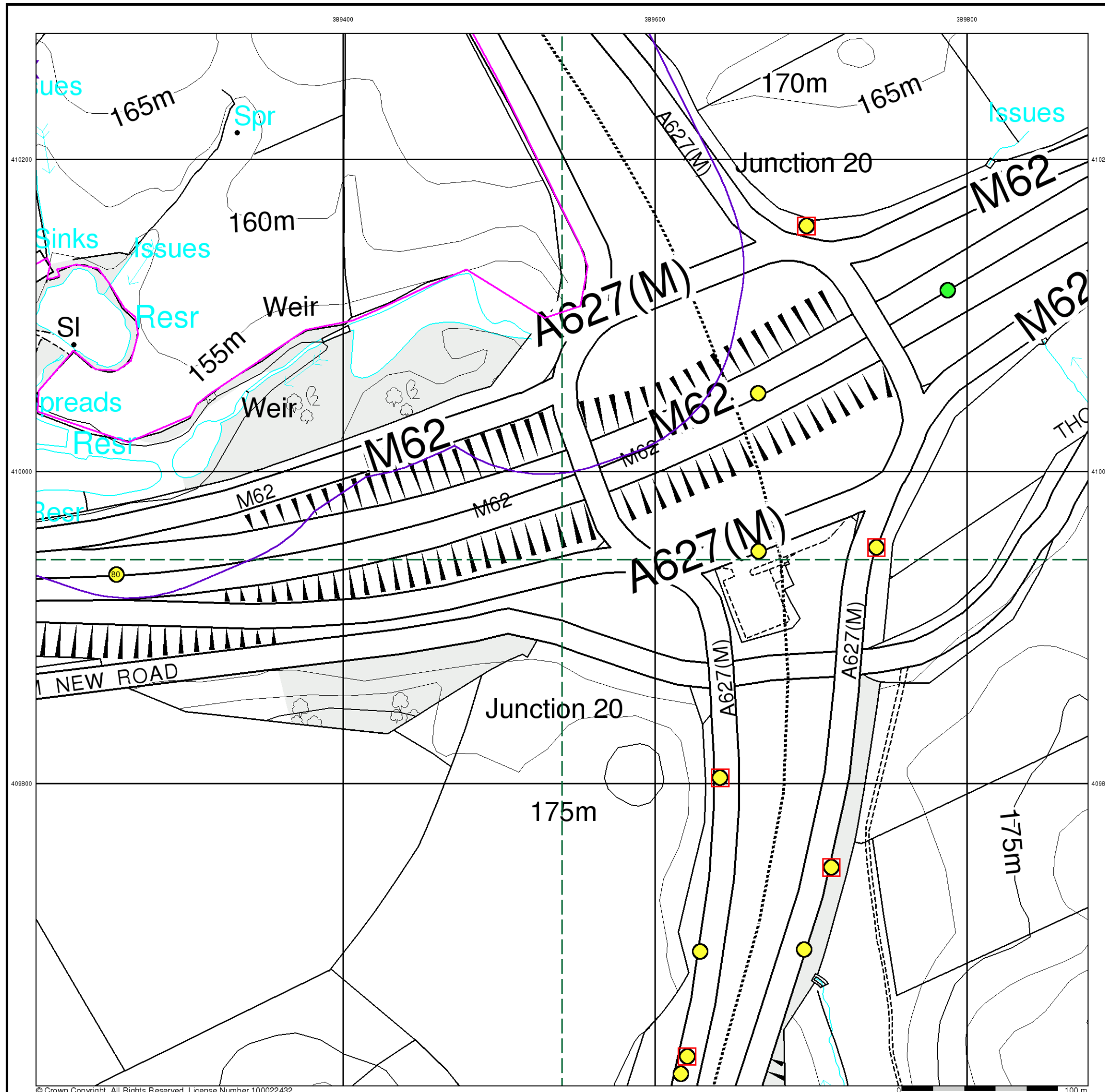


Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Plot Buffer (m): 100

Site Details

Site at 389190, 410260



Motion Map Data (1:2,500)

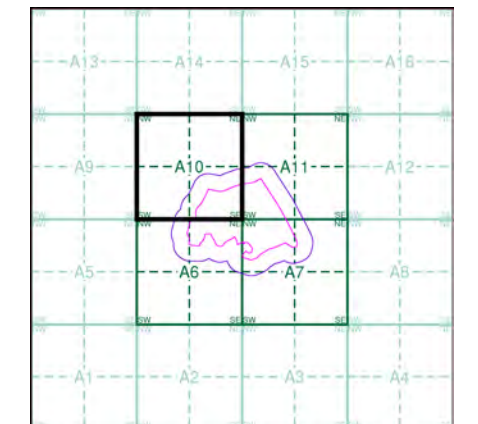
General

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

Average Velocity Gradient

- Upward Movement > 3.5mm per year ●
- Upward Movement 1.5mm to 3.5mm per year ●
- Stable 1.5mm to -1.5mm per year ●
- Downward Movement -1.5mm to -3.5mm per year ●
- Downward Movement > -3.5mm per year ●

Mining and Ground Stability - Segment A10

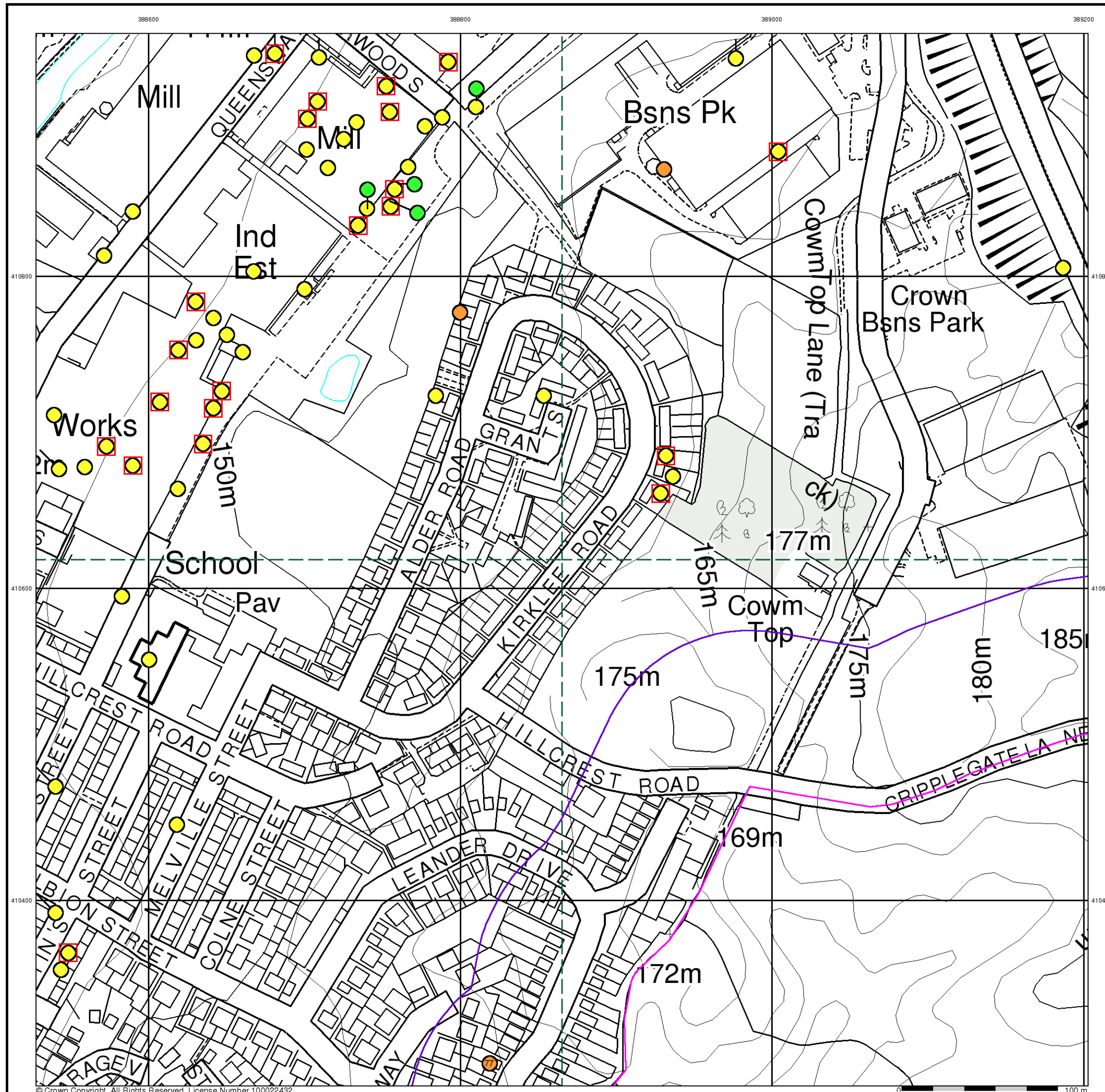


Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Plot Buffer (m): 100

Site Details

Site at 389190, 410260



Motion Map Data (1:2,500)

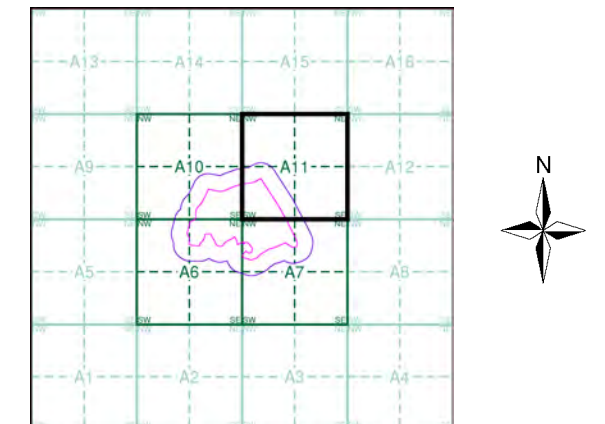
General

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

Average Velocity Gradient

- Upward Movement > 3.5mm per year ●
- Upward Movement 1.5mm to 3.5mm per year ●
- Stable 1.5mm to -1.5mm per year ●
- Downward Movement -1.5mm to -3.5mm per year ●
- Downward Movement > -3.5mm per year ●

Mining and Ground Stability - Segment A11

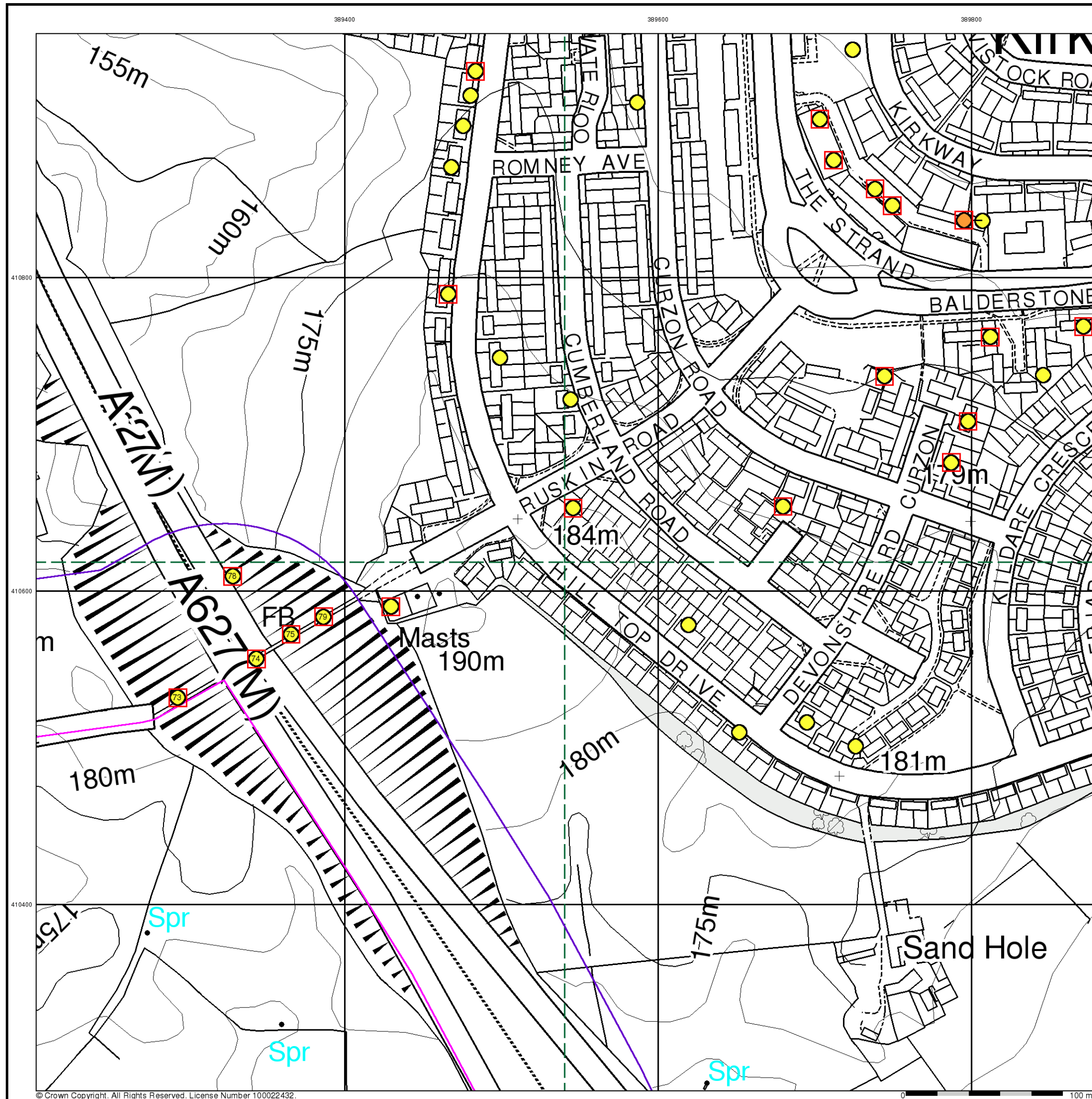


Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Plot Buffer (m): 100

Site Details

Site at 389190, 410260





Historical Land Use Information (1:10,000)

General

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

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

	Point	Line	Polygon
Air Shafts			
Disturbed Ground			
General Quarrying			
Heap, unknown constituents			
Mineral Railway			
Mining and Quarrying General			
Mining of Coal & Lignite			
Quarrying of Sand and Clay, Operation of Sand and Gravel Pits			

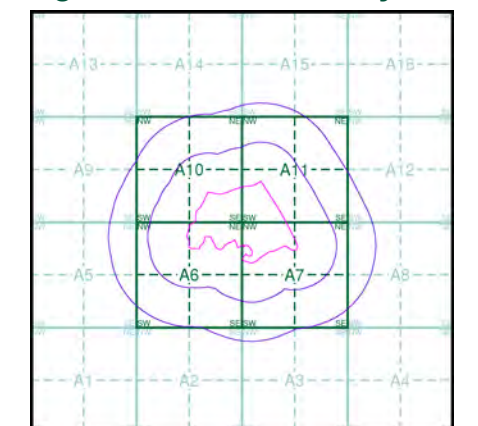
Historical Land Use

	Point	Line	Polygon
Potentially Infilled Land (Non-Water)			
Potentially Infilled Land (Water)			
Former Marsh			

Mining Data

- Potential Mining Area
BGS Recorded Mineral Site

Mining and Ground Stability - Slice A



Order Details

Order Number: 77317590_1_1
Customer Ref: R2228
National Grid Reference: 389200, 410260
Slice: A
Site Area (Ha): 21.43
Search Buffer (m): 500

Site Details

Site at 389190, 410260



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



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Ground Stability Data (1:50,000)

General

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

Potential for Compressible Ground Stability Hazards

- High
- Moderate
- Low
- Very Low

Potential for Collapsible Ground Stability Hazards

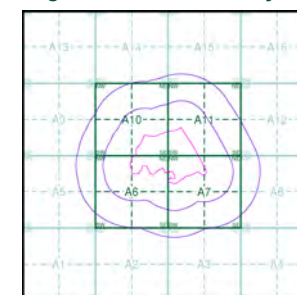
- High
- Moderate
- Low
- Very Low

Brine Pumping and Salt Mining

- Brine Pumping Related Feature
- Salt Mining Related Feature

- | Point | Polygon |
|-------|---------|
| | |
| | |

Mining and Ground Stability - Slice A



Order Details

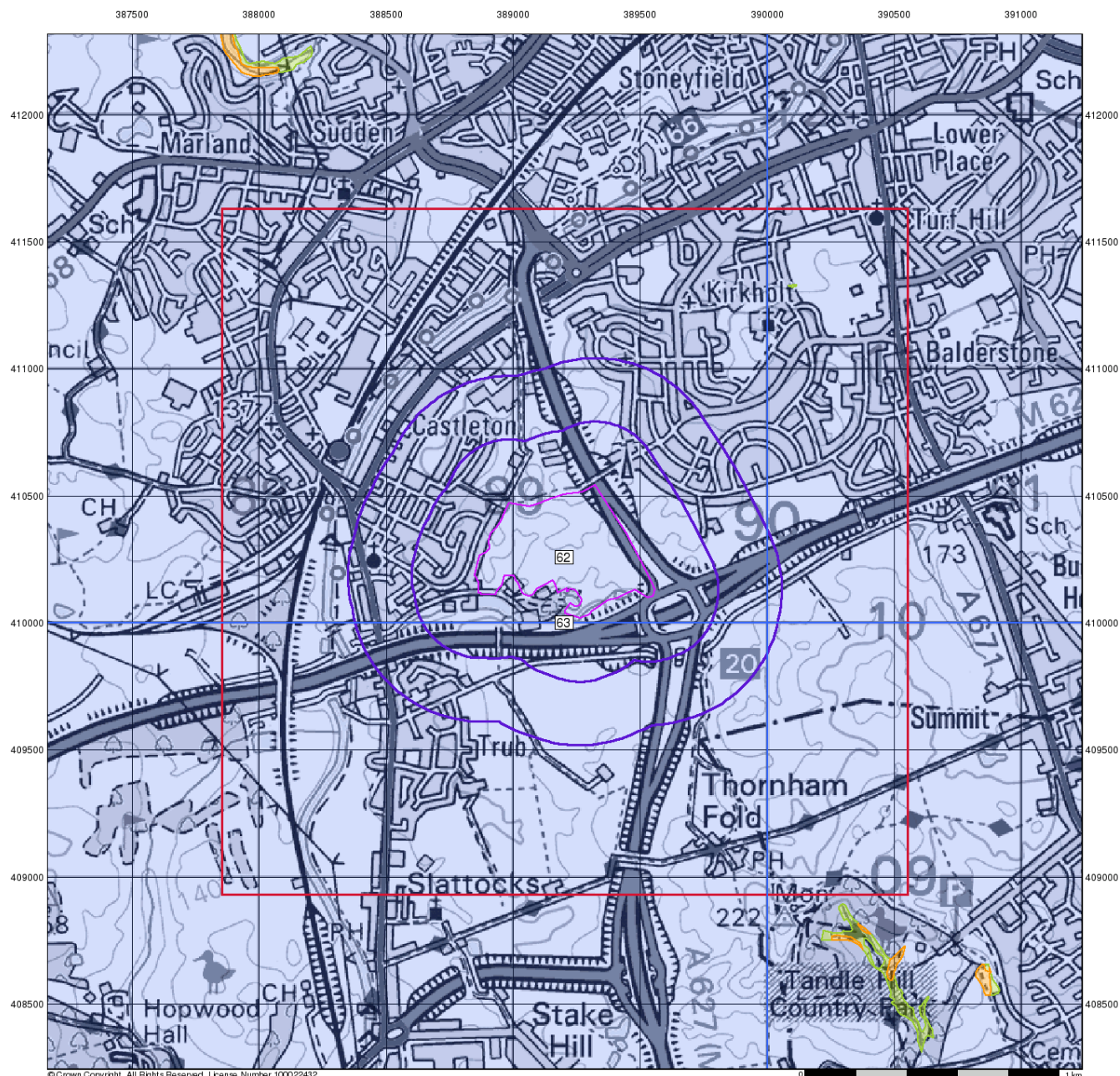
Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260



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Ground Stability Data (1:50,000)

General

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

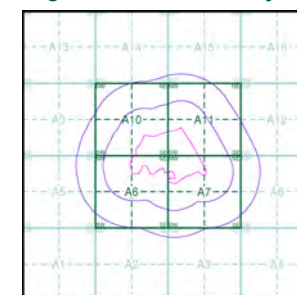
Potential for Landslide Ground Stability Hazards

- High
- Low
- Moderate
- Very Low

Potential for Ground Dissolution Stability Hazards

- High
- Low
- Moderate
- Very Low

Mining and Ground Stability - Slice A



Order Details

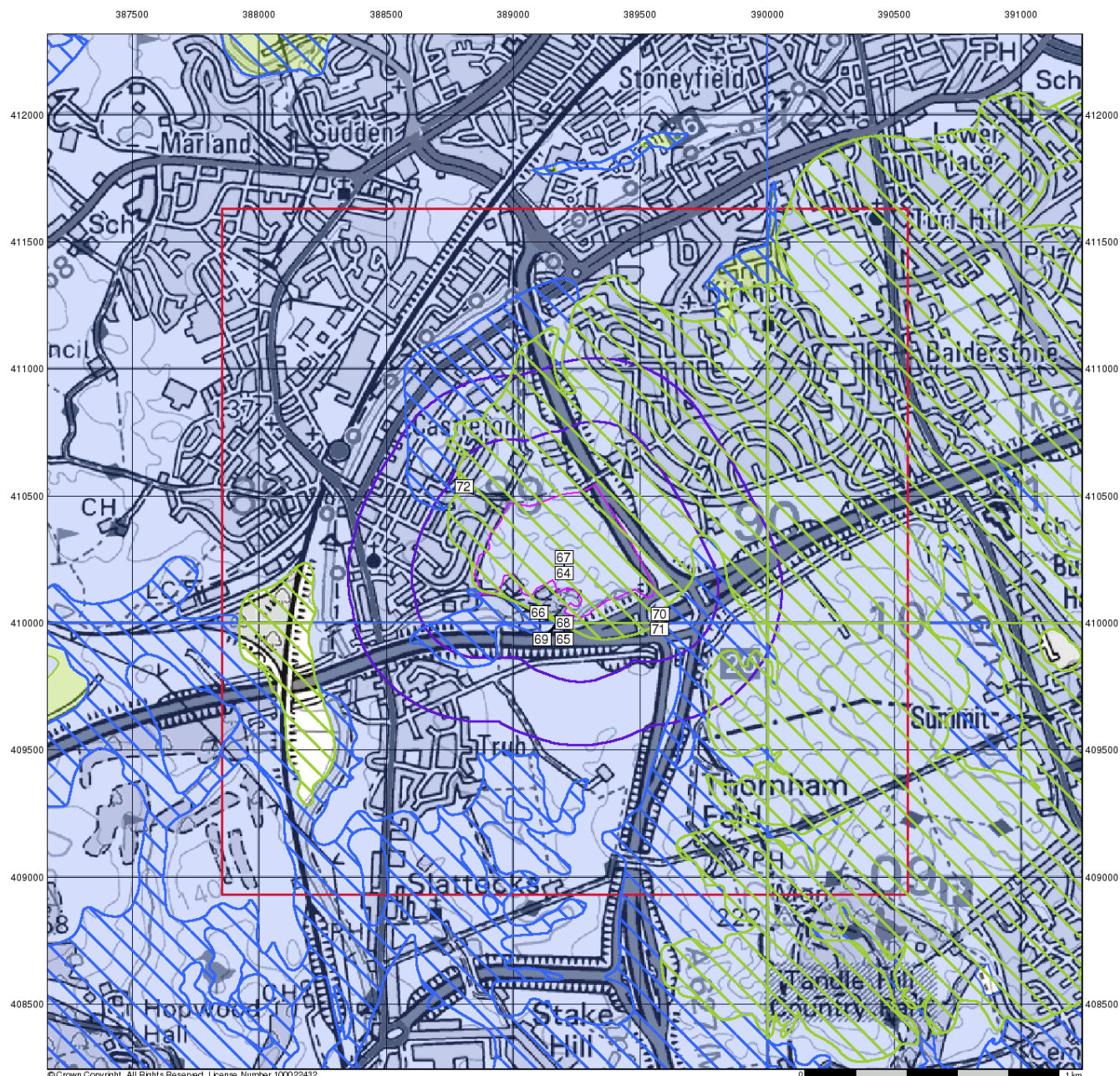
Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260



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Ground Stability Data (1:50,000)

General

- ◇ Specified Site ○ Specified Buffer(s) X Bearing Reference Point
- Slice 8 Map ID

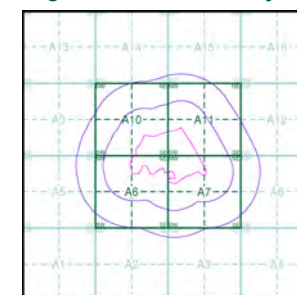
Potential for Running Sand Ground Stability Hazards

- High Low
- Moderate Very Low

Potential for Shrinking or Swelling Clay Ground Stability Hazards

- High Low
- Moderate Very Low

Mining and Ground Stability - Slice A



Order Details

Order Number: 77317590_1_1
 Customer Ref: R2228
 National Grid Reference: 389200, 410260
 Slice: A
 Site Area (Ha): 21.43
 Search Buffer (m): 500

Site Details

Site at 389190, 410260



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 Web: www.envirocheck.co.uk

APPENDIX C

Coal Authority Report

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

**LANDMARK INFORMATION GROUP
LIMITED
SOWTON INDUSTRIAL ESTATE
ABBAY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY**

Our reference: **51001057857001**
Your reference: **77317590_2|**
Date of your enquiry: **22 December 2015**
Date we received your enquiry: **22 December 2015**
Date of issue: **22 December 2015**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

SITE AT 389190, 410260, GREATER MANCHESTER,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

According to the records in our possession, the property is not within the zone of likely physical influence on the surface from past underground workings.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Comments on Coal Authority information

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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