MOTT MACDONALD

Proposed Gypsy and Traveller Site Langley Close, Magor

Land Contamination Assessment

February 2024

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Contents

1 Introduction

1.1 Details of Scheme

Monmouthshire County Council (MCC) has a legal and moral duty to ensure everyone has access to good quality homes. MCC recognises that safe, culturally appropriate accommodation is necessary for individuals to flourish in other parts of their lives. In accordance with the Housing (Wales) Act, 2014, MCC has identified a need for additional sites to house the Gypsy and Traveller families already living in Monmouthshire. Three Council-owned sites in Monmouthshire have been identified as potentially suitable to meet the current needs for the Gypsy and Traveller community.

Mott MacDonald has been appointed by MCC to provide a land contamination report as part of MCC's Gypsy and Traveller Accommodation Assessment (GTAA) identification study for the Langley Close site in Magor, Monmouthshire (hereafter referred to as "the proposed Gypsy and Traveller site" or simply "the site"), one of the three council-owned identified sites for potential development. The proposed Gypsy and Travellers site is understood to comprise the construction of up to six pitches that will include parking and a collective utility block with access gained via St Bride's Road which runs along the eastern boundary of the site.

The site is located in Monmouthshire, south-east Wales in the village of Magor. The site is roughly trapezoidal in shape and centred at National Grid Reference (NGR) ST 42182 87741. For the purpose of this report a reporting buffer of 500m has been identified around the site extent to identify features within the surrounding area which may impact upon the site.

1.2 Report Scope

The scope of this desk study is to:

- Review freely available information, and client supplied data, for an understanding of the proposed development
- Review and summarise site-specific information
- Develop a preliminary ground model for the site
- Identify ground related risks which may impact future ground investigations (GI)
- Develop a conceptual site model and identify potential contaminant linkages present at the site
- Undertake a Preliminary Contaminated Land Risk Assessment (CLRA), and
- Provide recommendations (if necessary) for further assessments, including project specific investigations.

1.3 Report Objectives

The key objective of this report is to provide a high-level assessment of the likely ground conditions underlying the site and their potential geo-environmental impact upon the scheme and make recommendations on how these risks can be managed.

1.4 Methodology

This desk-based review and report have been completed in accordance with the following guidance documents and standards:

- Development of Land Affected by Contamination: A Guide for Developers. Welsh Government Ver 4, September 2023
- BS10175:2011 (+A2:2017), Investigation of Potentially Contaminated Sites, Code of Practice, December 2017
- CIRIA C552, Contaminated Land Risk Assessment ‐ A Guide to Good Practice, January 2001.

1.5 Limitations

This report has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out for the suitability and written authority from Mott MacDonald Ltd being obtained.

Mott MacDonald Ltd accepts no responsibility or liability for the consequences of this document being used for the purpose other than the proposed for which it was commissioned. Any person using or relying on the document for such other purposes agrees – with use or reliance to be taken as confirmation, that this indemnifies Mott MacDonald Ltd for all loss or damage resulting from therein. Mott MacDonald Ltd accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

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To the extent that this document is based on information obtained in previous or recent ground investigations, persons using or relying on it should recognise that such investigation can examine only a fraction of the subsurface conditions. In any ground investigation there remains the risk that pockets or ‘hotspots’ of contamination or other ground hazards may not be identified, because investigations are necessarily based on sample at localised points. Certain indicators or evidence of hazardous substance or conditions may have been outside the portion of the subsurface investigated or monitored, and thus may not have been identified or their full significance appreciated.

Mott MacDonald Ltd is not insured for, and therefore will not undertake surveys to identify any asbestos or provide guidance on the treatment of asbestos, or similarly for toxic mould. Should the presence of asbestos or toxic mould be suspected during the course of the study, Mott MacDonald Ltd would recommend the appointment of a specialist contractor to address the issue and would not provide advice on the risk or remedial measures.

This review considers the risks associated with the proposed use of the site only. This report should not be relied upon by any other third party.

2 Sources of information

2.1 Historical Ordnance Survey Maps

The following sources of information have been used as part of the historical map review process:

- Groundsure Environmental and Geo Insight Report (Appendix A)
- National Library of Scotland Side-by-Side Map Viewer[1]
- Google Earth Pro[2]

2.2 British Geological Survey (BGS)

The following sources of information have been used to determine the geological conditions underlying the site:

- BGS GeoIndex Onshore[3]
- BGS Sheet 250 Chepstow (1:50,000) Bedrock and Drift[4]
- Geology of the country around Monmouth and Chepstow: Explanation of sheets 233 and 250[5]
- BGS Lexicon of Named Rock Units[6]

2.3 Previous Desk Studies and Ground Investigations

Mott MacDonald is not aware of any desk studies or ground investigations having been carried out on the site previously. However historical ground investigation information from works carried out in the vicinity of the site was reviewed using the BGS GeoIndex[3] online viewer and historical borehole logs, copies of which can be found in Appendix B.

2.4 Mining, quarrying and mineral deposits

The BGS GeoIndex[3] and Coal Authority Interactive Online Map Viewer[7] were reviewed as part of this study and are discussed in Section 4.6.

2.5 Land mass movement

Land mass movement was reviewed as part of this study using the BGS GeoIndex Online Map Viewer[3].

[1] Side by side georeferenced maps viewer - Map images - National Library of Scotland (nls.uk) – Accessed December 2023

[2] Earth Versions – Google Earth – accessed December 2023

[3] GeoIndex (onshore) - British Geological Survey (bgs.ac.uk) – Accessed December 2023

[4] British Geological Survey (2011). 1:63,360/1:50,000 geological map series, sheet number 250, solid and drift. Chepstow.

[5] Geology of the country around Monmouth and Chepstow: Explanation of sheets 233 and 250. 1961 – Accessed December 2023

[6] British Geological Survey (2023). Lexicon of Named Rock Units (https://www.bgs.ac.uk/Lexicon/).

[7] Interactive Map Viewer | Coal Authority (bgs.ac.uk) – Accessed December 2023

2.6 Hydrology and hydrogeology

Long term flood risk for the site has been obtained from Natural Resource Wales (NRW) Flood Maps[8] for the scheme area. Flood risk is discussed in Section 4.8 of this report.

Hydrogeology has been reviewed using the BGS GeoIndex[3] viewer.

2.7 Unexploded Ordnance

A preliminary UXO threat assessment for the site has been made using the Zetica UXO[9] online mapping.

2.8 Radon

UK Health Security Agency's (UKHSA) interactive radon map[10] and Groundsure Report were reviewed as part of this scheme to assess radon risk at the site and in the surrounding area.

[8] Flood and Coastal Erosion Risk Maps (naturalresources.wales) – Accessed December 2023

[9] Risk Maps | Zetica UXO – Accessed December 2023

[10] UKradon - UK maps of radon – Accessed December 2023

3 Site Description

3.1 General

The site is a green space comprising open grassland centred at UK National Grid Reference ST 42182 87741. It is approximately 270m north-west to south-east and 280m east to west. The site has a perimeter of 790m and an approximate area of 2.81 hectares.

The site is bounded by the M4 motorway to the north, St Bride's Road to the north-east and residential buildings within Magor village to the south-east. It is bounded by grassland to the east, west and south-west. The location of the site both regionally and locally is shown in Figure 3.1 and Figure 3.2

Figure 3.1: Regional site location plan

Source: Mott MacDonald/ArcGIS, 2023

Figure 3.2: Local site location plan

Source: Mott MacDonald/ArcGIS, 2023

3.2 Topography

The topography of the site has been assessed from Google Earth[2] and verified by a site visit on the 12th of January 2024. The overall site slopes gently towards the south-east and, according to Google Earth, lies between 14m and 23m Above Ordnance Datum (mAOD) with the lowest part of the site being located along the eastern edge of the site, adjacent to St Brides Road.

3.3 Geomorphology

BGS 1:50,000 geological map Sheet 250 Chepstow does not indicate any geomorphological features on site.

3.4 Historic development and current land use

A review of the historical development of the site has been undertaken using historical and current Ordnance Survey (OS) mapping, Groundsure reporting, and historical aerial imagery, the results of which are presented in Table 3.1.

Table 3.1: Historical development and current land use of the site and surrounding area.

Map Date (Scale)	On-site	Off-site
1879 (1:2,500)	The site comprises an undeveloped open field	The surrounding area is generally undeveloped comprising a series of open fields. The village of Magor can be seen to the south-east of the site. A vicarage is present approximately 100m south-west of the site, next to areas labelled “Old quarries” and “Old limekiln”.

Map Date (Scale)	On-site	Off-site
		The Mill Reen can be seen running north to south approximately 160m east of site.
1880 – 1881 (1:10,560)	No significant change	A quarry can be seen approximately 200m south-west of the site. The larger scale shows two farms in Magor village south-east of the site. Tithe farm is located approximately 320m south-east of the site, and Magor farm is located approximately 450m south-east of the site. There is also a mill pond located approximately 460m south-east of the site. A limekiln and quarry can be seen approximately 460m north-west of the site.
1900 (1:2,500)	No significant change	The limekiln and quarry 460m north-west of site are now labelled “Old limekiln” and “Old quarry”.
1900 (1:10,560)	No significant change	Several quarries are located approximately 460m east-south-east of site, around the location labelled Quarry Rise on present day mapping. The quarry located approximately 200m south-west of site is now labelled “Old Quarry”. An “Old Quay” can be seen approximately 500m south-east of site.
1883-1913 (1:10,560)	No significant change	Mill pond 460m south-east of the site is no longer labelled.
1919 (1:2,500)	No significant change	Langley villa can be seen approximately 35m east of site.
1918 – 1919 (1:10,560)	No significant change	The Beeches and The Cedars buildings are now located approximately 490m north-east of site. These appear to be linked to farmland. A school can be seen approximately 470m south-east of site. There is a well located approximately 480m east of site.
1949 (1:10,560)	No significant change	No significant change
Pre-1930 - 1963 (1:10,560)	No significant change	New streets can be seen adjacent to the south-eastern edge of the site.
1966 -1970 (1:10,560) 1966 – 1967 (1:2,500)	No significant change	The M4 motorway has been constructed immediately to the north of the site running in a broadly east to west orientation. This road is indicated as being on embankment, with an off-slip shown, approaching an interchange which is located to the north-west of the site. Newport Road (B4245) can be seen approximately 110m south of site. Magor village has extended to the south-eastern edge of the site and domestic buildings and streets can now be seen abutting the south-east boundary of the site.
1988 (1:10,000)	No significant change	Magor village has expanded further. A police station is located 240m west of the site. A depot can be seen 250m south-west of the site. There is a brewery located approximately 380m west-south-west of the site. The Beeches farm caravan park is located approximately 470m north-east of site.
2001 (1:10,000)	No significant change	A service area is labelled approximately 115m north of site.
2010 (1:10,000)	No significant change	No significant change.
2023 (1:10,000)	No significant change	The police station 240m west of site is no longer labelled.
2023 (aerial imagery)	No significant change	A car park can be seen 125m north of the site.

Map Date (Scale)	On-site	Off-site
		BP petrol station is located approximately 145m north of the site. Monmouthshire County Council can be seen approximately 170m west of the site. Old Tythe Garages can be seen approximately 335m south-east of the site. A news report from the South Wales Argus[11] indicates that the garage was closed in October after 43 years of operation. The report also indicates that the site was used as a piggery prior to its use as a garage. The brewery 380m west-south-west of the site is now called AB InBev UK Ltd Brewery. Beeches taxis of Magor, a taxi service company is situated on the site of The Beeches, approximately 490m north-east of site.

3.5 Unexploded Ordnance

The Zetica Risk Map shows that the site is located within a Low Risk area defined as an area having '15 bombs per 1000 acres or less'. The area within 1.0km of the site is also classified as Low Risk and the closest target is labelled as a 'bombing decoy' and is situated at an approximate distance of 3.0km from the site centre.

3.6 Other information

3.6.1 Radon hazards

According to the Groundsure Report, the highest band of radon risk on site is 3-5%, indicating that there is a 3-5% likelihood of any building on site exceeding Radon Action Level of 200Bq/m^3. As the proposed development is not expected to comprise any below ground structures or significant enclosed and unventilated spaces, the risk from radon is considered to be low. However, due to the brick-and-mortar utility blocks, it is recommended that a Radon Search Address Report is obtained to determine the exact Radon Potential of the site, and appropriate protection put into place based on the results.

Should the proposed development change however this risk should be reassessed.

3.6.2 Services and Utilities

At the time of writing this report, Mott MacDonald has not been provided with any service or utility plans for the site. Given the undeveloped nature of the site, it is considered unlikely that significant buried services are present beneath the site. However, it should be noted that an animal water trough and alkathene supply pipe for connection to the water supply were identified during the site walkover as detailed in Section 3.7.

3.6.3 Regulatory Information

Information on the site and surrounding area's land use, pollution incidents, and designations is presented in Table 3.2.

Table 3.2: Land use, Designated Sites and Pollution Incidents

Aspect	Detail
Agency and Hydrological	

[11] Garage in Magor to close after 43 years as owners retire in October | South Wales Argus – Accessed January 2024

Aspect	Detail
Discharge Consents	There are no discharge consents associated with the site. There are a total of four discharge consents within 244m of the site. Only one of these is currently active, at a location 156m west of the site. It permits the discharge of sewage (non-water company sewer storm overflow) from Magor Motorway Services into St Brides Brook.
Local Authority Pollution Prevention Controls	There are no local authority Pollution Prevention and Controls permits within the site, however there is one recorded 145m north-west of site, associated with the petrol station.
Pollution Incidents	There are no pollution incidents associated with the site however there are two recorded pollution incidents within 500m of the site. The closest occurred 47m south of the site in 2001 from an unidentified pollutant, however this was recorded as having no impact on either land, water or air. The second incident is linked to organic chemical pollutants and occurred in 2015, 141m north-west of the site, likely associated with the petrol filling station and was recorded as having no impact on either land or air. There is no recorded impact to water however as the incident occurred over 8 years ago the likelihood of any significant impact to the site still being present is considered to be low.
Waste	
Registered Landfill Sites	There are no registered landfills on site. There is one historical landfill located within 500m of the site. It is located 407m east of the site at Land off Dancing Hill and is recorded as accepting inert and household waste.
Waste Sites	There are no records of any waste activities being carried out on or within 500m of the site.
Waste exemptions	There are four waste exemptions recorded within 500m of the site. These are all registered for a depot located 129m south of site and relate to the storage of waste in a secure place and the use of waste in construction.
Potentially Infilled Land (Non-Water)	There are no records of infilled land on, or within 500m of the site.
Hazardous Substances	
Control of Major Accident Hazards Sites (COMAH)	There are no recorded COMAH sites on, or within 500m of the site.
Planning Hazardous Substance Consents	There are no recorded Hazardous Substance Consents on, or within 500m of the site.
Historic Land Uses	
Industrial land uses	There are no recorded historical industrial land uses registered for the site. There are 17 located within 500m of the site with the nearest being located 17m to the north-west and comprising ‘cuttings’, likely associated with the construction of the M4.
Energy Features	There are no energy features recorded on the site. There are six energy features recorded within 500m of the site, predominantly electrical substations and gas governor stations. The closest energy feature is an electrical substation located 94m to the south-east.
Petrol Stations and garages	There are five historical garages recorded within 500m of the site with the nearest being 59m to the north-east. However, of the five garages recorded three are likely to be the same location being registered multiple times as they are all located between 307 and 308m to the south-east of the site.
Storage tanks	There are no records of storage tanks on the site. Three tanks are recorded within 500m of the site, the closest being 407m the west.
Military Land	There are no records of military land on, or within 500m of the site.
Current Industrial Land Uses	
Industrial land uses	There are no records of current industrial land use for the site. The nearest industrial land use is the AB InBev UK Ltd Brewery located 380m west-south-west of the site.

Aspect	Detail
Petrol Stations	There are no records of current or recent petrol stations on site. There is one petrol station within 500m of the site, located 144m to the north-west.
Electricity Cables	There are no records of underground high voltage electricity transmission cables on or within 500m of the site.
Gas Pipelines	There are no records of underground high-pressure gas main on or within 500m of the site.
Contaminated Land	There are no records of land requiring remediation under Part 2a of the Environmental Protection Act 1990 on, or within 500m of the site.
Regulated explosive sites	There are no records of sites registered and licensed to manufacture and store explosives on or within 500m of the site.
Radioactive substances	There are no records of the use or storage of radioactive substances on, or within 500m of the site.
Hazardous Substances	There are no records of sites licensed to store hazardous substances on or within 500m of the site.
Sensitive Land Use	
Ancient Woodland	There are no registered ancient woodlands recorded on site. The nearest such area is located 810m north-east of the site.
Local Nature Reserves	There are no local nature reserves within 500m of the site.
Listed buildings	The Vicarage, a Grade II listed building, is situated 111m south-west of the site.
World Heritage Sites	There are no world heritage sites recorded on or within 500m of the site.

3.7 Site Reconnaissance

A walkover of the site was carried out on the 12th of January 2024 during which the weather was cool and dry. The following observations were made:

- Access to the site was via a metal gate located at the eastern edge of the site, off St Bride's Road.
- The soil on site is predominantly thick mud which is soft underfoot and covered in greenery which consists of turnips planted by the current tenants, and close-grazed grass.
- A shallow gradient towards the south-east was observed during the walkover. However, a bund sloping towards the south-west can be observed in the eastern section of the site as seen in Photo C.4.
- The site boundary mainly comprises wooden post and rail fencing in good condition, with a wire stock fence also attached.
- Hedges and battery-powered wire stock fences separate the site into three fields.
- Present site use is agricultural, with livestock including cattle, sheep and horses being housed on site.
- Based on discussion with the current tenants, the site previously consisted of overgrown brush which was cleared out when the tenants took over the property about three years ago.
- A metal caravan was situated near the eastern edge of the site with some wooden boards placed next to it.
- A water trough for cattle use was located at a grid reference of ST 42192 87746, near the site centre. A single alkathene pipe connects the trough to a water supply near the site entrance off St Bride's Road.
- Discussion with the current tenants indicates that some redundant water pipes from prior site use may be present at the site.
- There are no overhead lines, or any other services observed on site.

Based on the above observations, no specific sources of contamination were identified. A photographic record from the walkover can be found in Appendix C.

4 Ground Conditions

4.1 Topsoil

Given the undeveloped nature of the site, and the lack of known historical developments within the site boundary, it is likely that topsoil is present across the whole site area.

4.2 Artificial Ground

Made Ground has not been mapped on or in close proximity to the site. Given the current and historical land uses of the site, significant thicknesses of Made Ground at the site are not anticipated. However, localised Made Ground may be present along the northern and south-eastern boundaries associated with the construction of the M4 motorway and the adjacent residential areas respectively.

4.3 Superficial Deposits

The BGS GeoIndex[3] indicates that the site is underlain by River Terrace Deposits, consisting of sand and gravel. Specifically, the deposits present on site are identified as Third-Second Terrace towards the eastern part of the site and Second Terrace towards western part of the site.

According to the BGS memoir for Monmouth[5], the age of River Terrace Deposits can be determined by their height, with terraces at higher levels *'considered to be older than those nearer to the flood plain.'* The memoir describes the Third-Second Terrace as a *'spread of gravelly material which cannot be definitively assigned to either one of the [Third or Second] terraces.'* The Third Terrace deposit is described as occurring at an average level of 100ft (30.48m) AOD, and the Second Terrace deposit occurs at an average level of 50ft (15.24m) AOD.

4.4 Bedrock Geology

The BGS GeoIndex[3] shows that the site is underlain by strata of the Mercia Mudstone Group (Marginal Facies) in the northern part of the site and limestone of the Avon Group in the southern part of the site.

The Mercia Mudstone Group (Marginal Faces) is described by the BGS Lexicon[6] as consisting *of 'conglomerate and/or breccia with clasts derived locally from rocks lying immediately below the unconformable base of these deposits'* formed during the Triassic Period. The lexicon also highlights that the matrix is typically made up of *'finer-grained rock fragments or, less commonly, siltstone, sandstone or micritic limestone.'*

The BGS Lexicon[6] describes the Avon Group as *'Interbedded grey mudstones and thin- to medium-bedded skeletal packstones with one to several thick units of ooidal and skeletal grainstones'* formed during the Courceyan Substage. It also consists of thin units of calcite mudstone, locally present mudstone, and sparse thin ironstones.

4.5 Land Mass Movement

GeoIndex[3] does not record any land mass movement events on site with no mass movement deposits within 500m.

4.6 Mining and Quarrying

4.6.1 Coal Mining

The Coal Authority Interactive Map Viewer[7] indicates that there is no Coal Mining Reporting Area located on site or within 500m of the site.

4.6.2 Non-coal Mining

The Groundsure report indicates that there are no known non-coal mining features on site. However, the following non-coal mining features have been recorded within 500m of the site:

- Seven 'BritPits', all described as 'surface mineral working, sometimes termed a quarry, sand pit, clay pit, or opencast coal site'. The status of all BritPits is described as "ceased", with the closest being a limestone BritPit located 136m to the west at The Elms.
- 22 surface ground workings the closest of which is located 17m to the north-west and described as a 'cutting'.

4.7 BGS Ground Stability Hazards

Potential BGS Ground Stability Hazards highlighted within the Groundsure Report are presented in Table 4.1.

Table 4.1: BGS Ground Stability Hazards

Ground Stability Hazard	Hazard Potential on Site
Collapsible Ground	Very Low
Compressible Ground	Negligible
Ground Dissolution	Moderate
Landslides	Very Low
Running Sands	Very Low
Shrinking or Swelling Clay	Negligible

4.8 Hydrology and Flooding

The nearest watercourse is Mill Reen (known as St Bride's Brook, north of the M4) which is located approximately 150m east of the site and flows to the south before ultimately discharging into the Severn Estuary. DataMap Wales[12] designates the Mill Reen as a Main River (Water Body ID: GB109056026860).

There is one other surface water feature located within 500m of the site. A minor, unnamed watercourse described in the Groundsure report as an *'inland river not influenced by normal tidal action'* is located 110m south-east of the site. This likely comprises a land drain or similar.

The Water Watch Wales Map[13] by Natural Resources Wales classifies the Mill Reen with a "good" chemical rating and "moderate" ecological rating, with an overall status of "moderate" based on 2016 data.

The Groundsure report indicates that the site is not at risk from floods associated with the nearby rivers. However, there is a low risk of flooding within 50m east and north-east of the site, likely associated with the Mill Reen/St Bride's Brook. The Groundsure report indicates that there

[12] Home | DataMapWales (gov.wales) – Accessed December 2023

[13] Water Watch Wales (naturalresourceswales.gov.uk) – Accessed December 2023

is no history of flooding within 250m of the site, however a news report from Wales Online[14] highlights a flooding incident associated with the Mill Reen which took place in December 2020.

The Groundsure Report indicates a low-moderate risk of groundwater flooding on site.

4.9 Hydrogeology

The superficial deposits underlying the site are categorised as a Secondary A aquifer. This is described by the BGS as *'Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers'.*

The bedrock geology underlying the site is classified as a Principal aquifer, which is described by the BGS as *'Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.*

According to the Groundsure Report, the superficial aquifer is designated as being of "medium vulnerability". The bedrock aquifer is classified as a "high vulnerability" aquifer, defined as *'Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits'.*

The Water Watch Wales Map[13] by Natural Resources Wales classifies the groundwater under the site, named Usk and Wye Southern Carboniferous Limestone, as being a "good" chemical rating and an overall status of "good" based on 2017 data.

The site does not lie within a Source Protection Zone and there are no known groundwater or surface water abstractions on site or within 500m of the site.

4.10 Historical Ground Investigations

Mott MacDonald is not aware of any historical ground investigations having been carried out within the site boundaries.

4.10.1 BGS Borehole Records

There is one BGS borehole recorded within the site extent. 25 exploratory holes were also recorded within 250m of the site, 15 of these within 150m of the site.

A summary of relevant BGS boreholes located within approximately 125m of the site is presented below in Table 4.2, and copies of the logs are provided in Appendix B. It is worth noting that some logs were taken in imperial units but have been converted to metric units for this report.

Table 4.2: Summary of BGS Borehole Records

BGS Reference	Name	Year	Depth (m)	Approximate Distance (m) and Direction	Easting	Northing
ST48NW82	LONDON-SOUTH WALES MOTORWAY 65	1962	7.62	On site	342326	187782
ST48NW28	2ND SEVERN CROSSING 7108	1990	10.00	10m east	342353	187773
ST48NW81	LONDON-SOUTH WALES MOTORWAY 64	1962	3.04	21m north-west	342094	187835

[14] Homeowners still living upstairs in flood-damaged houses 11 months after Christmas Eve storm - Wales Online – Accessed December 2023

BGS Reference	Name	Year	Depth (m)	Approximate Distance (m) and Direction	Easting	Northing
ST48NW29	2ND SEVERN CROSSING 7109	1990	9.80	48m north-east	342341	187829
ST48NW92	LONDON-SOUTH WALES MOTORWAY 108	1962	4.26	86m east	342430	187770
ST48NW93	LONDON-SOUTH WALES MOTORWAY 109	1962	3.35	94m east	342438	187771
ST48NW84	LONDON-SOUTH WALES MOTORWAY 66A	1962	7.62	99m east	342443	187770
ST48NW79	LONDON-SOUTH WALES MOTORWAY 61	1962	6.09	105m north-west	341996	187885
ST48NW53	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP 7411	1990	4.70	106m east	342452	187740
ST48NW94	LONDON-SOUTH WALES MOTORWAY 110	1962	3.20	106m east	342450	187769
ST48NW52	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP7412	1990	1.70	109m east	342454	187753
ST48NW80	LONDON-SOUTH WALES MOTORWAY 62	1962	4.64	110m north-west	341962	187855
ST48NW83	LONDON-SOUTH WALES MOTORWAY 66	1962	9.14	114m east	342444	187823
ST48NW95	LONDON-SOUTH WALES MOTORWAY 111	1962	4.26	116m east	342460	187774
ST48NW97	LONDON-SOUTH WALES MOTORWAY 113	1962	3.20	121m east	342465	187767
ST48NW96	LONDON-SOUTH WALES MOTORWAY 112	1962	3.35	127m east	342471	187767

The on-site historical borehole (ST48NW82) is located in the north-eastern edge of the site and is described as 16ft and 6 inches (5.03m) of firm red-brown sandy silty CLAY over 8ft and 6 inches (2.59m) of compact sand and gravel.

The other BGS boreholes within 500m of the site indicate that the ground conditions within the wider area generally comprise topsoil of thicknesses between 0.00m to 0.30m, underlain by superficial deposits comprising firm red-brown silty sandy clay, sands, gravels, clays, and limestone or limestone fragments. Probable bedrock was encountered one borehole (ST48NW29) at a depth of 9m below ground level.

It is worth noting that none of the boreholes within 150m of the site occurs in the southern section of the site and hence, there is no historical information on the possibility of Avon Group bedrock obtained from the BGS borehole records.

4.11 Ground Gas Generation Potential

Based on the available information it is not considered likely that the soils underlying the site have the potential to produce significant concentrations or quantities of ground gas that could pose a risk the sites end users. As such the risk from ground gas is not considered further.

Should significant deposits of organic materials, whether natural or anthropogenic in nature, be encountered during any future development work this assumption should be reconsidered.

5 Preliminary Ground Model

5.1 Ground Model

The historical site information and BGS GeoIndex[3] have been used to infer the potential ground conditions beneath the site; a preliminary ground model is presented in Table 5.1.

Table 5.1: Preliminary Ground Model

Strata	Depth to Top (m)	Anticipated Thickness (m)	Typical Description
Topsoil	0.00	0.00 – 0.30	Anticipated to comprise brown sands, silts and clays with minor gravel content and rootlets.
River Terrace Deposits	0.00	0.00 – 9.00	Red-brown silty, sandy clay with some sand, gravels, and limestone fragments
Mercia Mudstone Group (Marginal Facies)	9.00	9.00 – Base unproven	Anticipated to be stiff red marl with some limestone and sandstone
Avon Group	N/A	Unproven	Anticipated to be grey mudstones, thin to medium-bedded packstones and some units of skeletal grainstones

Note: Depths have been assumed, based on nearby BGS boreholes, and as such may not accurately represent the conditions beneath the site.

5.2 Groundwater

There is no current information available to inform the groundwater conditions beneath the site area. Groundwater was not found in any of the boreholes detailed in Section 4.10.1.

Groundwater, if encountered would be expected to be flowing towards the south towards the Severn Estuary and east towards the Mill Reen.

5.3 Obstructions

Natural obstructions, such as cobbles or boulders, may be present within the River Terrace Deposits and Mercia Mudstone bedrock.

Buried water pipes associated with the animal water troughs are known to be present beneath the site, the line of which is currently unknown.

6 Preliminary Contamination Risk Assessment

6.1 Preliminary Conceptual Model Methodology

Historical contaminated land is managed in the UK through Part 2A of the Environmental Protection Act (EPA) 1990[15] or, where development of a site is to take place, through the Town and Country Planning Act 1990[16]. The Town and Country Planning Act requires that a site must be suitable for its intended use and that there are no significant risks to the environment following development. A developed site must be left in a condition that it cannot be determined as "contaminated land" under Part 2A.

This report adopts a strategy for the assessment of potential land contamination based on current government guidance contained in Land Contamination Risk Management (LCRM)[17] and CIRIA Report C552[18].

A key element in the risk assessment for land contamination is the development of a Conceptual Site Model (CSM) which may be refined or revised as more information and understanding is obtained through the risk assessment process. The CSM is described in terms of the contaminant 'Source', transport 'Pathways' and possible 'Receptors' that may be present. These are defined as:

- Sources (S) are potential or known contaminant sources e.g. arisings from a former land use.
- Pathways (P) are environmental systems through which a contaminant could migrate e.g. air, groundwater or direct contact; and
- Receptors (R) are sensitive environmental or human receptors that could be adversely affected by a contaminant e.g. site occupiers, groundwater resources.

Where a source, relevant pathway and receptor are present, a contaminant linkage is present which requires further investigation and risk assessment.

The conceptual model and qualitative risk assessment are presented in Table 6.1. The risk assessment process is described in Section 6.2.

It is anticipated that, as part of any future ground investigation works, geo-environmental laboratory testing will be undertaken on samples of soil, rock and water recovered during an intrusive ground investigation, to inform further development of the potential risks at the site.

6.2 Preliminary Risk Assessment Methodology

For each potential contaminant linkage identified within the conceptual model presented in this report, the potential risk has been evaluated for ecological receptors, buildings and construction/maintenance workers and the final end users. A Preliminary Qualitative Risk Assessment has been prepared, based on the probability of the pollution event, and the severity

[15] Environmental Protection Act 1990 (legislation.gov.uk) – Accessed February 2024

[16] Town and Country Planning Act 1990 (legislation.gov.uk) – Accessed February 2024

[17] Land contamination risk management (LCRM) - GOV.UK (www.gov.uk) – Accessed February 2024

[18] CIRIA (2001). Contaminated land risk assessment. A guide to good practice (C552) – Accessed February 2024

it may have on site users and the environment. R&D Publication 66[19] sets out the classification used in the Preliminary Qualitative Risk Assessment. The classification has been developed from DOE Guide to Risk Assessment and Risk Management for Environmental Protection[20] and the Contaminated Land Statutory Guidance[21]. The key to the classification is that the designation of risk is based upon the consideration of both:

- The magnitude of the potential consequence (i.e. severity); and
  - Takes into account both the potential severity of the hazard and the sensitivity of the receptor
- The magnitude of probability (i.e. likelihood)

Table 6.1: Classification of consequence

Classification	Definition of Consequence
Severe	Highly elevated concentrations likely to result in 'significant harm' to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long - term maintenance of the population. Catastrophic damage to crops, buildings or property.
Medium	Elevated concentrations which could result in 'significant harm' to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long - term maintenance of the population. Significant damage to crops, buildings or property.
Mild	Exposure to human health unlikely to lead to 'significant harm'. Equivalent to EA Category 3 pollution incident including minimal or short-lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short-lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long - term maintenance of the population. Minor damage to crops, buildings or property.
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures, and services.

The probability of contamination risks occurring is classified in accordance with Table 6.2. A contaminant linkage must first be established before probability is classified. If there is no contaminant linkage, then there is no potential risk and therefore no requirement to apply tests for probability and consequence.

Table 6.2: Classification of probability

Classification	Definition
High Likelihood	There is contaminant linkage and an event would appear very likely in the short - term and almost inevitable over the long - term, or there is evidence at the receptor of harm or pollution.
Likely	There is contaminant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short - term and likely over the long - term.

[19] R&D66 VOL 1 Guidance for the Safe Development of Housing on Land Affected by Contamination (nhbc.co.uk) – Accessed February 2024

[20] Department of the Environment (1995). Guide to Risk Assessment and Risk Management for Environmental Protection.

[21] Contaminated Land Statutory Guidance – 2012 (gov.wales) – Accessed February 2024

Classification	Definition
Low Likelihood	There is contaminant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place and is less likely in the shorter term.
Unlikely	There is contaminant linkage, but circumstances are such that it is improbable that an event would occur even in the very long - term.

For each possible contaminant linkage identified, the potential risk can be evaluated based upon the following probability x consequence matrix shown in Table 6.3.

Table 6.3: Overall Contamination Risk Matrix

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**High Likelihood**	Very high risk	High risk	Moderate risk	Moderate / low risk
	Likely	High risk	Moderate risk	Moderate / low risk	Low risk
	Low Likelihood	Moderate risk	Moderate / low risk	Low risk	Very low risk
	Unlikely	Moderate / low risk	Low risk	Very low risk	Very low risk

R&D 66:2008 presents definitions of the risk categories, together with the investigatory and remedial actions that are likely to be necessary in each case. These definitions are reproduced in Table 6.4. These risk categories apply to each contaminant linkage, not simply to each hazard or receptor.

Table 6.4: Definition of Risk Categories and Likely Action Required

Risk Category	Definition and Likely Actions
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short - term.
High	Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short - term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.
Very low	It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.

6.3 Preliminary Conceptual Site Model

The following sources, pathways and receptors have been considered based on the available information for this site.

Potential Sources

S1: Sources associated with historical and current site use as an undeveloped field, including potential localised Made Ground from the construction of the M4 and adjacent residential areas.

S2: Sources associated with off-site activities upstream and up the anticipated groundwater gradient (including infilled quarries, BP petrol station, breweries and the M48)

Potential Pathways

P1: Human uptake pathways including ingestion, inhalation, and direct contact.

P2: Man-made pathways – e.g., excavations, buried foundations.

P3: Vertical and horizontal migration of contaminants in the subsurface.

P4: Overland flow - surface runoff.

Potential Receptors

R1: Human receptors – site end users.

R2: Construction and maintenance workers.

R3: Groundwater – Superficial Secondary A Aquifer and Bedrock Principal Aquifer.

R4: Environmental receptors – including the Mill Reen.

Table 6.5: Conceptual Site Model

Potential Sources	Potential Pathways	Potential Receptors	Consequence	Likelihood	Risk Classification
S1: Sources associated with historical and current site use	**P1**: Human uptake pathways	**R1**: Site end users	**Mild** – as the site has remained undeveloped, it is not expected that contaminants of consequence will be encountered on site. Localised Made Ground may be present but is not expected to occur in significant amounts.	**Unlikely** – There is no current evidence that significant contaminant sources exist, and the site will have a transient population so the likelihood of residents growing produce on site is low. Extent of Made Ground is expected to be highly limited in extent.	**Very Low**
	P1: Human uptake pathways **P2**: Man-made pathways	**R2**: Construction and maintenance workers		**Low likelihood** – It is possible that construction and maintenance may come into contact with any contaminants in on-site soil during works. However, as the proposed works are limited to the shallow sub surface, the likelihood is low. This likelihood will be mitigated by contractors employing safe and appropriate systems of work.	**Low**
	P3: Vertical and horizontal migration in the sub surface	**R3**: Groundwater – Superficial Secondary A Aquifer and Bedrock Principal Aquifer		**Unlikely** – There is no evidence of significant contamination on site and if present, they are not expected to be sufficiently leachable as to become mobile.	**Very Low**
	P4: Overland flow - surface runoff	**R4**: Environmental receptors – including the Mill Reen		**Unlikely** – There is no evidence of significant contamination on site and if present, they are not expected to be sufficiently leachable as to become mobile.	**Very Low**
S2: Sources associated with historical and current off-site activities	**P1**: Human uptake pathways	**R1**: Site end users	**Mild** – contaminants associated with off-site activity including hydrocarbons and associated with the petrol station and other chemical compounds associated with the brewery could cause significant harm to human health and the environment. However, it is unlikely that such contaminants will be present in sufficient concentrations due to the distances involved between the site and off-site sources.	**Low likelihood** – There is a possibility that site end users come into contact with contaminants associated with off-site industry, including airborne emissions from the M48.	**Low**
	P1: Human uptake pathways **P2**: Man-made pathways	**R2**: Construction and maintenance workers		**Unlikely** – Due to the nature of works, it is possible that contractors may come into contact with contaminants associated with off-site activities. However, there is currently no evidence of such contamination and as the proposed works are limited to the shallow sub surface, the likelihood is low. This risk will be further mitigated by contractors employing safe and appropriate systems of work.	**Very Low**
	P3: Vertical and horizontal migration of contaminants in the subsurface	**R3**: Groundwater – Superficial Secondary A Aquifer and Bedrock Principal Aquifer		**Unlikely** – There is currently no evidence of sub-surface contamination associated with off-site industry and if present, they are not expected to become sufficiently mobile to migrate below the site.	**Very Low**

7 Conclusions

Mott MacDonald has been commissioned by Monmouthshire County Council to produce a Phase I Desk Study for the proposed development of a new travellers' camp at Magor.

The following conclusions are based on the understanding that the proposed development comprises the construction of a service block containing toilets, showers, cooking and laundry facilities, with access roads to a number of pitches.

It is recommended that this desk study be updated should the scheme proposals be refined or changed.

7.1 Ground Conditions

The ground conditions anticipated to underlie the site have been inferred from available geological mapping and supplemented by the findings from historical off site BGS exploratory holes. A preliminary ground model has been developed for the site. The conditions underlying the site are anticipated to comprise the following:

- Topsoil: Anticipated to comprise brown sands silts and clays with minor gravel inclusions present beneath the whole site area.
- Possible localised Made Ground: May be present locally within the site associated with adjacent development of the M4 and residential development.
- River Terrace Deposits: Anticipated to comprise red-brown silty, sandy clay with some sand, gravels, and limestone fragments.
- Mercia Mudstone Group (Bedrock): Anticipated to be stiff red marl with some limestone and sandstone.
- Avon Group (Bedrock): Anticipated to be grey mudstones, thin to medium-bedded packstones and some units of skeletal grainstones.
- Groundwater levels beneath the site are currently unknown.

7.1.1 Geo-environmental

A preliminary contaminated land risk assessment has been developed for the site to identify potential contaminant linkages associated with the proposed development.

7.1.1.1 Human Health

It is not considered likely that the ground conditions on site pose a significant risk to the health of site end users or construction workers. Should soils be identified on site during the works that are not consistent with the likely ground conditions described within this report, works should stop and samples of the suspect materials should be recovered and sent for chemical testing with a suitable risk assessment carried out.

7.1.1.2 Groundwater

It is not considered likely that the ground conditions on site pose a significant risk to either the groundwater underlying the site nor surface water features in the vicinity of the site. Additionally, it is not considered likely that the groundwater beneath the site will be acting as a contaminant source.

7.1.1.3 Radon

The highest band of radon risk on site is 3-5%, indicating that there is a 3-5% likelihood of any building on site exceeding Radon Action Level of 200Bq/m^3.

7.1.1.4 Waste Classification and Disposal

At the time of writing a soil mass balance for the project had not been produced for the proposed development. However, there is potential for the proposed development to generate surplus soils. Where possible, these soils should be either reused on site or sent to a waste recovery facility for recycling. Any soil disposed of will need to be tested to confirm suitability for reuse and/or waste classification. This testing should be carried out following completion of the excavation works and prior to reuse or disposal.

7.1.2 Objective and format of any investigation

The site has been an undeveloped field with little ground disturbance that may have led to the presence of contamination sources on site and as such, it is considered that the risk of active contaminant linkages to be present on site is low to very low. As such, intrusive ground investigation is not considered necessary as the geoenvironmental risks are not considered to be sufficiently high. However, ground investigation may be required, to inform geotechnical design, should the scheme be progressed beyond the current feasibility stage.

During any future stages of the scheme, should ground conditions be encountered which are outside of those detailed within this report, works should be stopped, samples of the suspect materials sampled and the geoenvironmental risks reassessed. The processes to be followed in the event of uncovering unexpected contamination should be detailed within a Discovery Strategy and provided to the contractor prior to commencing works.

7.2 Recommendations

Based on the geo-environmental risks identified and outlined within this report, it is recommended that a project specific ground investigation is undertaken to investigate/mitigate these risks, confirm the ground conditions beneath the site.

7.2.1 Utility Survey

There is no information on the location of buried services within or adjacent to the site; it is recommended that a utilities search is undertaken at an early stage in the development of the scheme's design in order to identify potential impediments. During the site walkover, an animal water trough was noted which was fed by blue alkathene pipe, the alignment of which anecdotally lies between the trough and the site entrance off St Brides Road; this should be confirmed prior to commencing any development works. The tenants also indicated that there were a series of redundant water pipes beneath the site which were used to provide water to other animal watering facilities which have been removed from site.

7.2.2 Radon

A site-specific Radon Search Address Report should be obtained to confirm the risks posed to the proposed development, particularly the brick-and-mortar utility block.

7.2.3 Discovery Strategy

A Discovery Strategy should be produced which will detail the steps to be followed should previously unidentified contamination be discovered, should the scheme progress to the construction stage. This should include the following:

- Potential indictors of contamination (visual or olfactory).

- Quarantine procedures to put in place.
- Testing requirements (number of samples, testing suites etc).
- Geoenvironmental assessment procedures, and
- Materials tracking and verification.

A. Groundsure Environmental and Geo Insight Report

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

Land to rear of Langley Close Magor, NP26 3HW

Order Details

Date: 05/12/2023

Your ref: Land_to_rear_of_Langley_Close_Magor

Our Ref: GS-738-Y4J-OV7-OWD

Site Details

Location: 342182 187741

Area: 2.81 ha

Authority: Sir Fynwy - Monmouthshire County Council ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	1	16	31	-
17 >	1.2 >	Historical tanks >	0	0	0	13	-
18 >	1.3 >	Historical energy features >	0	0	3	9	-
19	1.4	Historical petrol stations	0	0	0	0	-
19 >	1.5 >	Historical garages >	0	0	3	9	-
20	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
21 >	2.1 >	Historical industrial land uses >	0	2	22	37	-
24 >	2.2 >	Historical tanks >	0	0	0	28	-
25 >	2.3 >	Historical energy features >	0	0	8	24	-
26	2.4	Historical petrol stations	0	0	0	0	-
27 >	2.5 >	Historical garages >	0	0	5	16	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
29	3.1	Active or recent landfill	0	0	0	0	-
29	3.2	Historical landfill (BGS records)	0	0	0	0	-
30	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
30 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	0	1	-
30	3.5	Historical waste sites	0	0	0	0	-
30	3.6	Licensed waste sites	0	0	0	0	-
31 >	3.7 >	Waste exemptions >	0	0	4	0	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
32 >	4.1 >	Recent industrial land uses >	0	1	4	-	-
33 >	4.2 >	Current or recent petrol stations >	0	0	1	0	-
33	4.3	Electricity cables	0	0	0	0	-
33	4.4	Gas pipelines	0	0	0	0	-
34	4.5	Sites determined as Contaminated Land	0	0	0	0	-

34	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
34	4.7	Regulated explosive sites	0	0	0	0	-
34	4.8	Hazardous substance storage/usage	0	0	0	0	-
34	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
35 >	**4.10 >**	**Licensed industrial activities (Part A(1)) >**	0	0	0	14	-
37 >	**4.11 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	1	0	-
38	4.12	Radioactive Substance Authorisations	0	0	0	0	-
38 >	**4.13 >**	**Licensed Discharges to controlled waters >**	0	0	4	0	-
39	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
39	4.15	Pollutant release to public sewer	0	0	0	0	-
39	4.16	List 1 Dangerous Substances	0	0	0	0	-
39	4.17	List 2 Dangerous Substances	0	0	0	0	-
39 >	**4.18 >**	**Pollution Incidents (EA/NRW) >**	0	1	1	0	-
40	4.19	Pollution inventory substances	0	0	0	0	-
40	4.20	Pollution inventory waste transfers	0	0	0	0	-
40	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
41 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
43 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
45 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
46 >	**5.4 >**	**Groundwater vulnerability- soluble rock risk >**	Identified (within 0m)				
46	5.5	Groundwater vulnerability- local information	None (within 0m)				
47	5.6	Groundwater abstractions	0	0	0	0	0
47	5.7	Surface water abstractions	0	0	0	0	0
47	5.8	Potable abstractions	0	0	0	0	0
47	5.9	Source Protection Zones	0	0	0	0	-
48	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
49 >	**6.1 >**	**Water Network (OS MasterMap) >**	0	0	6	-	-

50 >	6.2 >	Surface water features >	0	0	3	-	-
50 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
51 >	6.4 >	WFD Surface water bodies >	0	0	1	-	-
51 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
52 >	7.1 >	Risk of flooding from rivers and the sea >	Low (within 50m)				
53	7.2	Historical Flood Events	0	0	0	-	-
53	7.3	Flood Defences	0	0	0	-	-
53	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
53	7.5	Flood Storage Areas	0	0	0	-	-
54 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
55 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
56 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
58 >	9.1 >	Groundwater flooding >	Moderate (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
59 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	5
60	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
60	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
60	10.4	Special Protection Areas (SPA)	0	0	0	0	0
61 >	10.5 >	National Nature Reserves (NNR) >	0	0	0	0	1
61	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
61 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	16
62	10.8	Biosphere Reserves	0	0	0	0	0
62	10.9	Forest Parks	0	0	0	0	0
63	10.10	Marine Conservation Zones	0	0	0	0	0
63	10.11	Green Belt	0	0	0	0	0
63	10.12	Proposed Ramsar sites	0	0	0	0	0

63	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
63	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
64	10.15	Nitrate Sensitive Areas	0	0	0	0	0
64	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
65 >	**10.17 >**	**SSSI Impact Risk Zones >**	1	-	-	-	-
66	10.18	SSSI Units	0	0	0	0	0
Page	Section	**Visual and cultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
67	11.1	World Heritage Sites	0	0	0	-	-
68	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
68	11.3	National Parks	0	0	0	-	-
68 >	**11.4 >**	**Listed Buildings >**	0	0	1	-	-
69	11.5	Conservation Areas	0	0	0	-	-
69	11.6	Scheduled Ancient Monuments	0	0	0	-	-
69	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
70 >	**12.1 >**	**Agricultural Land Classification >**	Grade 4 (within 250m)				
71	12.2	Open Access Land	0	0	0	-	-
71	12.3	Tree Felling Licences	0	0	0	-	-
72	12.4	Environmental Stewardship Schemes	0	0	0	-	-
72	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
73	13.1	Priority Habitat Inventory	0	0	0	-	-
73	13.2	Habitat Networks	0	0	0	-	-
73	13.3	Open Mosaic Habitat	0	0	0	-	-
73	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale >**	On site	0-50m	50-250m	250-500m	500-2000m
74 >	**14.1 >**	**10k Availability >**	Identified (within 500m)				
75	14.2	Artificial and made ground (10k)	0	0	0	0	-
76 >	**14.3 >**	**Superficial geology (10k) >**	2	1	3	1	-

77	14.4	Landslip (10k)	0	0	0	0	-
78 >	14.5 >	Bedrock geology (10k) >	2	2	4	2	-
79	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
80 >	15.1 >	50k Availability >	Identified (within 500m)				
81	15.2	Artificial and made ground (50k)	0	0	0	0	-
81	15.3	Artificial ground permeability (50k)	0	0	-	-	-
82 >	15.4 >	Superficial geology (50k) >	2	1	4	0	-
83 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
83	15.6	Landslip (50k)	0	0	0	0	-
83	15.7	Landslip permeability (50k)	None (within 50m)				
84 >	15.8 >	Bedrock geology (50k) >	2	0	5	2	-
85 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
85	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
86 >	16.1 >	BGS Boreholes >	1	3	21	-	-
Page	Section	Natural ground subsidence >					
89 >	17.1 >	Shrink swell clays >	Negligible (within 50m)				
90 >	17.2 >	Running sands >	Very low (within 50m)				
92 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
93 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
94 >	17.5 >	Landslides >	Very low (within 50m)				
96 >	17.6 >	Ground dissolution of soluble rocks >	Moderate (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
98 >	18.1 >	BritPits >	0	0	3	4	-
100 >	18.2 >	Surface ground workings >	0	2	20	-	-
101	18.3	Underground workings	0	0	0	0	0
101	18.4	Underground mining extents	0	0	0	0	-
101	18.5	Historical Mineral Planning Areas	0	0	0	0	-

102 >	18.6 >	Non-coal mining >	1	0	1	0	0
102	18.7	JPB mining areas	None (within 0m)				
102	18.8	The Coal Authority non-coal mining	0	0	0	0	-
103	18.9	Researched mining	0	0	0	0	-
103	18.10	Mining record office plans	0	0	0	0	-
103	18.11	BGS mine plans	0	0	0	0	-
103	18.12	Coal mining	None (within 0m)				
103	18.13	Brine areas	None (within 0m)				
104	18.14	Gypsum areas	None (within 0m)				
104	18.15	Tin mining	None (within 0m)				
104	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
105	19.1	Natural cavities	0	0	0	0	-
105	19.2	Mining cavities	0	0	0	0	0
105	19.3	Reported recent incidents	0	0	0	0	-
105	19.4	Historical incidents	0	0	0	0	-
106	19.5	National karst database	0	0	0	0	-
Page	Section	Radon >					
107 >	20.1 >	Radon >	Between 3% and 5% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
109 >	21.1 >	BGS Estimated Background Soil Chemistry >	5	1	-	-	-
109	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
110	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
111	22.1	Underground railways (London)	0	0	0	-	-
111	22.2	Underground railways (Non-London)	0	0	0	-	-
111	22.3	Railway tunnels	0	0	0	-	-
111	22.4	Historical railway and tunnel features	0	0	0	-	-
111	22.5	Royal Mail tunnels	0	0	0	-	-

112	22.6	Historical railways	0	0	0	-	-
112	22.7	Railways	0	0	0	-	-
112	22.8	Crossrail 1	0	0	0	0	-
112	22.9	Crossrail 2	0	0	0	0	-
112	22.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 14/04/2020

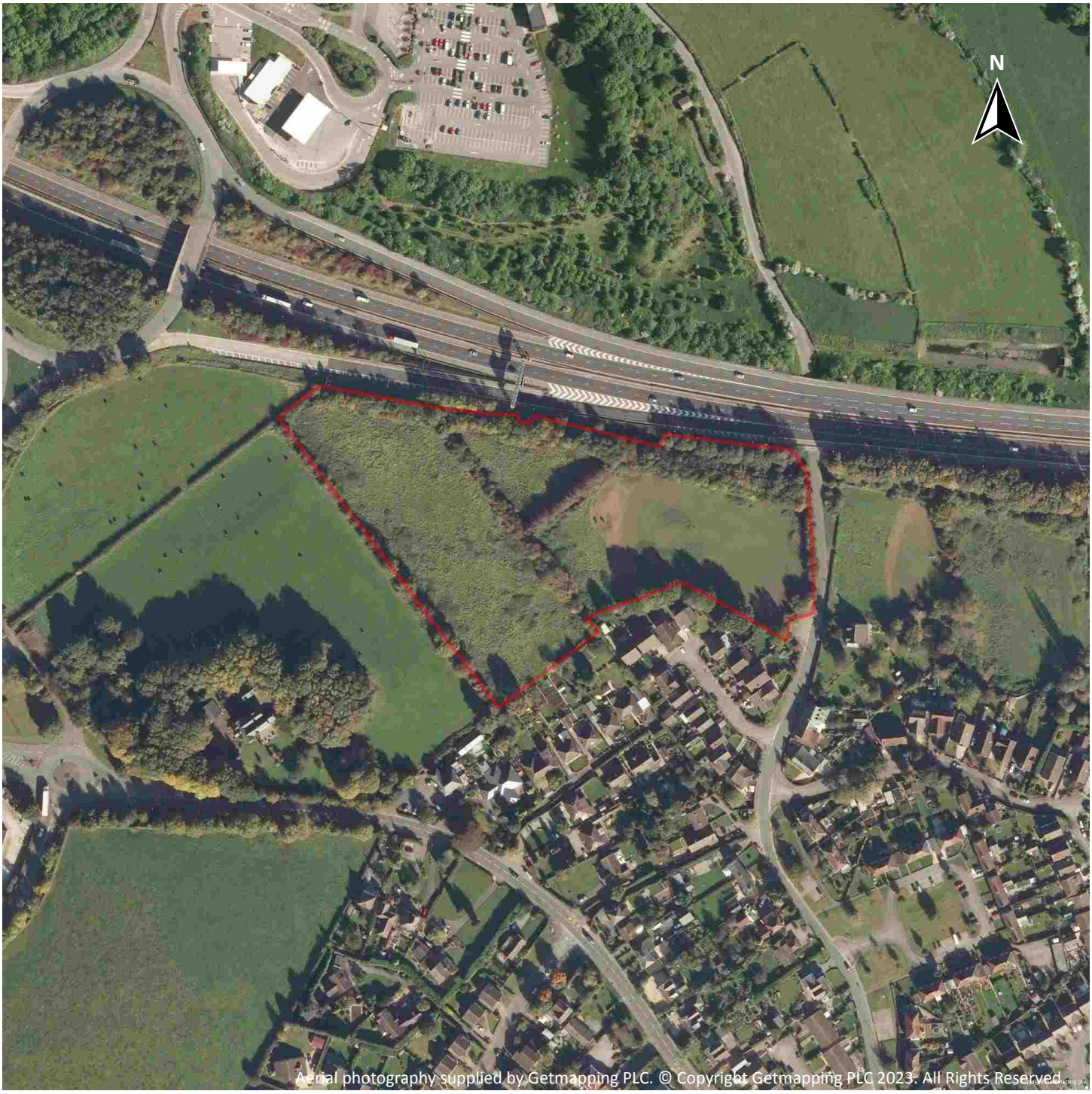
Site Area: 2.81ha

Recent site history - 2017 aerial photograph

Capture Date: 26/05/2017

Site Area: 2.81ha

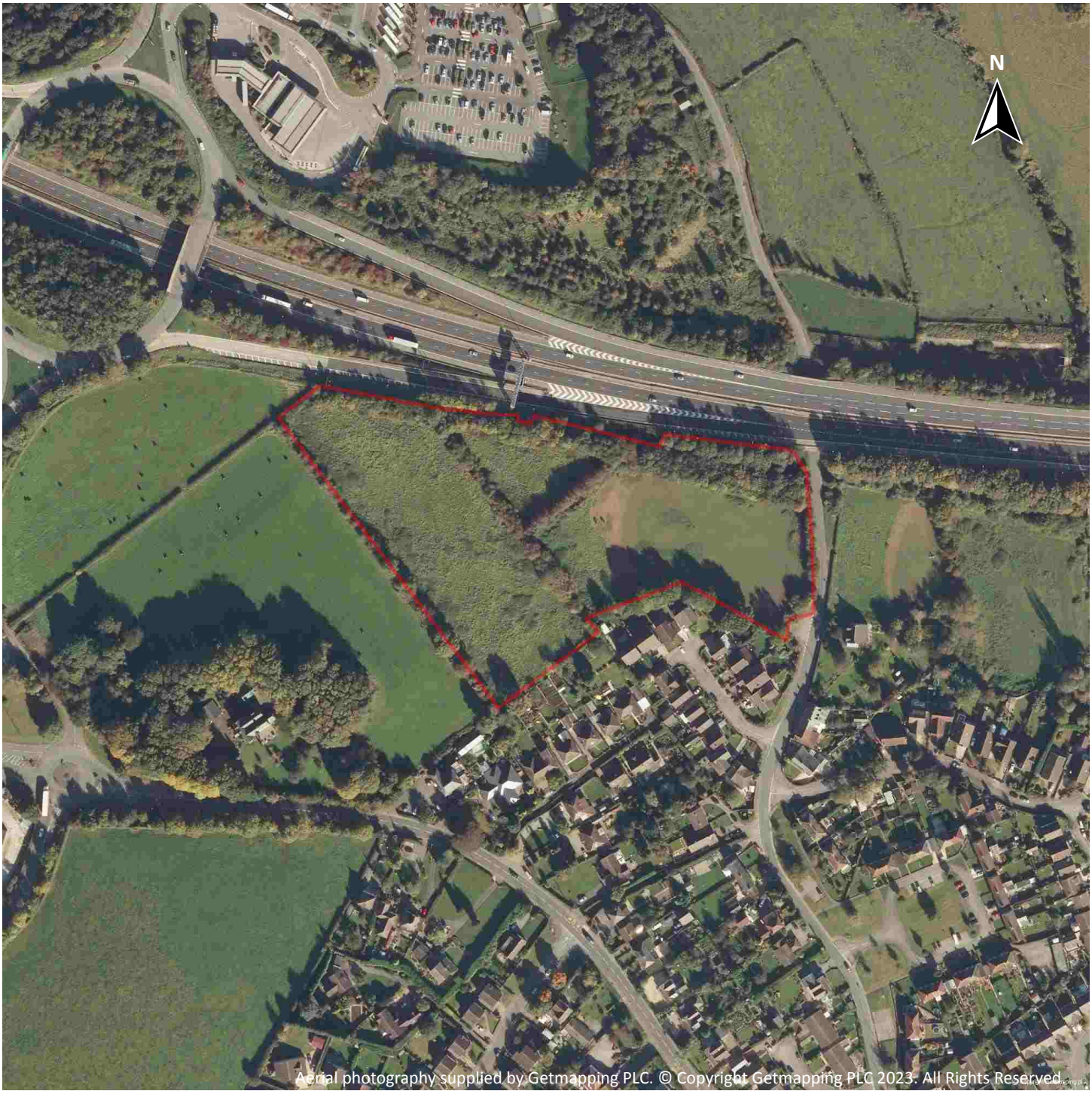
Recent site history - 2010 aerial photograph



Capture Date: 23/05/2010

Site Area: 2.81ha

Recent site history - 2009 aerial photograph



Capture Date: 12/10/2009

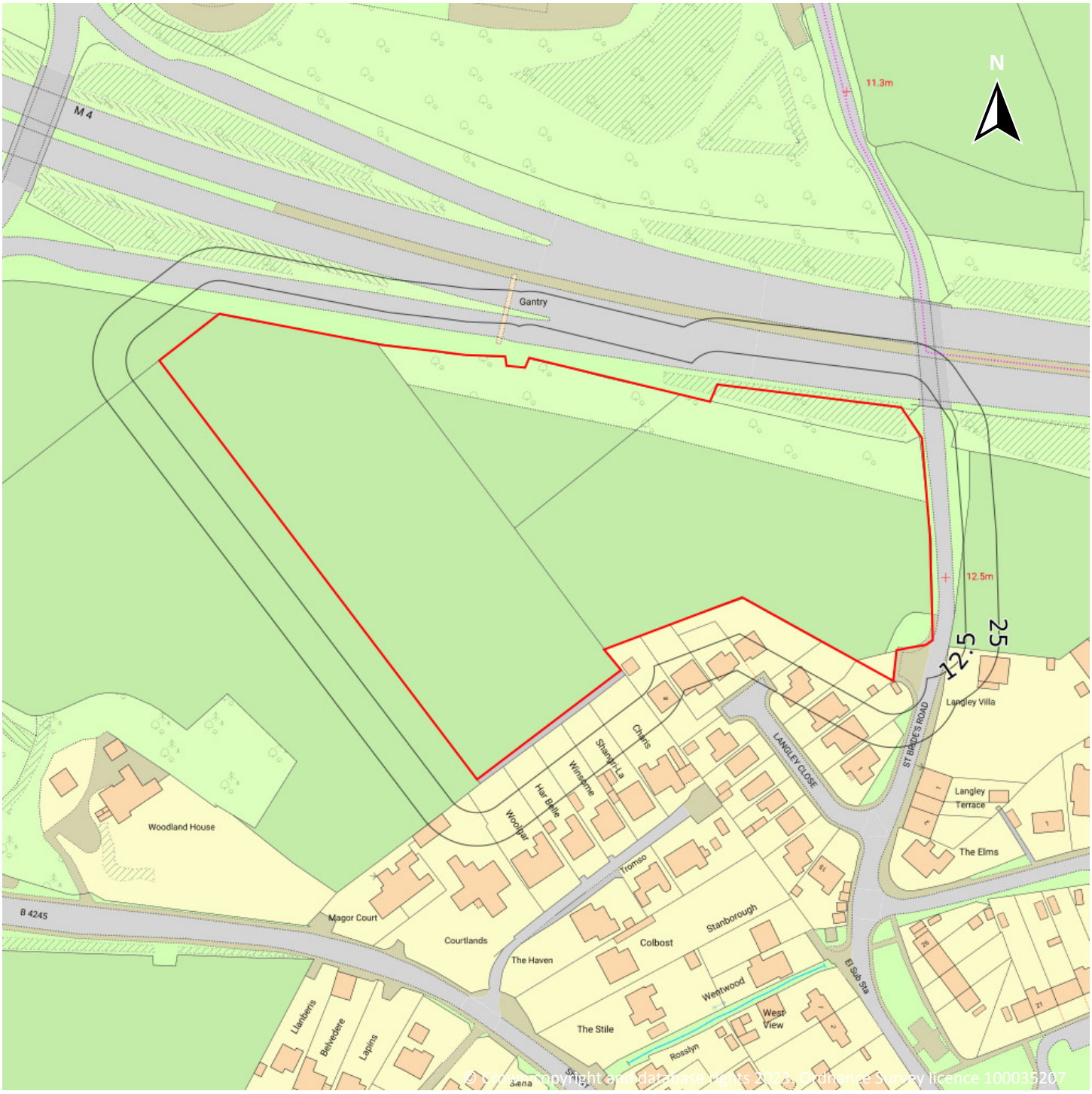
Site Area: 2.81ha

Recent site history - 2000 aerial photograph

Capture Date: 21/07/2000

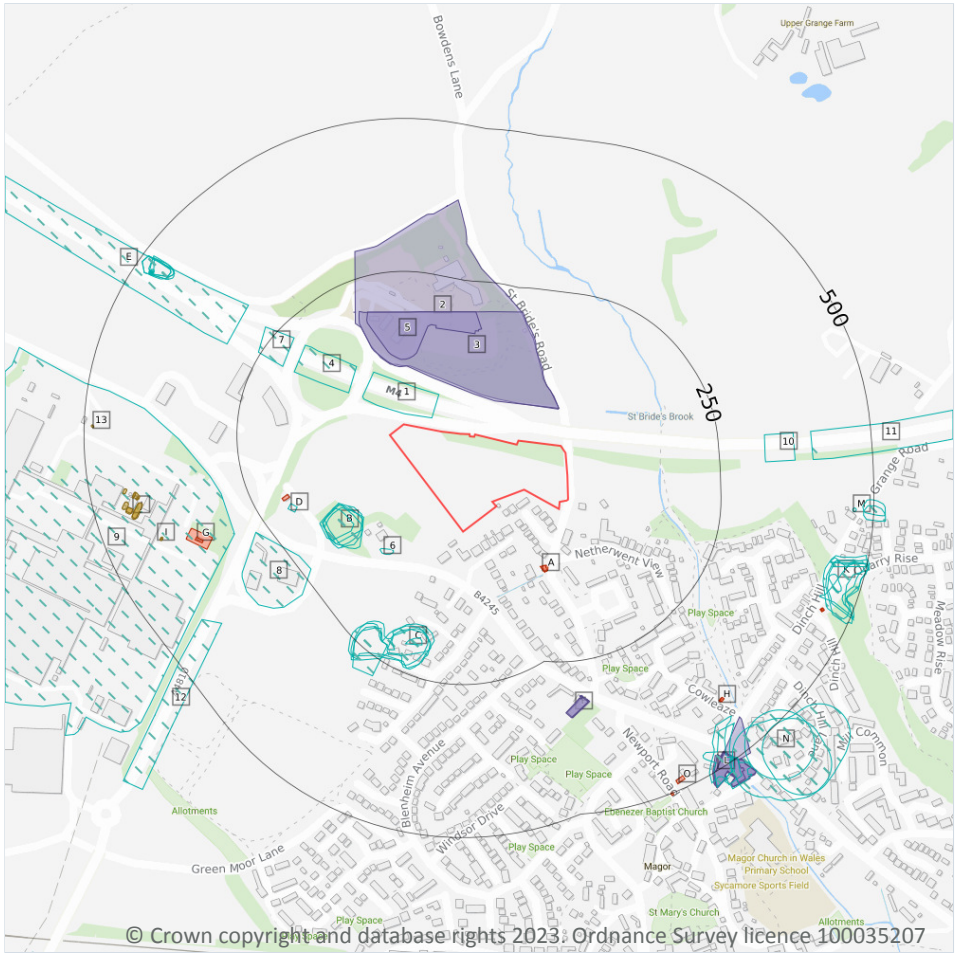
Site Area: 2.81ha

OS MasterMap site plan



Site Area: 2.81ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	48

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
1	17m NW	Cuttings	1969 - 1988	1203190

ID	Location	Land use	Dates present	Group ID
4	97m NW	Cuttings	1969 - 1988	1242363
6	109m SW	Unspecified Ground Workings	1922	1209845
B	115m W	Unspecified Old Quarries	1963	1238292
B	115m W	Unspecified Ground Workings	1969 - 1988	1266514
B	118m W	Unspecified Old Quarries	1919 - 1949	1261255
B	125m SW	Unspecified Quarry	1881	1169874
B	135m SW	Unspecified Old Quarries	1902	1193414
C	166m S	Unspecified Old Quarries	1922 - 1949	1254648
C	173m S	Unspecified Old Quarries	1963	1220231
C	174m S	Unspecified Ground Workings	1969	1161029
C	177m S	Unspecified Old Quarries	1902	1191886
C	187m S	Unspecified Pit	1881	1186015
D	192m W	Police Station	1988	1180408
C	207m SW	Unspecified Pit	1881	1186014
7	208m NW	Cuttings	1969 - 1988	1242331
8	235m SW	Unspecified Depot	1988	1171295
9	292m W	Brewery	1988	1174585
E	305m NW	Cuttings	1969 - 1988	1233564
10	325m E	Cuttings	1969	1158513
11	402m E	Cuttings	1969 - 1988	1217906
12	405m SW	Cuttings	1988	1158512
K	435m E	Unspecified Quarry	1963	1248763
L	437m SE	Unspecified Mill	1963	1165943
E	438m NW	Unspecified Old Quarry	1963	1199472
E	440m NW	Unspecified Old Quarry	1922	1199233
E	440m NW	Unspecified Old Quarry	1922	1246306
K	441m E	Unspecified Quarry	1949	1196203
K	441m E	Unspecified Quarry	1902	1246289

ID	Location	Land use	Dates present	Group ID
K	441m E	Unspecified Quarry	1922	1253795
K	444m E	Unspecified Quarry	1902	1227796
K	445m E	Unspecified Quarry	1881	1235942
E	446m NW	Unspecified Old Quarry	1949	1201852
E	446m NW	Unspecified Old Quarry	1900	1269323
K	446m E	Unspecified Quarry	1919	1218719
L	447m SE	Mill Pond	1881	1168260
M	466m E	Unspecified Tank	1881	1175955
E	468m NW	Old Lime Kiln	1963	1214354
E	469m NW	Old Lime Kiln	1922	1245400
E	469m NW	Old Lime Kiln	1949	1208591
E	470m NW	Lime Kiln	1922	1217596
N	471m SE	Old Quay	1881	1247134
E	471m NW	Lime Kiln	1882	1201188
N	472m SE	Old Quay	1949 - 1963	1196959
M	482m E	Unspecified Old Quarry	1963	1267214
M	484m E	Unspecified Old Quarry	1919 - 1949	1261604
L	493m SE	Sawmill	1922 - 1949	1237949
N	498m SE	Old Quay	1902	1213795

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	13

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
I	407m W	Unspecified Tank	1992	186869
I	409m W	Unspecified Tank	1997 - 1999	190641
J	419m W	Tanks	1992 - 1999	180622
J	420m W	Tanks	1980	190646
J	421m W	Tanks	1992	192766
J	423m W	Tanks	1997 - 1999	189655
J	424m W	Tanks	1980	190827
J	426m W	Tanks	1980 - 1999	188405
J	437m W	Tanks	1992 - 1999	181411
J	438m W	Tanks	1980	188455
J	439m W	Tanks	1980 - 1999	189485
J	442m W	Tanks	1980 - 1999	185644
13	484m W	Unspecified Tank	1980 - 1992	189724

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**12**

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	94m SE	Electricity Substation	1982	112860
A	94m SE	Electricity Substation	1986 - 1997	113146
D	193m W	Gas Governor	1997 - 1999	103472
G	335m W	Gas Governor	1992 - 1997	103644
G	350m W	Gas Governor	1999	111005

ID	Location	Land use	Dates present	Group ID
H	407m SE	Electricity Substation	1988 - 1992	112639
H	407m SE	Electricity Substation	1982 - 1997	103360
K	450m E	Electricity Substation	1981 - 1992	108181
K	450m E	Electricity Substation	1996 - 1997	109904
K	451m E	Electricity Substation	1986	101012
O	480m SE	Electricity Substation	1997	97615
O	499m SE	Electricity Substation	1978 - 1992	106644

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	12

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
2	59m NE	Service Area	1992 - 1994	35310
3	60m NE	Service Area	1997	33053
5	106m NW	Service Area	1996	33737
F	307m SE	Garage	1986	33516

ID	Location	Land use	Dates present	Group ID
F	308m SE	Garage	1996 - 1997	36692
F	308m SE	Garage	1988 - 1992	35122
L	450m SE	Garage	1967	33855
L	477m SE	Garage	1988 - 1997	36448
L	478m SE	Garage	1986	33297
L	479m SE	Garage	1981	33298
L	482m SE	Garage	1982	33122
L	497m SE	Garage	1978	34099

This data is sourced from Ordnance Survey / Groundsure.

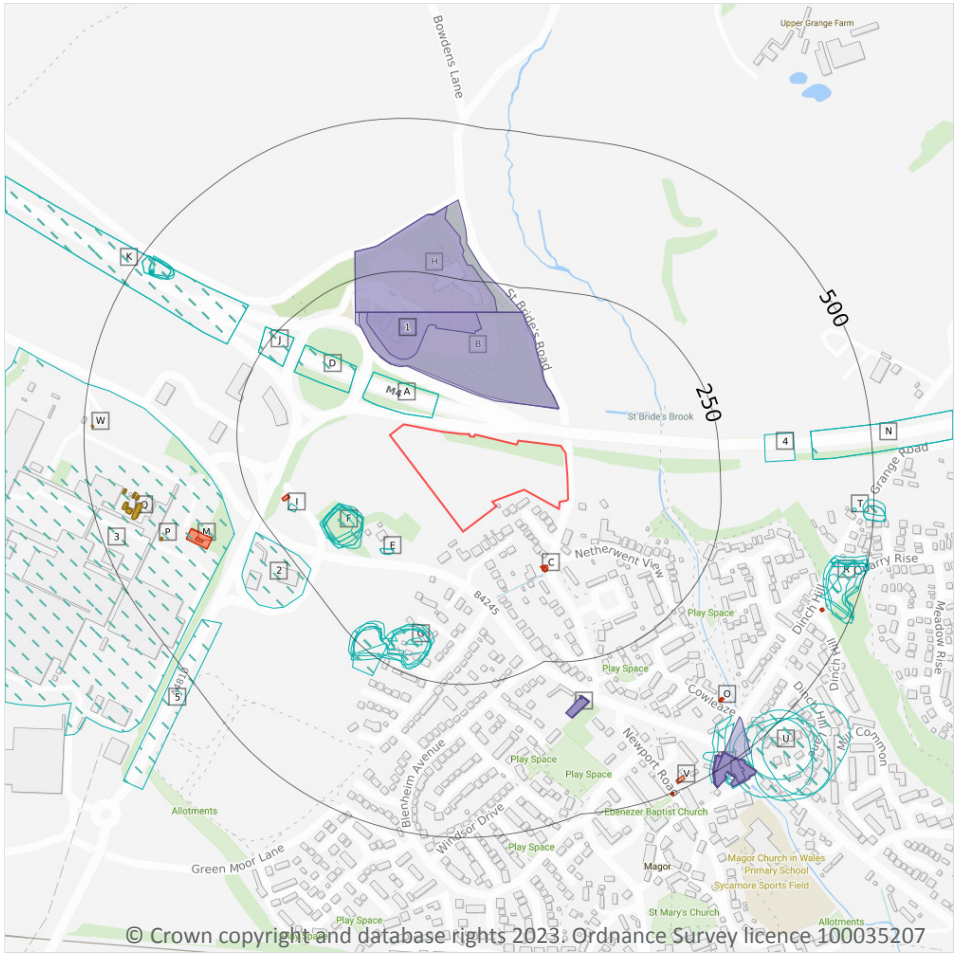
1.6 Historical military land

Records within 500m	**0**

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

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	61

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

Features are displayed on the Past land use - un-grouped map on **page 21 >**

ID	Location	Land Use	Date	Group ID
A	17m NW	Cuttings	1988	1203190
A	17m NW	Cuttings	1969	1203190
D	97m NW	Cuttings	1988	1242363

ID	Location	Land Use	Date	Group ID
D	97m NW	Cuttings	1969	1242363
E	109m SW	Unspecified Ground Workings	1922	1209845
E	109m SW	Unspecified Ground Workings	1922	1209845
F	115m W	Unspecified Old Quarries	1963	1238292
F	115m W	Unspecified Ground Workings	1988	1266514
F	118m W	Unspecified Ground Workings	1969	1266514
F	118m W	Unspecified Old Quarries	1949	1261255
F	118m W	Unspecified Old Quarries	1919	1261255
F	125m SW	Unspecified Quarry	1881	1169874
F	135m SW	Unspecified Old Quarries	1902	1193414
G	166m S	Unspecified Old Quarries	1922	1254648
G	173m S	Unspecified Old Quarries	1963	1220231
G	174m S	Unspecified Ground Workings	1969	1161029
G	176m S	Unspecified Old Quarries	1949	1254648
G	177m S	Unspecified Old Quarries	1902	1191886
G	187m S	Unspecified Pit	1881	1186015
I	192m W	Police Station	1988	1180408
G	207m SW	Unspecified Pit	1881	1186014
J	208m NW	Cuttings	1988	1242331
J	208m NW	Cuttings	1969	1242331
2	235m SW	Unspecified Depot	1988	1171295
3	292m W	Brewery	1988	1174585
K	305m NW	Cuttings	1988	1233564
K	305m NW	Cuttings	1969	1233564
4	325m E	Cuttings	1969	1158513
N	402m E	Cuttings	1988	1217906
N	402m E	Cuttings	1969	1217906
5	405m SW	Cuttings	1988	1158512

ID	Location	Land Use	Date	Group ID
R	435m E	Unspecified Quarry	1963	1248763
S	437m SE	Unspecified Mill	1963	1165943
K	438m NW	Unspecified Old Quarry	1963	1199472
K	440m NW	Unspecified Old Quarry	1922	1199233
K	440m NW	Unspecified Old Quarry	1922	1246306
R	441m E	Unspecified Quarry	1949	1196203
R	441m E	Unspecified Quarry	1902	1246289
R	441m E	Unspecified Quarry	1922	1253795
R	444m E	Unspecified Quarry	1902	1227796
R	445m E	Unspecified Quarry	1881	1235942
K	446m NW	Unspecified Old Quarry	1949	1201852
K	446m NW	Unspecified Old Quarry	1900	1269323
R	446m E	Unspecified Quarry	1949	1196203
R	446m E	Unspecified Quarry	1919	1218719
S	447m SE	Mill Pond	1881	1168260
T	466m E	Unspecified Tank	1881	1175955
K	468m NW	Old Lime Kiln	1963	1214354
K	469m NW	Old Lime Kiln	1922	1245400
K	469m NW	Old Lime Kiln	1949	1208591
K	470m NW	Lime Kiln	1922	1217596
U	471m SE	Old Quay	1881	1247134
K	471m NW	Lime Kiln	1882	1201188
U	472m SE	Old Quay	1963	1196959
T	482m E	Unspecified Old Quarry	1963	1267214
T	484m E	Unspecified Old Quarry	1949	1261604
T	484m E	Unspecified Old Quarry	1919	1261604
U	490m SE	Old Quay	1949	1196959
S	493m SE	Sawmill	1922	1237949

ID	Location	Land Use	Date	Group ID
S	496m SE	Sawmill	1949	1237949
U	498m SE	Old Quay	1902	1213795

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**28**

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

Features are displayed on the Past land use - un-grouped map on **page 21 >**

ID	Location	Land Use	Date	Group ID
P	407m W	Unspecified Tank	1992	186869
P	409m W	Unspecified Tank	1997	190641
P	409m W	Unspecified Tank	1999	190641
Q	419m W	Tanks	1992	180622
Q	420m W	Tanks	1980	190646
Q	421m W	Tanks	1992	192766
Q	421m W	Tanks	1997	180622
Q	421m W	Tanks	1999	180622
Q	423m W	Tanks	1997	189655
Q	423m W	Tanks	1999	189655
Q	424m W	Tanks	1980	190827
Q	426m W	Tanks	1980	188405
Q	427m W	Tanks	1997	188405
Q	427m W	Tanks	1999	188405
Q	437m W	Tanks	1992	181411
Q	438m W	Tanks	1980	188455
Q	439m W	Tanks	1992	189485
Q	439m W	Tanks	1997	181411

ID	Location	Land Use	Date	Group ID
Q	439m W	Tanks	1999	181411
Q	440m W	Tanks	1980	189485
Q	441m W	Tanks	1997	189485
Q	441m W	Tanks	1999	189485
Q	442m W	Tanks	1992	185644
Q	442m W	Tanks	1980	185644
Q	444m W	Tanks	1997	185644
Q	444m W	Tanks	1999	185644
W	484m W	Unspecified Tank	1992	189724
W	485m W	Unspecified Tank	1980	189724

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**32**

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

Features are displayed on the Past land use - un-grouped map on **page 21 >**

ID	Location	Land Use	Date	Group ID
C	94m SE	Electricity Substation	1982	112860
C	94m SE	Electricity Substation	1986	113146
C	96m SE	Electricity Substation	1988	113146
C	96m SE	Electricity Substation	1992	113146
C	96m SE	Electricity Substation	1990	113146
C	98m SE	Electricity Substation	1997	113146
I	193m W	Gas Governor	1997	103472
I	193m W	Gas Governor	1999	103472
M	335m W	Gas Governor	1992	103644
M	336m W	Gas Governor	1997	103644

ID	Location	Land Use	Date	Group ID
M	350m W	Gas Governor	1999	111005
O	407m SE	Electricity Substation	1988	112639
O	407m SE	Electricity Substation	1992	112639
O	407m SE	Electricity Substation	1990	112639
O	407m SE	Electricity Substation	1997	103360
O	407m SE	Electricity Substation	1996	103360
O	407m SE	Electricity Substation	1986	103360
O	408m SE	Electricity Substation	1982	103360
R	450m E	Electricity Substation	1981	108181
R	450m E	Electricity Substation	1988	108181
R	450m E	Electricity Substation	1992	108181
R	450m E	Electricity Substation	1990	108181
R	450m E	Electricity Substation	1997	109904
R	450m E	Electricity Substation	1996	109904
R	450m E	Electricity Substation	1982	108181
R	451m E	Electricity Substation	1986	101012
V	480m SE	Electricity Substation	1997	97615
V	499m SE	Electricity Substation	1978	106644
V	499m SE	Electricity Substation	1981	106644
V	499m SE	Electricity Substation	1988	106644
V	499m SE	Electricity Substation	1992	106644
V	499m SE	Electricity Substation	1990	106644

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**21**

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

Features are displayed on the Past land use - un-grouped map on **page 21 >**

ID	Location	Land Use	Date	Group ID
B	59m NE	Service Area	1992	35310
B	60m NE	Service Area	1997	33053
1	106m NW	Service Area	1996	33737
H	183m NW	Service Area	1994	35310
H	183m NW	Service Area	1992	35310
L	307m SE	Garage	1986	33516
L	308m SE	Garage	1997	36692
L	308m SE	Garage	1996	36692
L	308m SE	Garage	1988	35122
L	308m SE	Garage	1992	35122
L	308m SE	Garage	1990	35122
S	450m SE	Garage	1967	33855
S	477m SE	Garage	1988	36448
S	477m SE	Garage	1992	36448
S	477m SE	Garage	1990	36448
S	478m SE	Garage	1986	33297
S	479m SE	Garage	1997	36448
S	479m SE	Garage	1996	36448
S	479m SE	Garage	1981	33298
S	482m SE	Garage	1982	33122
S	497m SE	Garage	1978	34099

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 29 >**

ID	Location	Details		
1	407m E	Site Address: Land off Dancing Hill, Magor, Monmouthshire Licence Holder Address: -	Waste Licence: Yes Site Reference: MBC 23, MBC24 Waste Type: Inert, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: Monmouthshire Borough Council First Recorded - Last Recorded: -

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	4

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

Features are displayed on the Waste and landfill map on **page 29 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	129m S	Monmouthshire County Council, Welsh Assembly Government Motorway Depot (Wilcrick), Newport Road (Off Jct. 23 M4), Magor, Monmouthshire, NP26 3BZ	NRW-WME068614	Storing waste exemption	Not on a farm	Storage of waste in a secure place
A	129m S	Monmouthshire County Council, Welsh Assembly Government Motorway Depot (Wilcrick), Newport Road (Off Jct. 23 M4), Magor, Monmouthshire, NP26 3BZ	NRW-WME068614	Using waste exemption	Not on a farm	Use of waste in construction
A	129m S	Monmouthshire County Council, Monmouthshire County Council, Welsh Assembly Government Motorway Depot (Wilcrick), Newport Road (Off Jct 23 M4), Magor, Monmouthshire, NP263BZ	NRW-WME033966	Using waste exemption	Not on a farm	Use of waste in construction
A	129m S	Monmouthshire County Council, Monmouthshire County Council, Welsh Assembly Government Motorway Depot (Wilcrick), Newport Road (Off Jct 23 M4), Magor, Monmouthshire, NP263BZ	NRW-WME033966	Storing waste exemption	Not on a farm	Storage of waste in a secure place

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

4 Current industrial land use

Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Part A(1) industrial activities

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

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	5

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 32 >**

ID	Location	Company	Address	Activity	Category
1	21m N	Gantry	Gwent, NP26	Travelling Cranes and Gantries	Industrial Features
3	98m SE	Electricity Sub Station	Gwent, NP26	Electrical Features	Infrastructure and Facilities
A	168m NW	BP Service Station	Esso Service Station Magor Motorway Service Area, -, Magor, Gwent, NP26 3YL	Petrol and Fuel Stations	Road and Rail

ID	Location	Company	Address	Activity	Category
5	197m W	Gas Governor Station	Gwent, NP26	Gas Features	Infrastructure and Facilities
A	210m NW	Electricity Sub Station	Gwent, NP26	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 32 >**

ID	Location	Company	Address	LPG	Status
A	144m NW	BP	M4 J23a, B4245, Magor, Newport, Monmouthshire, NP26 3YL	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	14

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

Features are displayed on the Current industrial land use map on **page 32 >**

ID	Location	Details	
C	498m W	Operator: AB InBev UK Ltd Installation Name: Magor Brewery EPR/BX7282IS Process: DISPOSAL OF NON-HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 50 TONNES PER DAY (OR 100 TONNES PER DAY IF THE ONLY WASTE TREATMENT ACTIVITY IS ANAEROBIC DIGESTION) INVOLVING ONE OR MORE OF THE FOLLOWING ACTIVITIES, AND EXCLUDING ACTIVITIES COVERED BY COUNCIL DIRECTIVE 91/271/EEC CONCERNING URBAN WASTE-WATER TREATMENT(4)—BIOLOGICAL TREATMENT Permit Number: BX7282IS Original Permit Number: -	EPR Reference: - Issue Date: 27/09/2022 Effective Date: 27/09/2022 Last date noted as effective: 25/05/2023 Status: Effective
C	498m W	Operator: AB InBev UK Ltd Installation Name: Magor Brewery EPR/BX7282IS Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW MATERIALS, WHETHER PREVIOUSLY PROCESSED OR UNPROCESSED, INTENDED FOR THE PRODUCTION OF FOOD OR FEED (WHERE THE WEIGHT OF THE FINISHED PRODUCT EXCLUDES PACKAGING)—ONLY VEGETABLE RAW MATERIALS WITH A FINISHED PRODUCT PRODUCTION CAPACITY GREATER THAN 300 TONNES PER DAY OR 600 TONNES PER DAY WHERE THE INSTALLATION OPERATES FOR A PERIOD OF NO MORE THAN 90 CONSECUTIVE DAYS IN ANY YEAR Permit Number: BX7282IS Original Permit Number: -	EPR Reference: - Issue Date: 27/09/2022 Effective Date: 27/09/2022 Last date noted as effective: 25/05/2023 Status: Effective
C	498m W	Operator: AB InBev UK Ltd Installation Name: Magor Brewery EPR/BX7282IS Process: - Permit Number: BX7282IS Original Permit Number: -	EPR Reference: - Issue Date: 27/09/2022 Effective Date: 27/09/2022 Last date noted as effective: 25/05/2023 Status: Effective
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY EPR/BX7282IS Process: - Permit Number: BX7282IS Original Permit Number: -	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 01/04/2017 Status: WITHDRAWN

ID	Location	Details	
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY EPR/BX7282IS Process: TREATMENT AND PROCESSING, OTHER THAN EXCLUSIVELY PACKAGING, OF THE FOLLOWING RAW... Permit Number: BX7282IS Original Permit Number: MP3834EP	EPR Reference: - Issue Date: 23/09/2014 Effective Date: 23/09/2014 Last date noted as effective: 01/04/2018 Status: EFFECTIVE
C	498m W	Operator: INBEV UK LTD Installation Name: MAGOR BREWERY Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: BX7282IS Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 24/06/2005 Effective Date: 24/06/2005 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
C	498m W	Operator: INBEV UK LTD Installation Name: MAGOR BREWERY EA/EPR/BX7282IS/V003 Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: RP3831HS Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 16/08/2011 Effective Date: 16/08/2011 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
C	498m W	Operator: INBEV UK LTD Installation Name: MAGOR BREWERY Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: VP3534LH Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 16/06/2006 Effective Date: 16/06/2006 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY Process: CREATED BY IED - DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING BIOLOGICAL TREATMENT Permit Number: KP3731ZF Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 25/03/2013 Effective Date: 25/03/2013 Last date noted as effective: 01/07/2013 Status: EFFECTIVE
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY EA/EPR/BX7282IS/V004 Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: CP3438CC Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 14/03/2012 Effective Date: 14/03/2012 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY EA/EPR/BX7282IS/V005 Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: KP3731ZF Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 25/03/2013 Effective Date: 25/03/2013 Last date noted as effective: 17/11/2015 Status: SUPERCEDED

ID	Location	Details	
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY EA/EPR/BX7282IS/V005 Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING BIOLOGICAL TREATMENT Permit Number: KP3731ZF Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 25/03/2013 Effective Date: 25/03/2013 Last date noted as effective: 17/11/2015 Status: SUPERCEDED
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY EPR/BX7282IS Process: COMBUSTION; ANY FUEL =>50MW Permit Number: MP3834EP Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 23/09/2014 Effective Date: 23/09/2014 Last date noted as effective: 17/11/2015 Status: EFFECTIVE
C	498m W	Operator: AB INBEV UK LTD Installation Name: MAGOR BREWERY EPR/BX7282IS Process: DISPOSAL OR RECOVERY OF HAZARDOUS WASTE WITH A CAPACITY EXCEEDING 10 TONNES PER DAY INVOLVING BIOLOGICAL TREATMENT Permit Number: MP3834EP Original Permit Number: BX7282IS	EPR Reference: - Issue Date: 23/09/2014 Effective Date: 23/09/2014 Last date noted as effective: 17/11/2015 Status: EFFECTIVE

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

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

Records within 500m	**1**

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

Features are displayed on the Current industrial land use map on **page 32 >**

ID	Location	Address	Details	
A	145m NW	Magor Motorway Service Station, Junction 23, M4, Magor, Caldicot, Monmouthshire, NP6 3YL	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	4

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

Features are displayed on the Current industrial land use map on **page 32 >**

ID	Location	Address	Details	
B	152m E	Unknown Unknown Unknown Unknown Unk	Effluent Type: UNSPECIFIED Permit Number: AN0217401 Permit Version: 1 Receiving Water: MILL REEN	Status: REVOKED - UNSPECIFIED Issue date: 01/01/1901 Effective Date: 01/01/1901 Revocation Date: 30/08/1990
B	152m E	Unknown Unknown Unknown Unknown Unk	Effluent Type: UNSPECIFIED Permit Number: AN0217401 Permit Version: 2 Receiving Water: MILL REEN	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 31/08/1990 Effective Date: 31/08/1990 Revocation Date: 19/04/1993
4	156m W	MAGOR MOTORWAY SERVICES M4 JUNCTION, MAGOR MOTORWAY SERVICES, M4 JUNCTION 23, MAGOR, MONMOUTHSHIRE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - NOT WATER COMPANY Permit Number: AN0259201 Permit Version: 0 Receiving Water: ST BRIDES BROOK	Status: Effective Issue date: 20/07/1995 Effective Date: 20/07/1995 Revocation Date: -
6	244m SE	MAGOR - 1 WILLOW BROOK SYCAMORE TER, MAGOR - 1 WILLOW BROOK SYCAMORE, SYCAMORE TERRACE LANE	Effluent Type: UNSPECIFIED Permit Number: AN0145301 Permit Version: 1 Receiving Water: SOAKAWAY	Status: CONSENT EXPIRED - TIME LIMIT Issue date: 07/07/1989 Effective Date: 07/07/1989 Revocation Date: 06/10/1994

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	2

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

Features are displayed on the Current industrial land use map on **page 32 >**

ID	Location	Details	
2	47m S	Incident Date: 24/04/2001 Incident Identification: 3226 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	141m NW	Incident Date: 30/06/2015 Incident Identification: 1349924 Pollutant: Organic Chemicals/Products Pollutant Description: Other Organic Chemical or Product	Water Impact: - Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	0

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

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

4.20 Pollution inventory waste transfers

Records within 500m	0

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

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

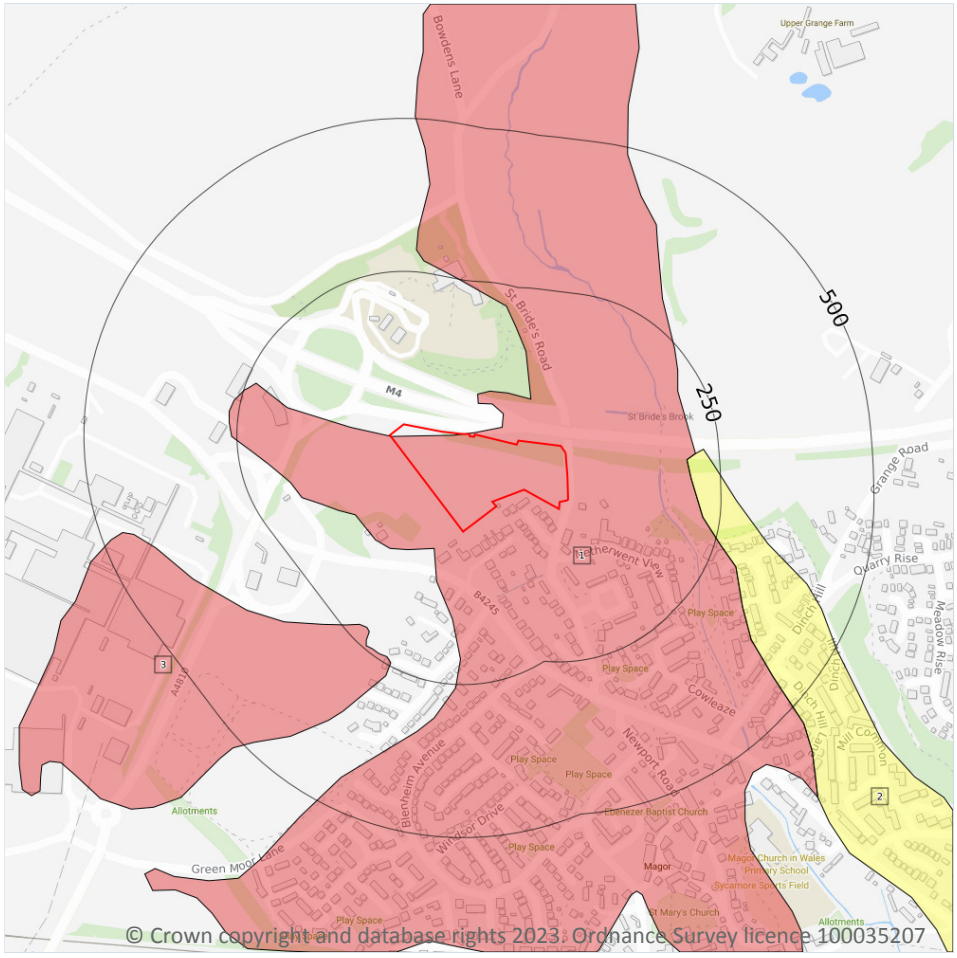
4.21 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

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

5.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

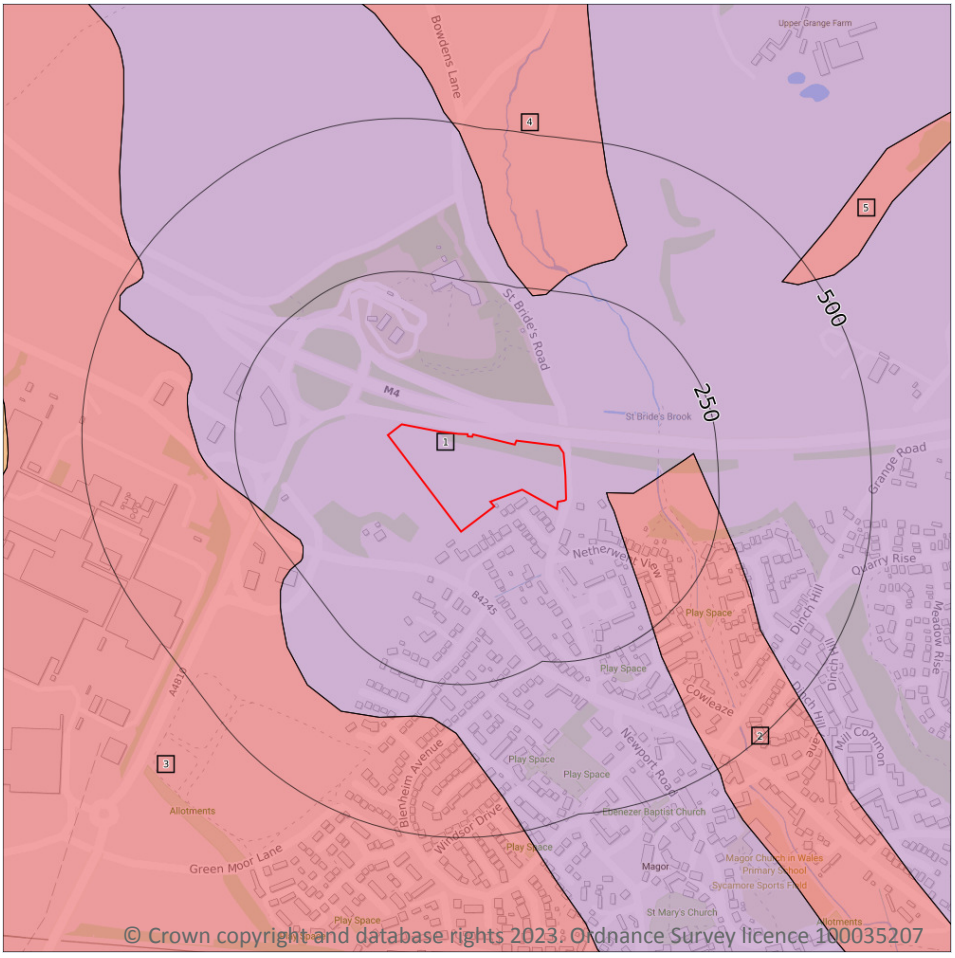
Features are displayed on the Hydrogeology map on **page 41 >**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	197m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

ID	Location	Designation	Description
3	222m SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

Bedrock aquifer



5.2 Bedrock aquifer

Records within 500m	5

Aquifer status of groundwater held within bedrock geology.

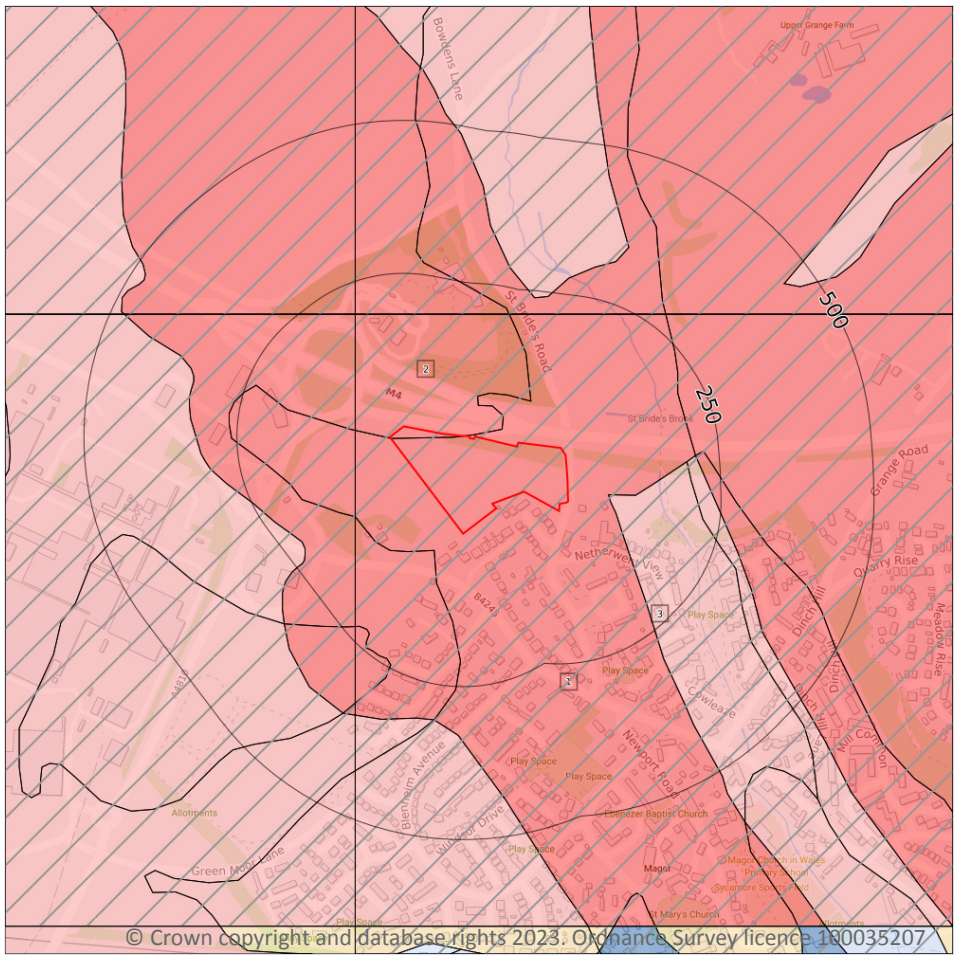
Features are displayed on the Bedrock aquifer map on **page 43 >**

ID	Location	Designation	Description
1	**On site**	**Principal**	**Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers**
2	67m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

ID	Location	Designation	Description
3	218m W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	238m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	453m NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	2

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

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

Features are displayed on the Groundwater vulnerability map on **page 45 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures**
2	On site	**Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures**

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**1**

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

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
3	**Very significant soluble rocks are likely to be present with a high possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, especially in adverse conditions such as concentrated surface or subsurface water flow.**	**0.0%**

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

5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones

5.6 Groundwater abstractions

Records within 2000m	0

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

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

5.7 Surface water abstractions

Records within 2000m	0

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

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

5.8 Potable abstractions

Records within 2000m	0

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

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

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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

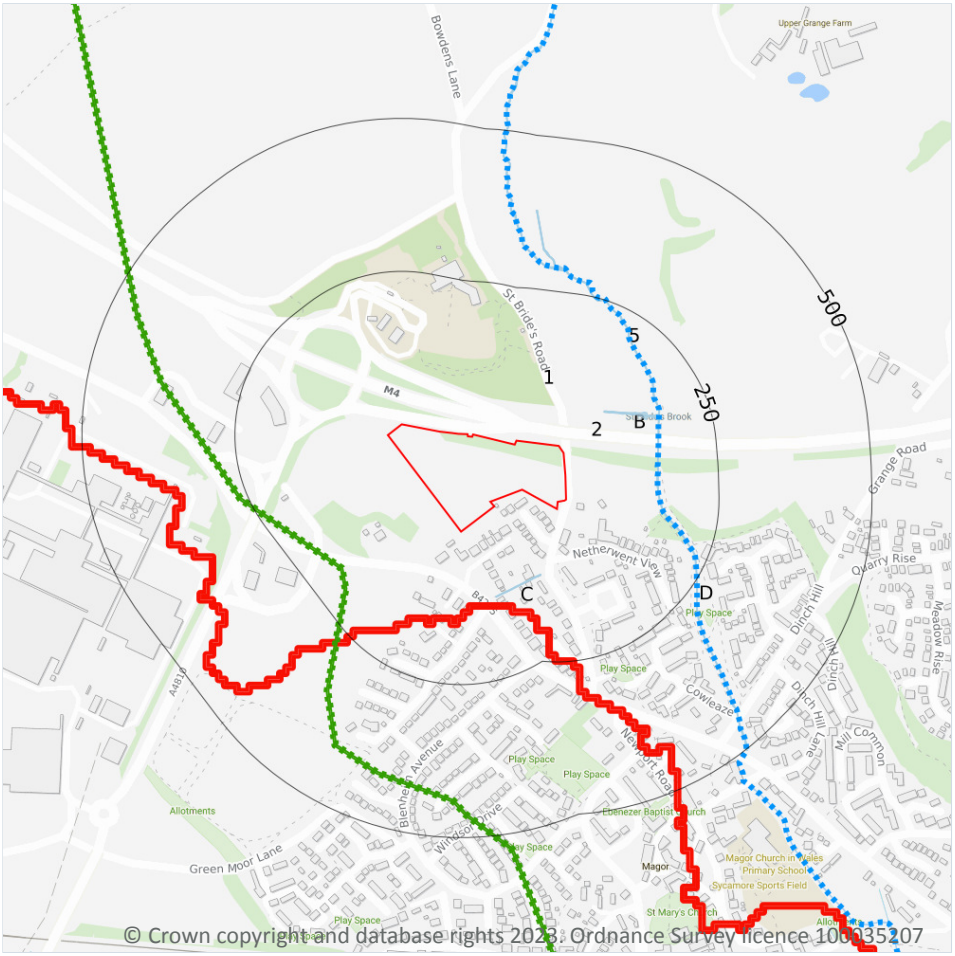
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	6

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

Features are displayed on the Hydrology map on **page 49 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
B	92m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
C	110m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	150m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	St Bride's Brook
B	152m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	St Bride's Brook
B	161m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	St Bride's Brook
5	166m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	St Bride's Brook

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	3

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

Features are displayed on the Hydrology map on **page 49 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

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

Features are displayed on the Hydrology map on **page 49 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River WB catchment**	**Mill Reen - source to R Severn Estuary**	**GB109056026860**	**East Reens**	**Usk**

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

6.4 WFD Surface water bodies

Records identified	**1**

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

Features are displayed on the Hydrology map on **page 49 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	150m E	River	Mill Reen - source to R Severn Estuary	GB109056026860	Moderate	Good	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	**1**

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

Features are displayed on the Hydrology map on **page 49 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Usk and Wye Southern Carboniferous Limestone**	**GB40901G206300**	**Good**	**Good**	**Good**	**2017**

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

7 River and coastal flooding

Site Outline

Search buffers in metres (m)

River and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 52 >**

Distance	Flood risk category
On site	**N/A**
0 - 50m	Low

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

7.2 Historical Flood Events

Records within 250m	**0**

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

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

7.3 Flood Defences

Records within 250m	**0**

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	**0**

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

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

7.5 Flood Storage Areas

Records within 250m	**0**

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

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

River and coastal flooding - Flood Zones

Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 52 >**

Location	Type
35m NE	Zone 2 - (Fluvial /Tidal Models)

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

7.7 Flood Zone 3

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 52 >**

Location	Type
39m NE	Zone 3 - (Fluvial /Tidal Models)

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

8 Surface water flooding

Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 1000 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

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

Features are displayed on the Surface water flooding map on **page 56 >**

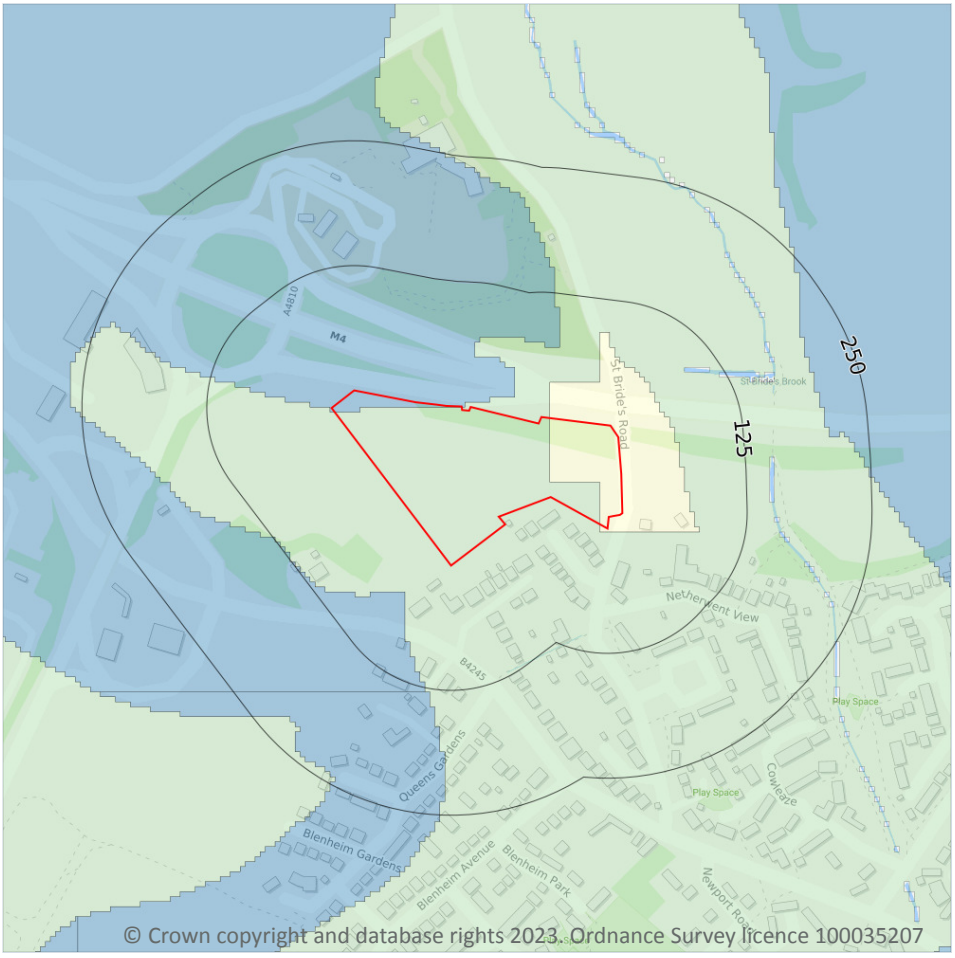
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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

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

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

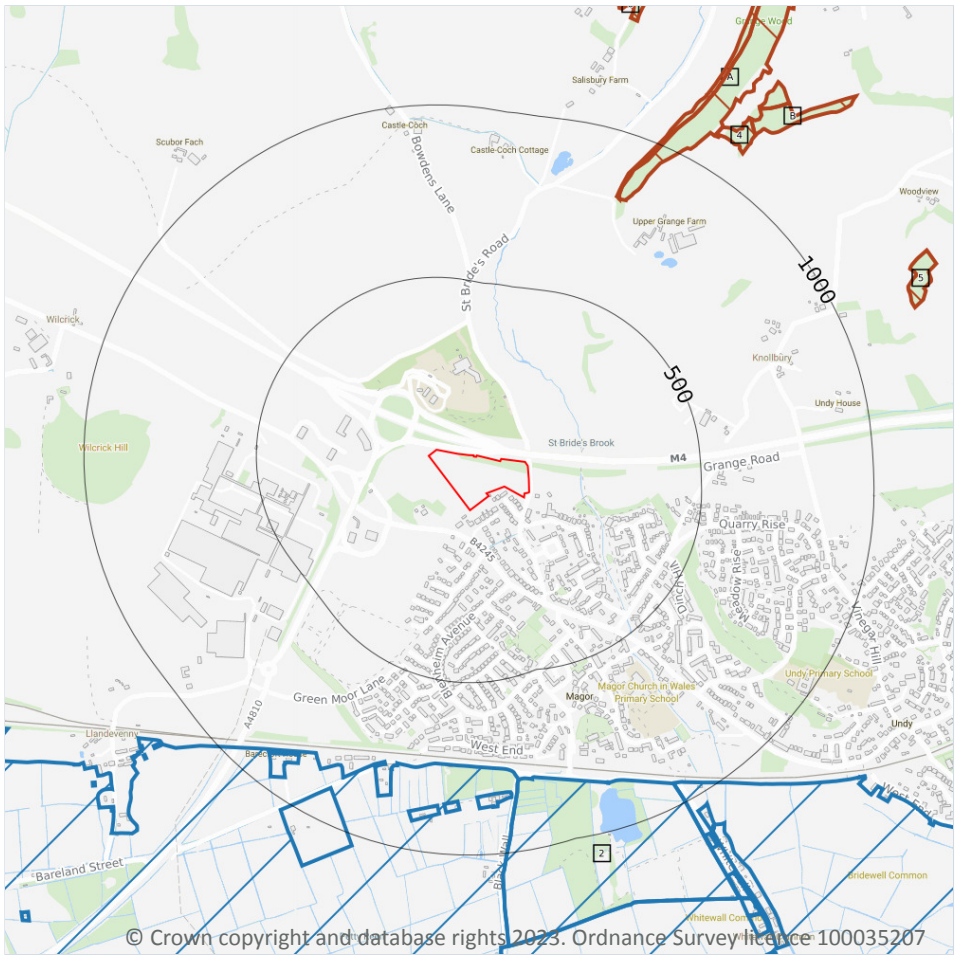
Highest risk on site	**Moderate**
Highest risk within 50m	**Moderate**

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

Features are displayed on the Groundwater flooding map on **page 58 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	5

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

Features are displayed on the Environmental designations map on **page 59 >**

ID	Location	Name	Data source
1	740m S	Gwent Levels - Redwick and Llandevenny	Natural Resources Wales

ID	Location	Name	Data source
2	793m S	Magor Marsh	Natural Resources Wales
3	935m SE	Gwent Levels - Magor and Undy	Natural Resources Wales
-	1659m N	Penhow Woodlands	Natural Resources Wales
-	1910m N	Penhow Woodlands	Natural Resources Wales

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	**0**

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	**0**

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	**0**

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	1

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

Features are displayed on the Environmental designations map on **page 59 >**

ID	Location	Name	Data source
-	1910m N	Penhow Woodlands	Natural Rescources Wales

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	16

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

Features are displayed on the Environmental designations map on **page 59 >**

ID	Location	Name	Woodland Type
A	810m NE	Unknown	Ancient Semi Natural Woodland
A	810m NE	Unknown	Ancient Semi Natural Woodland
4	1094m NE	Unknown	Ancient Semi Natural Woodland
B	1158m NE	Unknown	Ancient Semi Natural Woodland
5	1211m E	Unknown	Ancient Semi Natural Woodland
B	1230m NE	Unknown	Ancient Semi Natural Woodland

ID	Location	Name	Woodland Type
6	1320m N	Unknown	Ancient Semi Natural Woodland
-	1348m W	Unknown	Ancient Semi Natural Woodland
-	1400m N	Unknown	Ancient Semi Natural Woodland
-	1602m NE	Unknown	Ancient Semi Natural Woodland
-	1613m NE	Unknown	Restored Ancient Woodland Site
-	1648m N	Unknown	Ancient Semi Natural Woodland
-	1662m N	Unknown	Ancient Semi Natural Woodland
-	1789m N	Unknown	Ancient Semi Natural Woodland
-	1790m N	Unknown	Ancient Semi Natural Woodland
-	1913m N	Unknown	Ancient Semi Natural Woodland

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

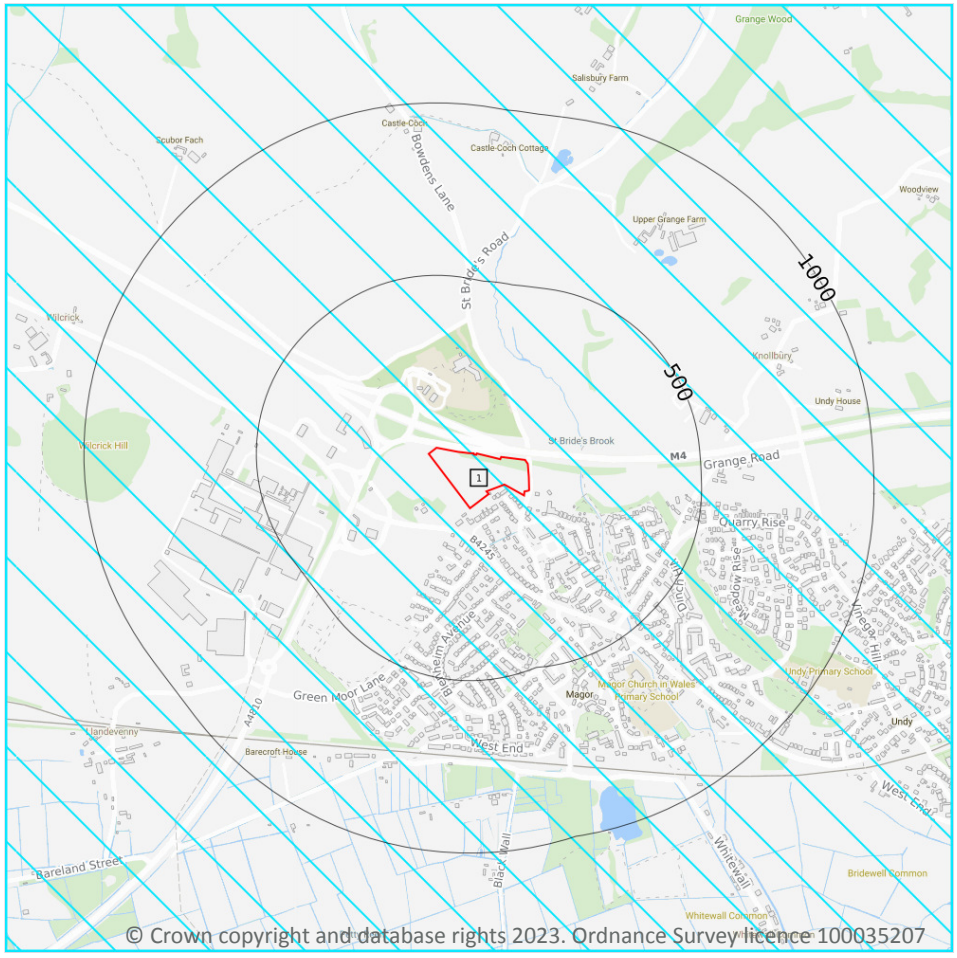
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 65 >**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations

Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	1

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

Features are displayed on the Visual and cultural designations map on **page 67 >**

ID	Location	Name	Grade	Reference Number	Listed date
1	111m SW	The Vicarage, On Western Edge Of Magor Village.	II	16068	31/05/1995

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

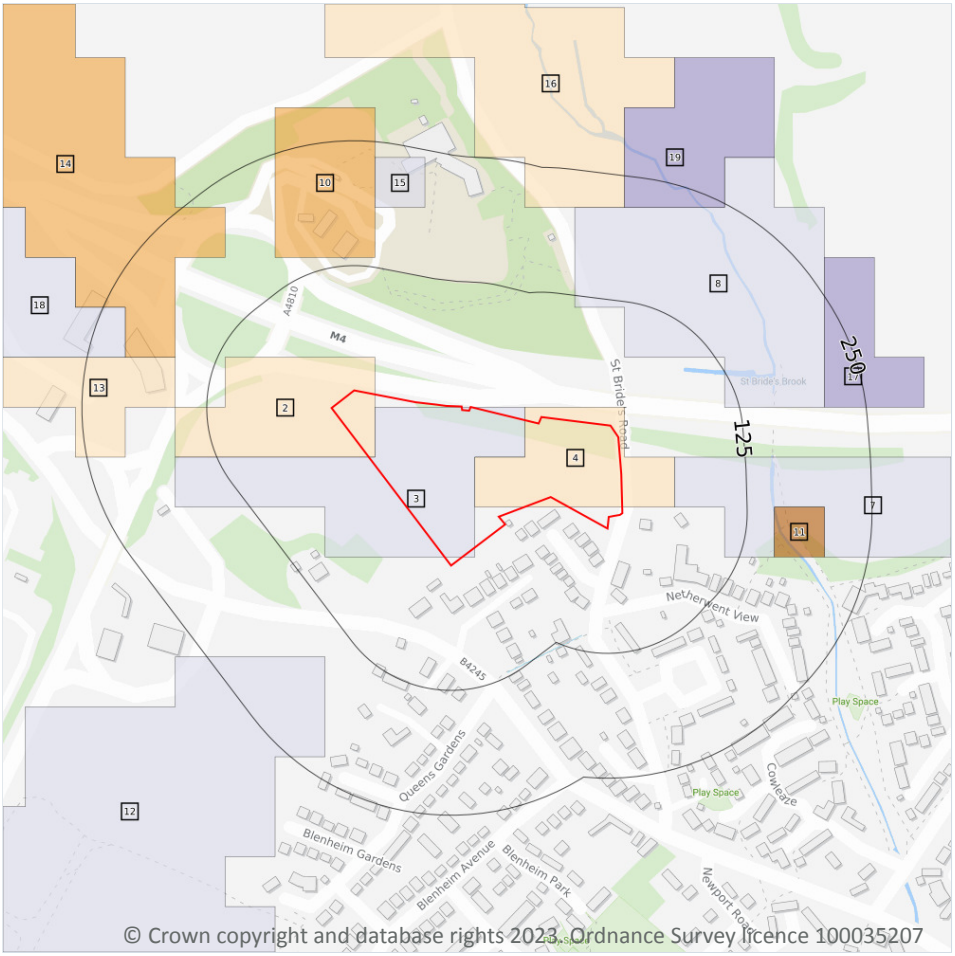
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Timber felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	15

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

Features are displayed on the Agricultural designations map on **page 70 >**

ID	Location	Classification	Description
2	**On site**	**Grade 3a**	**Good to moderate quality agricultural land**
3	**On site**	**Grade 3b**	**Moderate quality agricultural land**
4	**On site**	**Grade 3a**	**Good to moderate quality agricultural land**

ID	Location	Classification	Description
7	52m E	Grade 3b	Moderate quality agricultural land
8	70m NE	Grade 3b	Moderate quality agricultural land
10	133m NW	Grade 2	Good quality agricultural land
11	152m E	Grade 1	Excellent quality agricultural land
12	156m SW	Grade 3b	Moderate quality agricultural land
13	157m W	Grade 3a	Good to moderate quality agricultural land
14	165m W	Grade 2	Good quality agricultural land
15	184m NW	Grade 3b	Moderate quality agricultural land
16	207m N	Grade 3a	Good to moderate quality agricultural land
17	209m E	Grade 4	Poor quality agricultural land
18	213m W	Grade 3b	Moderate quality agricultural land
19	219m NE	Grade 4	Poor quality agricultural land

This data is sourced from Natural Resources Wales.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m	0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 74 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**ST48NW**

This data is sourced from the British Geological Survey.

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

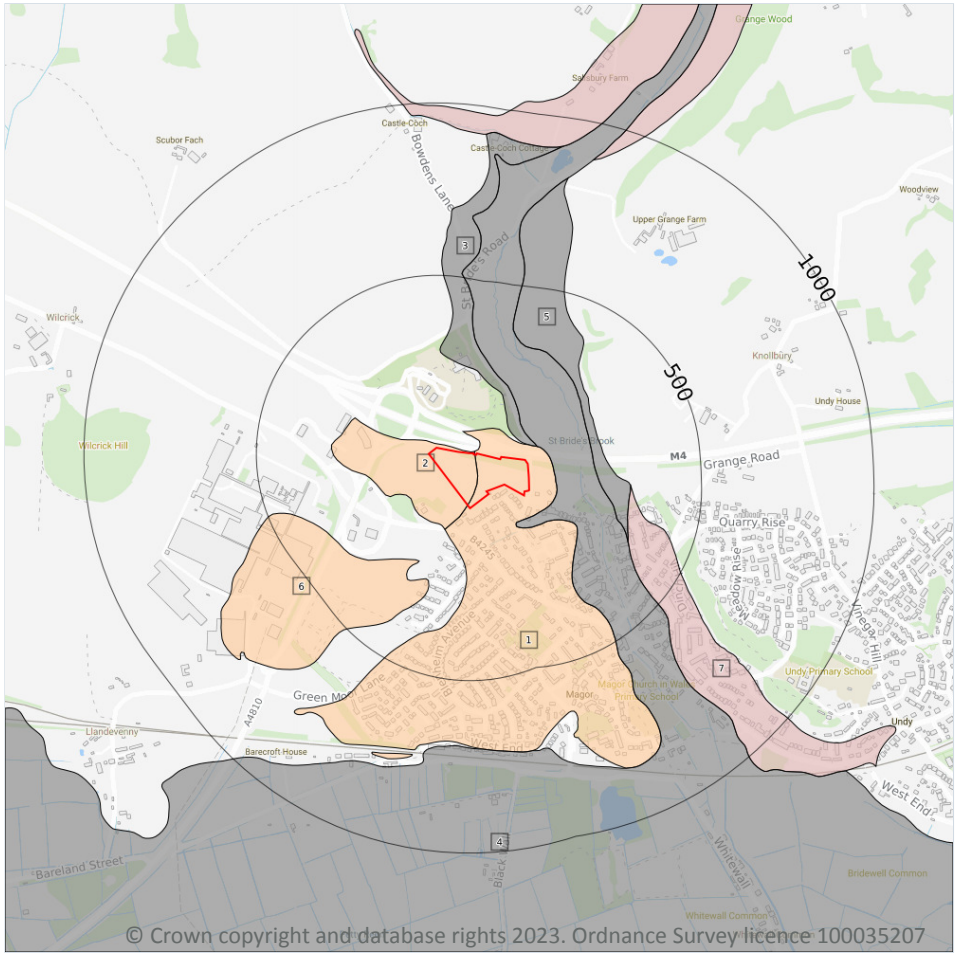
14.2 Artificial and made ground (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **7**

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 76 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**RTD2-XSV**	**River Terrace Deposits, 2 - Sand And Gravel**	**Sand And Gravel**
2	**On site**	**T2T3-XSV**	**River Terrace Deposits, 2 To 3 - Sand And Gravel**	**Sand And Gravel**
3	45m NE	TFD1-CZ	Tidal Flat Deposits, 1 - Silty Clay	Clay, Silty
4	53m NE	TFD1-CZ	Tidal Flat Deposits, 1 - Silty Clay	Clay, Silty

ID	Location	LEX Code	Description	Rock description
5	189m E	TFD1-CZ	Tidal Flat Deposits, 1 - Silty Clay	Clay, Silty
6	213m SW	T2T3-XSV	River Terrace Deposits, 2 To 3 - Sand And Gravel	Sand And Gravel
7	291m E	HEAD-XCZSV	Head - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

This data is sourced from the British Geological Survey.

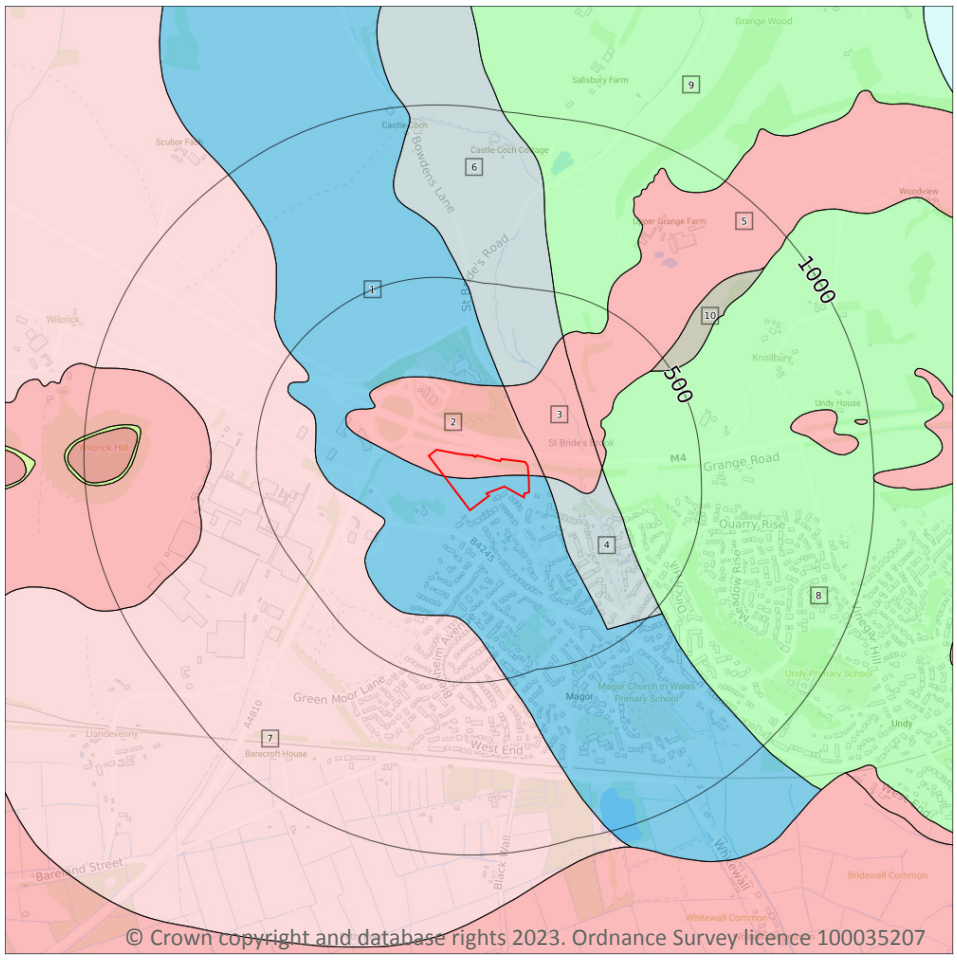
14.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	10

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 78 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**AVO-LMST**	**Avon Group - Limestone**	**Courceyan Age**
2	**On site**	**MMMF-CONG**	**Mercia Mudstone Group (marginal Facies) - Conglomerate**	**Triassic Period**
3	33m E	MMMF-CONG	Mercia Mudstone Group (marginal Facies) - Conglomerate	Triassic Period

ID	Location	LEX Code	Description	Rock age
4	47m E	AVO-MDLM	Avon Group - Mudstone And Limestone, Interbedded	Courceyan Age
5	203m E	MMMF-CONG	Mercia Mudstone Group (marginal Facies) - Conglomerate	Triassic Period
6	212m N	AVO-MDLM	Avon Group - Mudstone And Limestone, Interbedded	Courceyan Age
7	214m SW	TSG-SDST	Tintern Sandstone Formation - Sandstone	Tournaisian Age - Famennian Age
8	215m E	BRL-DOLO	Black Rock Limestone Subgroup - Dolostone	Chadian Age - Courceyan Age
9	379m NE	BRL-DOLO	Black Rock Limestone Subgroup - Dolostone	Chadian Age - Courceyan Age
10	448m NE	MMG-SDST	Mercia Mudstone Group - Sandstone	Rhaetian Age - Early Triassic Epoch

This data is sourced from the British Geological Survey.

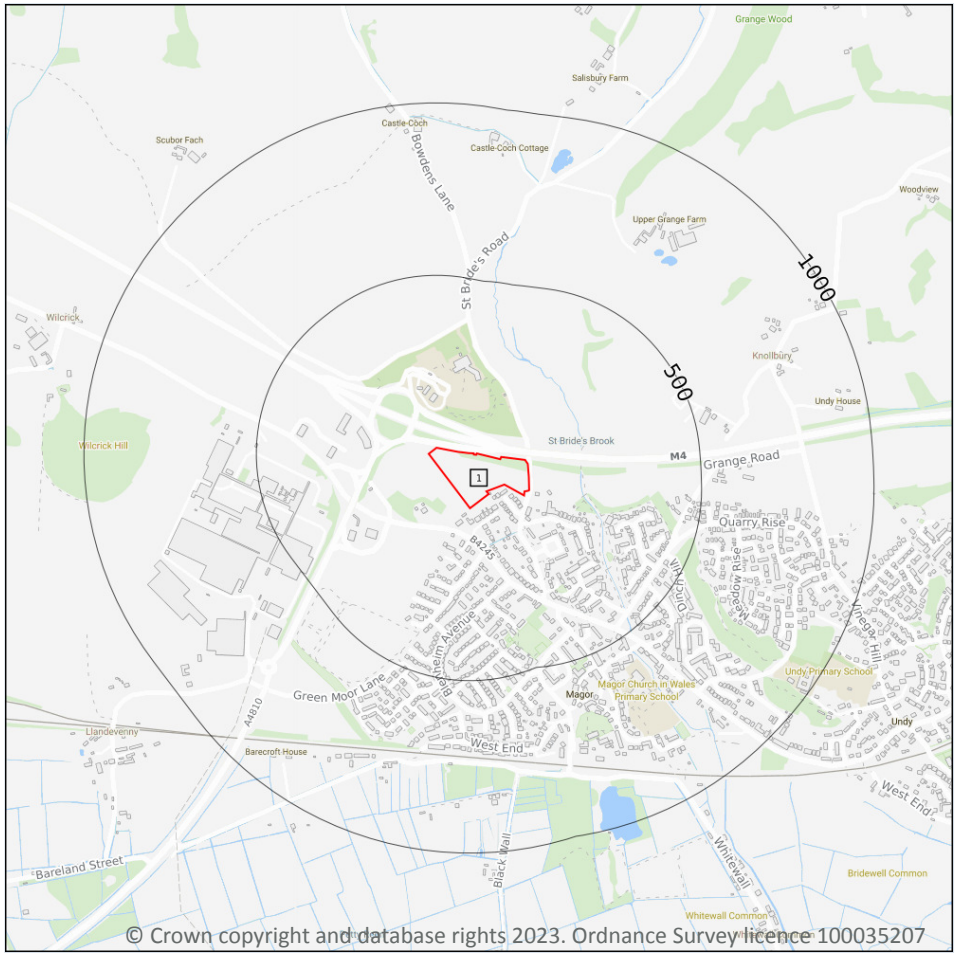
14.6 Bedrock faults and other linear features (10k)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

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

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 80 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW250_chepstow_v4**

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

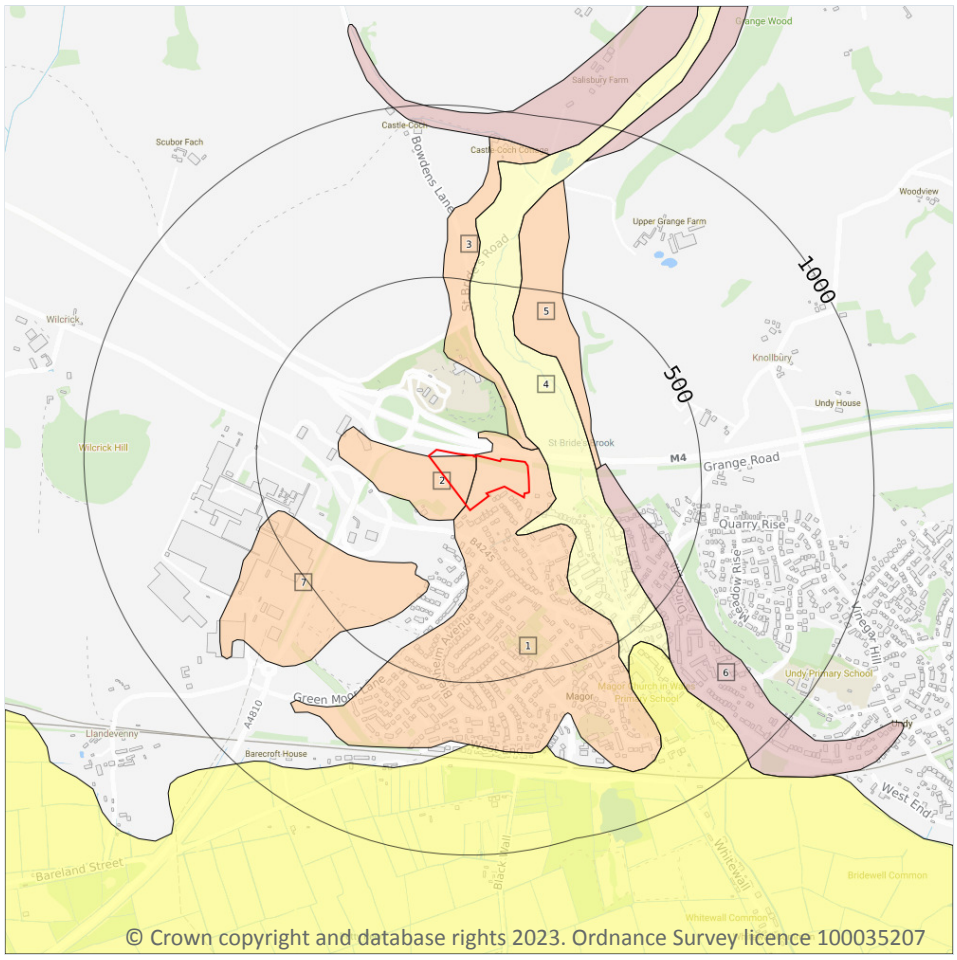
15.3 Artificial ground permeability (50k)

Records within 50m	0

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **7**

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 82 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**RTD2-XSV**	**RIVER TERRACE DEPOSITS, 2**	**SAND AND GRAVEL**
2	**On site**	**T2T3-XSV**	**RIVER TERRACE DEPOSITS, 2 TO 3**	**SAND AND GRAVEL**
3	39m NE	RTD1-XSV	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL
4	52m E	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
5	188m E	RTD1-XSV	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL
6	197m E	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
7	222m SW	RTD3-XSV	RIVER TERRACE DEPOSITS, 3	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**3**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Very High**	**High**
On site	**Intergranular**	**Very High**	**High**
38m NE	Intergranular	Very High	High

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

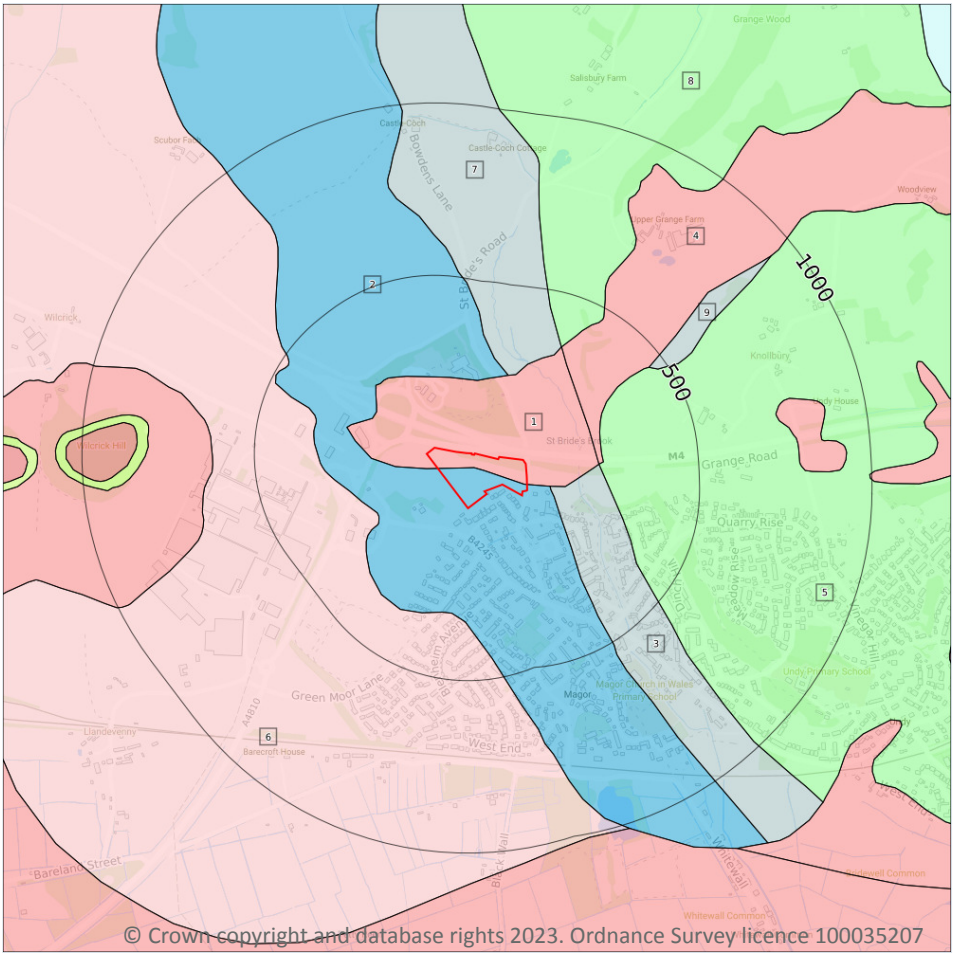
15.7 Landslip permeability (50k)

Records within 50m	**0**

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **9**

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 84 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**MMMF-CONG**	**MERCIA MUDSTONE GROUP (MARGINAL FACIES) - CONGLOMERATE**	**-**
2	**On site**	**AVO-LMST**	**AVON GROUP - LIMESTONE**	**TOURNAISIAN**
3	67m E	AVO-MDLM	AVON GROUP - MUDSTONE AND LIMESTONE, INTERBEDDED	TOURNAISIAN

ID	Location	LEX Code	Description	Rock age
4	204m E	MMMF-CONG	MERCIA MUDSTONE GROUP (MARGINAL FACIES) - CONGLOMERATE	-
5	212m E	BRL-DOLO	BLACK ROCK LIMESTONE SUBGROUP - DOLOSTONE	TOURNAISIAN
6	218m W	TSG-SDST	TINTERN SANDSTONE FORMATION - SANDSTONE	FAMENNIAN
7	238m N	AVO-MDLM	AVON GROUP - MUDSTONE AND LIMESTONE, INTERBEDDED	TOURNAISIAN
8	346m NE	BRL-DOLO	BLACK ROCK LIMESTONE SUBGROUP - DOLOSTONE	TOURNAISIAN
9	453m NE	AVO-MDLM	AVON GROUP - MUDSTONE AND LIMESTONE, INTERBEDDED	TOURNAISIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m **2**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Very High**	**Very High**
On site	**Fracture**	**Very High**	**Very High**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m **0**

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

This data is sourced from the British Geological Survey.

16 Boreholes

Site Outline

Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m	25

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

Features are displayed on the Boreholes map on **page 86 >**

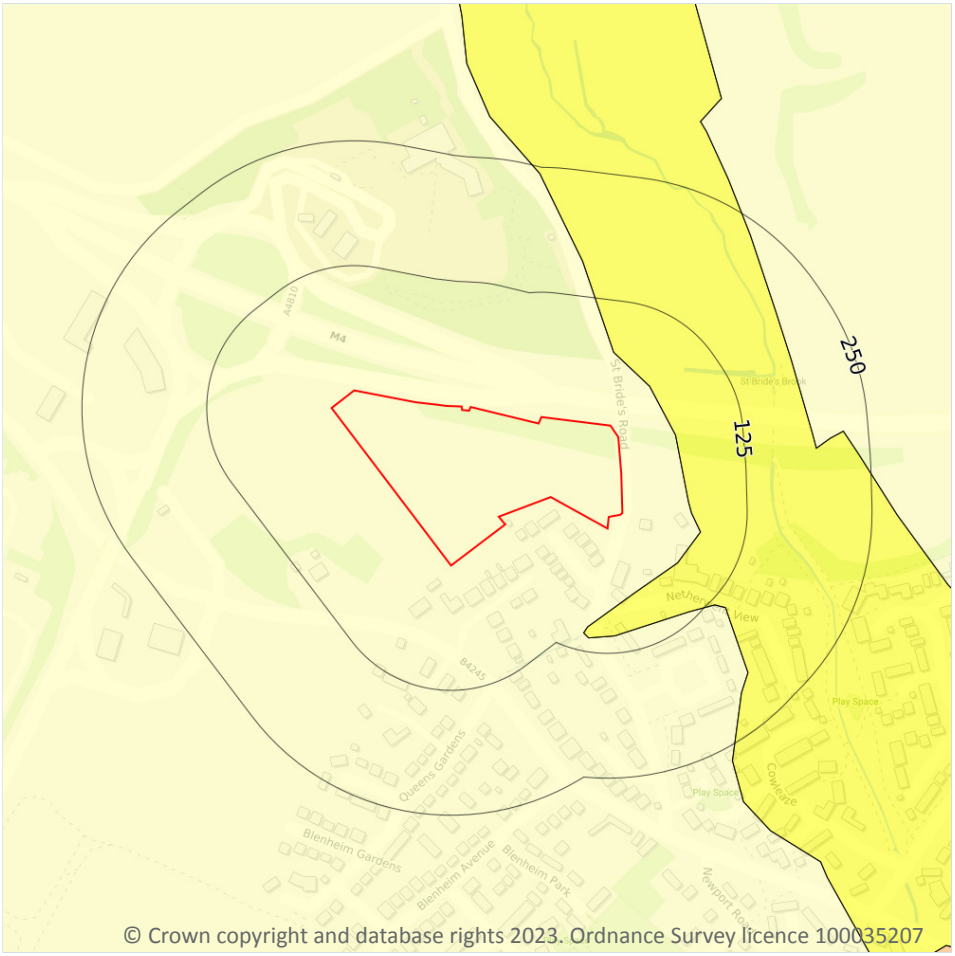
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**342326 187782**	**LONDON-SOUTH WALES MOTORWAY 65**	**7.62**	**N**	**16023277 ↗**
2	10m E	342353 187773	2ND SEVERN CROSSING 7108	10.0	N	387049 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	21m NW	342094 187835	LONDON-SOUTH WALES MOTORWAY 64	3.04	N	16023276 ↗
4	48m NE	342341 187829	2ND SEVERN CROSSING 7109	9.8	N	387050 ↗
A	86m E	342430 187770	LONDON-SOUTH WALES MOTORWAY 108	4.26	N	16023295 ↗
A	94m E	342438 187771	LONDON-SOUTH WALES MOTORWAY 109	3.35	N	16023296 ↗
A	99m E	342443 187770	LONDON-SOUTH WALES MOTORWAY 66A	7.62	N	16023280 ↗
5	105m NW	341996 187885	LONDON-SOUTH WALES MOTORWAY 61	6.09	N	16023274 ↗
A	106m E	342452 187740	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP 7411	4.7	N	387074 ↗
A	106m E	342450 187769	LONDON-SOUTH WALES MOTORWAY 110	3.2	N	16023297 ↗
A	109m E	342454 187753	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP7412	1.7	N	387073 ↗
6	110m NW	341962 187855	LONDON-SOUTH WALES MOTORWAY 62	4.64	N	16023275 ↗
7	114m E	342444 187823	LONDON-SOUTH WALES MOTORWAY 66	9.14	N	16023278 ↗
A	116m E	342460 187774	LONDON-SOUTH WALES MOTORWAY 111	4.26	N	16023298 ↗
A	121m E	342465 187767	LONDON-SOUTH WALES MOTORWAY 113	3.2	N	16023301 ↗
A	127m E	342471 187767	LONDON-SOUTH WALES MOTORWAY 112	3.35	N	16023299 ↗
8	157m E	342504 187738	2ND SEVERN CROSSING 7105	11.43	N	387047 ↗
9	173m E	342507 187827	2ND SEVERN CROSSING 7106	15.0	N	387048 ↗
10	202m W	341887 187689	M4CAN: Key Stage 6 BHM4CAN150	10.3	N	20783603 ↗
11	211m NW	341889 187927	LONDON-SOUTH WALES MOTORWAY 59	6.09	N	16023266 ↗
12	215m NW	341867 187900	LONDON-SOUTH WALES MOTORWAY 60	1.42	N	16023269 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
13	218m E	342564 187743	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP 7408	1.9	N	387077 ↗
B	229m E	342570 187807	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP 7410	1.7	N	387075 ↗
B	229m E	342568 187818	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP 7409	3.5	N	387076 ↗
14	241m E	342588 187731	M4 SECOND SEVERN CROSSING, MAIN ONSHORE GI TP 7407	4.3	N	387078 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m	1

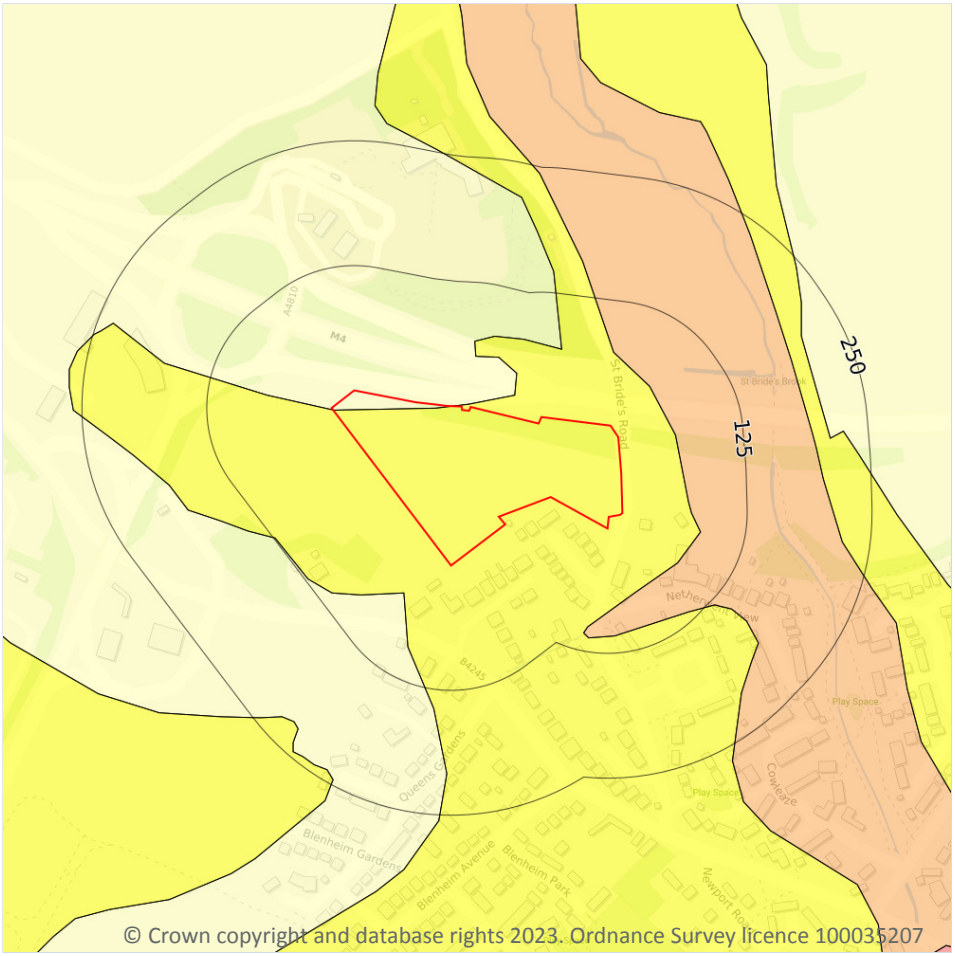
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 89 >**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	2

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

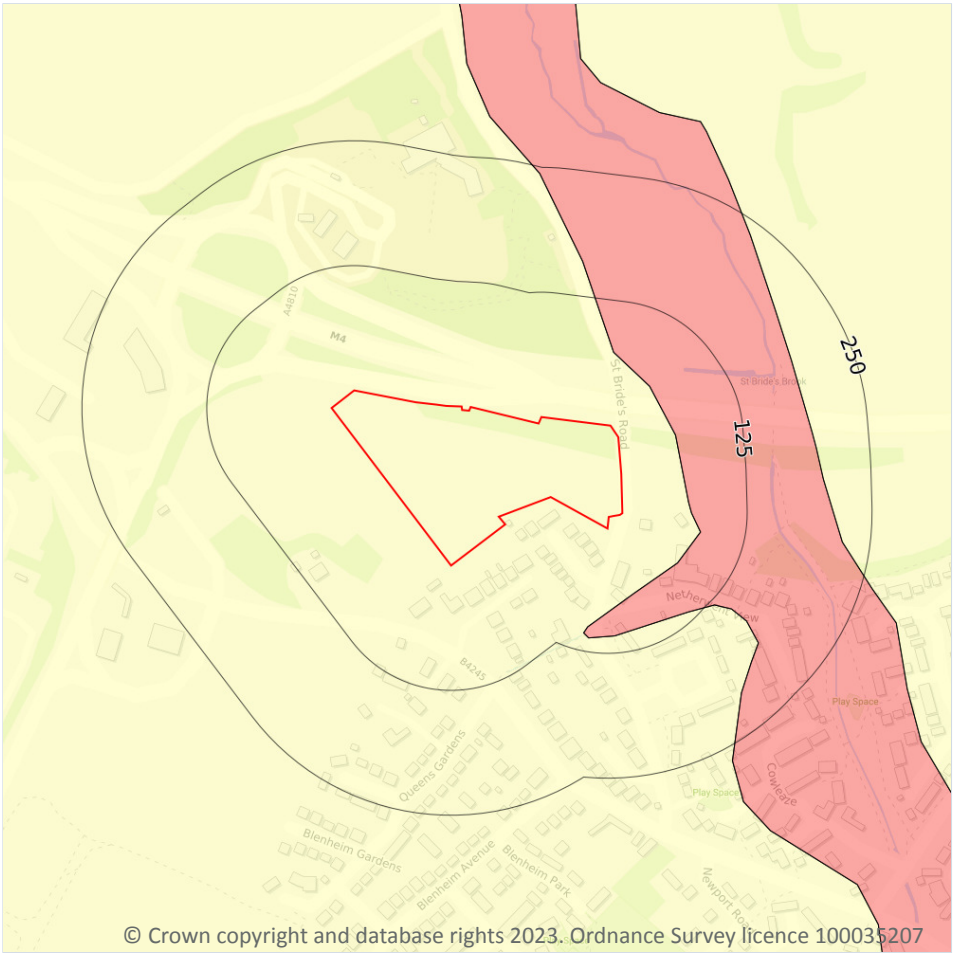
Features are displayed on the Natural ground subsidence - Running sands map on **page 90 >**

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

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

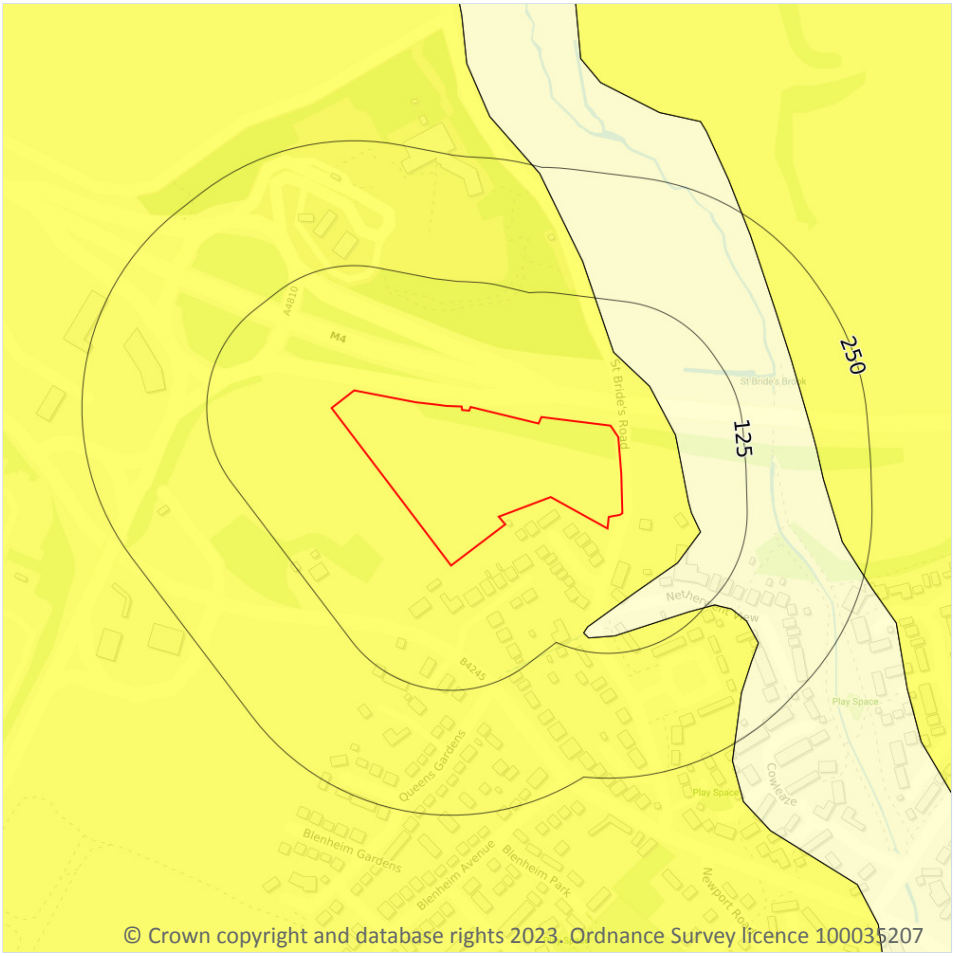
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 92 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

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

17.4 Collapsible deposits

Records within 50m	1

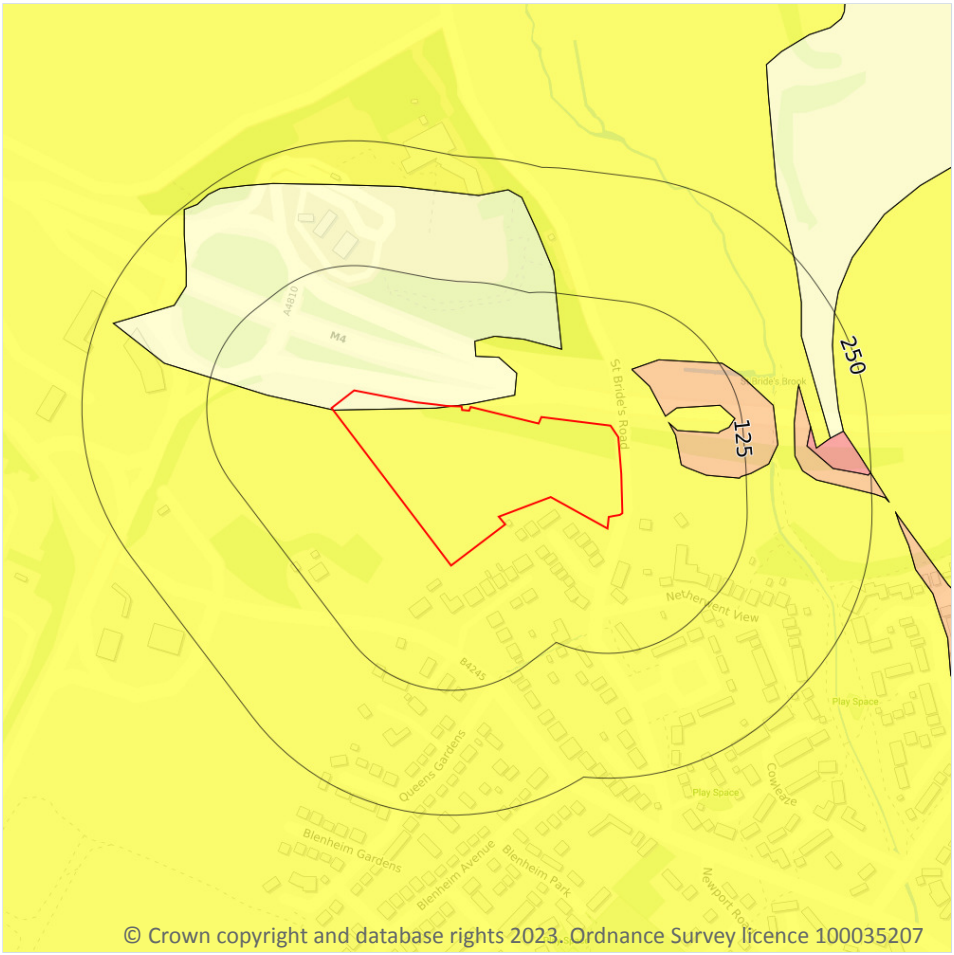
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 93 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	2

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

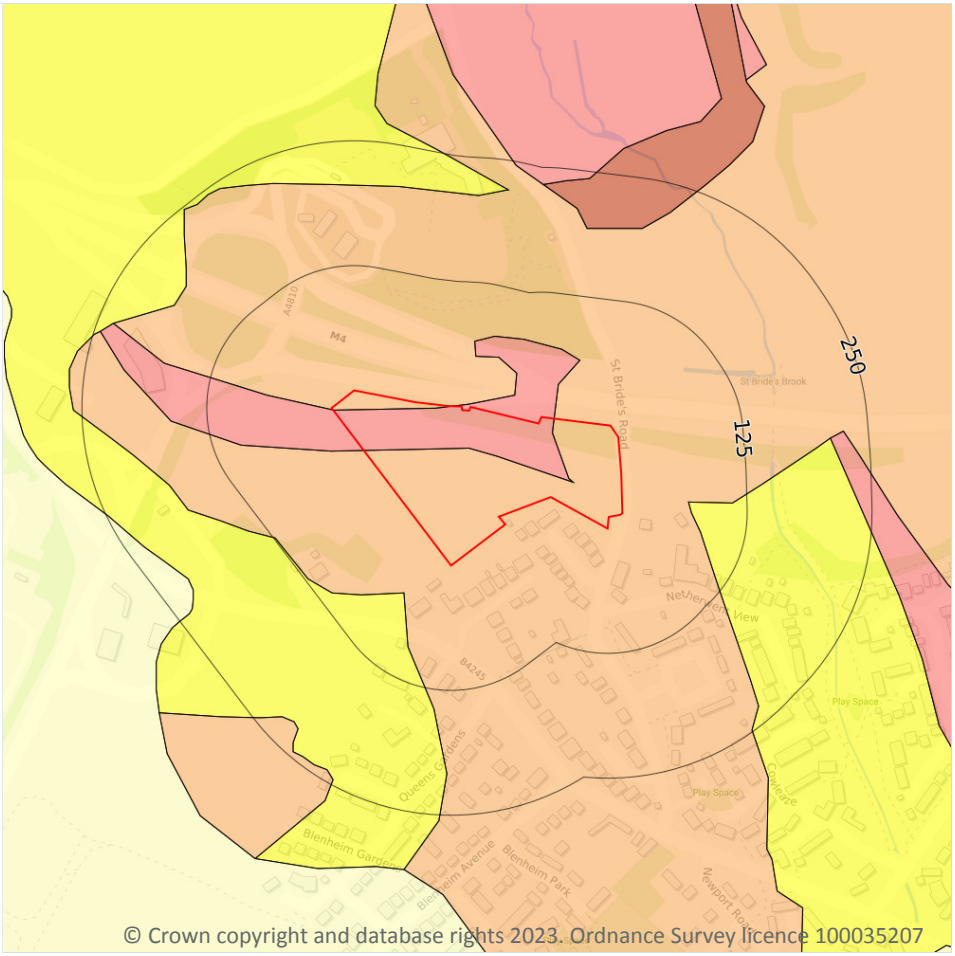
Features are displayed on the Natural ground subsidence - Landslides map on **page 94 >**

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

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m	2

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

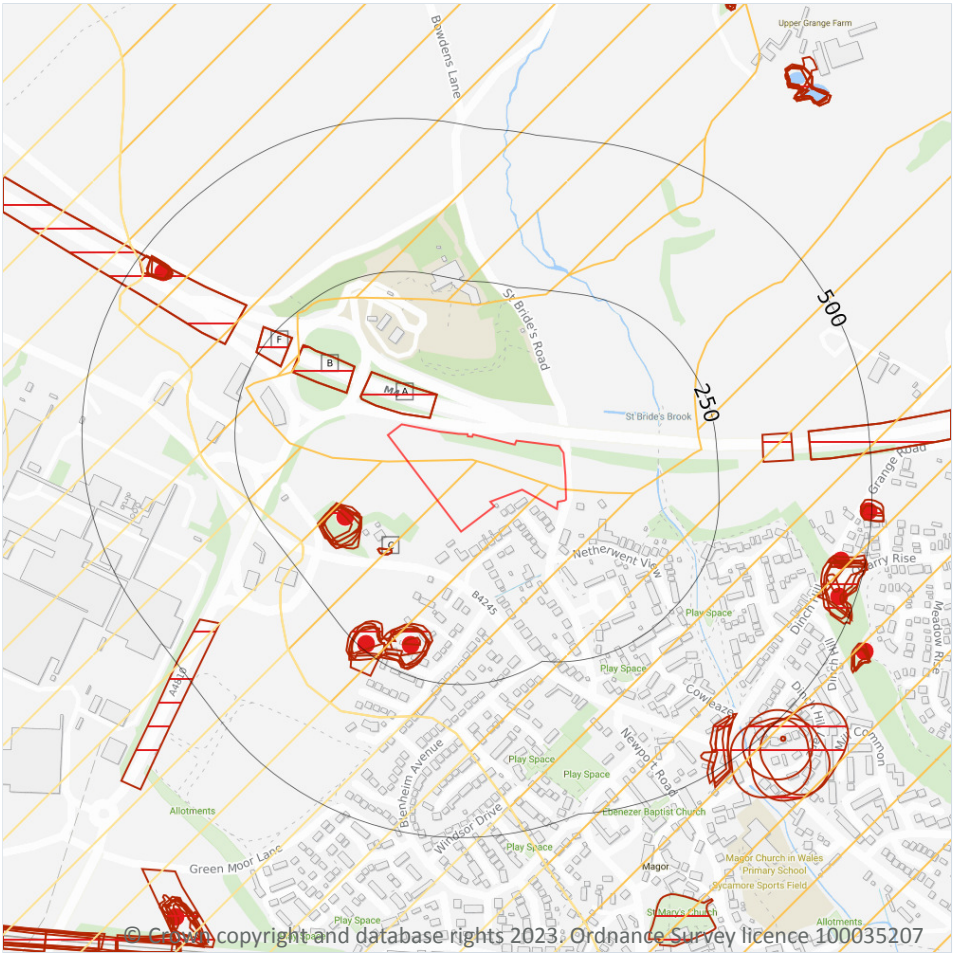
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 96 >**

Location	Hazard rating	Details
On site	**Low**	**Soluble rocks are present within the ground. Some dissolution features may be present. Potential for difficult ground conditions are at a level where they may be considered, localised subsidence need not be considered except in exceptional circumstances.**

Location	Hazard rating	Details
On site	**Moderate**	**Soluble rocks are present within the ground. Many dissolution features may be present. Potential for difficult ground conditions are at a level where they should be considered. Potential for subsidence is at a level where it may need to be considered.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	7

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

Features are displayed on the Mining and ground workings map on **page 98 >**

ID	Location	Details	Description
D	136m W	Name: The Elms Address: Magor, NEWPORT, Monmouthshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
E	203m S	Name: The Laurels Address: Magor, NEWPORT, Monmouthshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
E	240m SW	Name: The Laurels Address: Magor, NEWPORT, Monmouthshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
G	453m NW	Name: Wilcrick Hill Address: Wilcrick, NEWPORT, Monmouthshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
I	460m E	Name: The Dancing Place Address: Magor, NEWPORT, Monmouthshire Commodity: Dolomite Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
I	473m E	Name: Dinch Hill Address: Magor, NEWPORT, Monmouthshire Commodity: Dolomite Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

ID	Location	Details	Description
L	494m E	Name: The Cedars Address: Magor, NEWPORT, Monmouthshire Commodity: Dolomite Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m **22**

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

Features are displayed on the Mining and ground workings map on **page 98 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	17m NW	Cuttings	1988	1:10000
A	17m NW	Cuttings	1969	1:10560
B	97m NW	Cuttings	1988	1:10000
B	97m NW	Cuttings	1969	1:10560
C	109m SW	Unspecified Ground Workings	1922	1:10560
C	109m SW	Unspecified Ground Workings	1922	1:10560
D	115m W	Unspecified Old Quarries	1963	1:10560
D	115m W	Unspecified Ground Workings	1988	1:10000
D	118m W	Unspecified Ground Workings	1969	1:10560
D	118m W	Unspecified Old Quarries	1949	1:10560
D	118m W	Unspecified Old Quarries	1919	1:10560
D	125m SW	Unspecified Quarry	1881	1:10560
D	135m SW	Unspecified Old Quarries	1902	1:10560
E	166m S	Unspecified Old Quarries	1922	1:10560
E	173m S	Unspecified Old Quarries	1963	1:10560
E	174m S	Unspecified Ground Workings	1969	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
E	176m S	Unspecified Old Quarries	1949	1:10560
E	177m S	Unspecified Old Quarries	1902	1:10560
E	187m S	Unspecified Pit	1881	1:10560
E	207m SW	Unspecified Pit	1881	1:10560
F	208m NW	Cuttings	1988	1:10000
F	208m NW	Cuttings	1969	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	2

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

Features are displayed on the Mining and ground workings map on **page 98 >**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Vein Mineral**	**B**	**Underground mine workings may have occurred in the past or current mines may be working at significant depth to modern engineering standards. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.**
2	218m W	Not available	Vein Mineral	A	Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

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

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

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

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

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

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

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

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

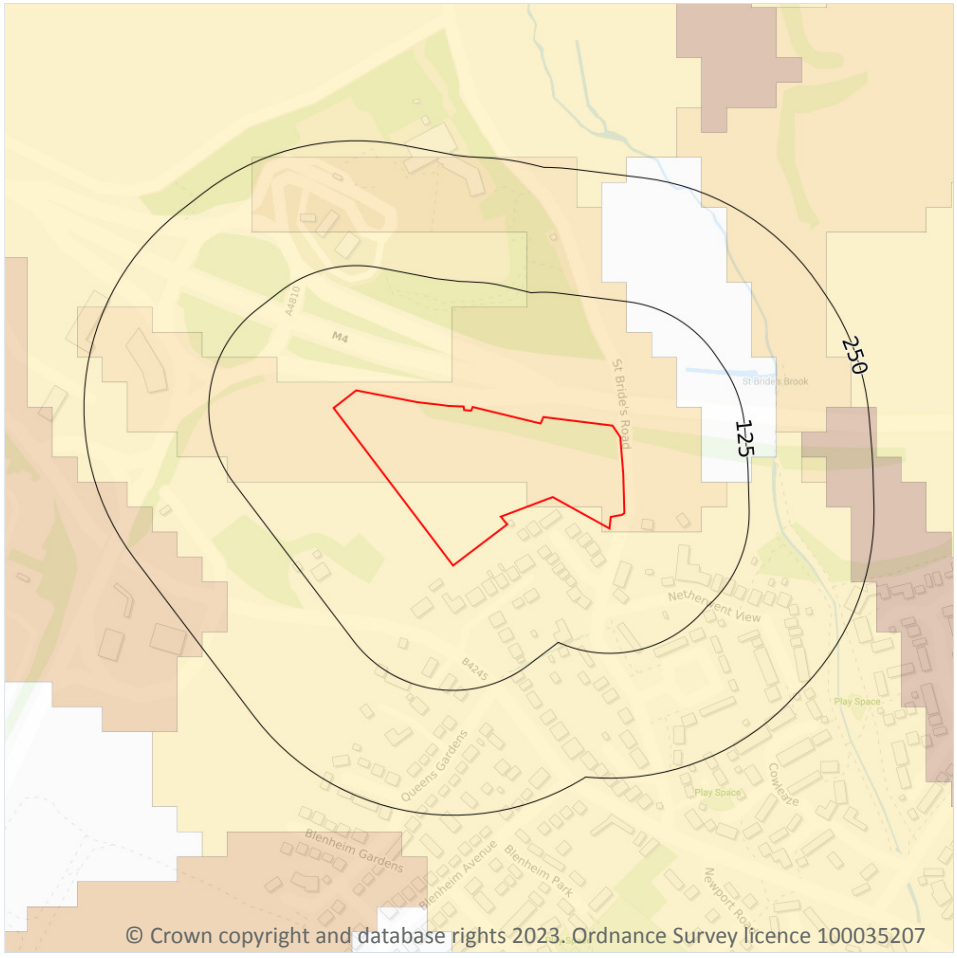
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

20.1 Radon

Records on site	2

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 107 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 3% and 5%**	**Basic**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 1% and 3%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	**6**

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
38m NE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	**0**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects

22.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.

B. Historical Borehole Logs

BOREHOLE LOG

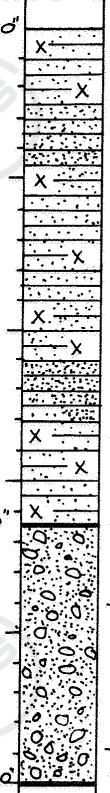
BOREHOLE No 65

GROUND LEVEL : 36·1

TYPE of BORING: Power Auger.

DATE STARTED : 5·7·62

DIA of BORING: 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE No	No of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
Firm red-brown sandy silty CLAY very sandy in places.	16' 6"	0'0"		• 1 2 • 3 4 • 5 6 • 7	6 tons. 5 tons. 10 tons.	Tu	Power Auger.
Compact SAND and GRAVEL.(f.m.c)	8' 6" +	16' 6"		+ 8 + 9 • 10	80 blows/ft. 70 blows/5".		
		25'0"					

REMARKS:

KEY TO LABORATORY TESTS

W = MOISTURE CONTENT; S = SIEVE ANALYSIS; H = FULL MECHANICAL ANALYSIS; A = PLASTICITY INDEX; P = DRY DENSITY/MOISTURE RELATION; Td = DRAINED TRIAXIAL; Tu = UNDRAINED TRIAXIAL; Rd = REMOULDED DRAINED TRIAXIAL; Ru = REMOULDED UNDRAINED TRIAXIAL; K = C.B.R. (UNSOAKED); Ks = C.B.R (SOAKED); C = CONSOLIDATION; U = UNCONFINED COMPRESSION TEST; B = SHEAR BOX

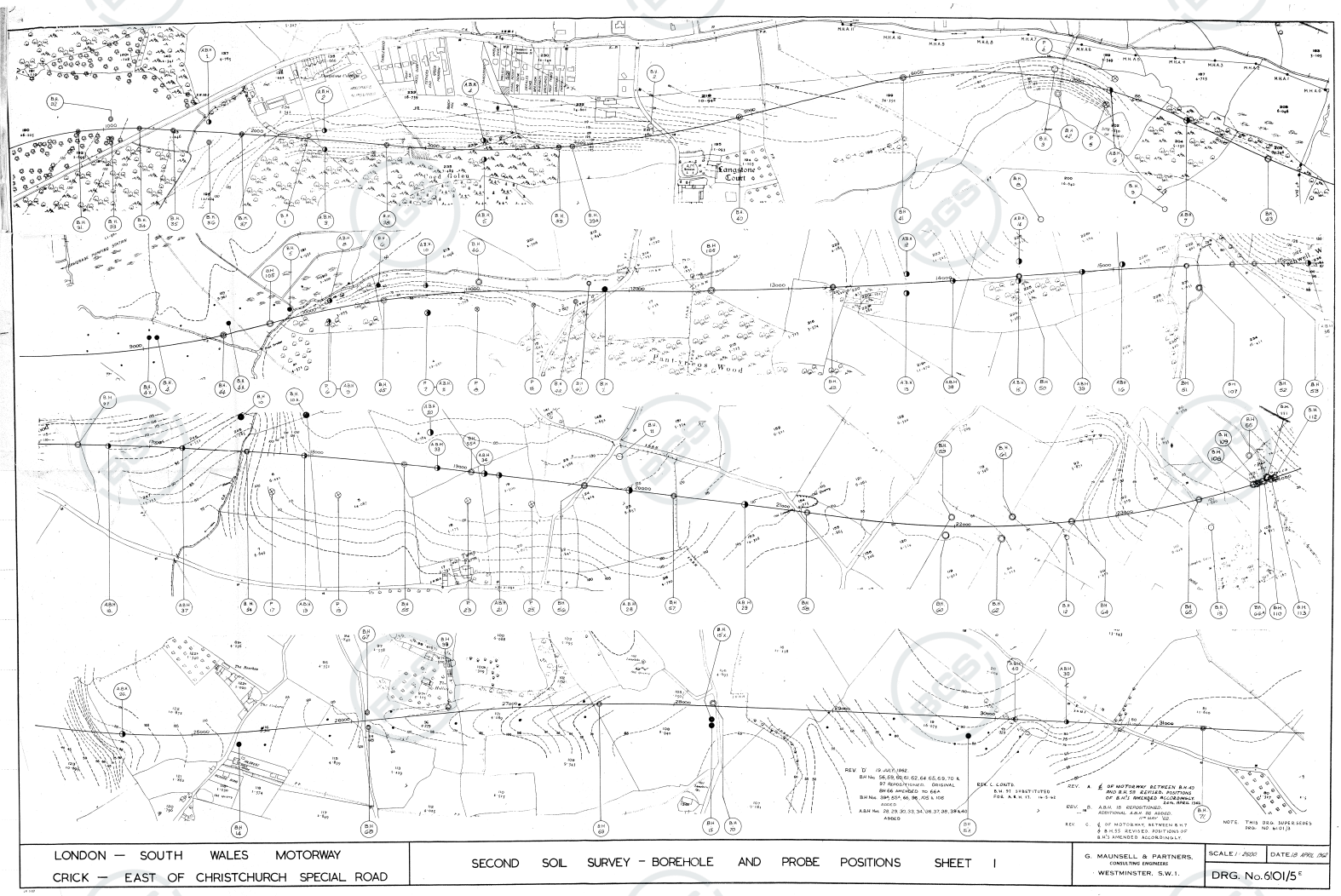
KEY TO SAMPLES.		
	I UNDISTURBED SAMPLE	• DISTURBED SAMPLE
CORE BORING % RECOVERY	+ S.P.T. No. OF BLOWS	WATER LEVEL.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

FOUNDATION ENGINEERING LIMITED;
111, WESTMINSTER BRIDGE ROAD,
LONDON, S.E.1.

BGS ID: 16023277 : BGS Reference: ST48NW82
British National Grid (27700) : 342326,187782



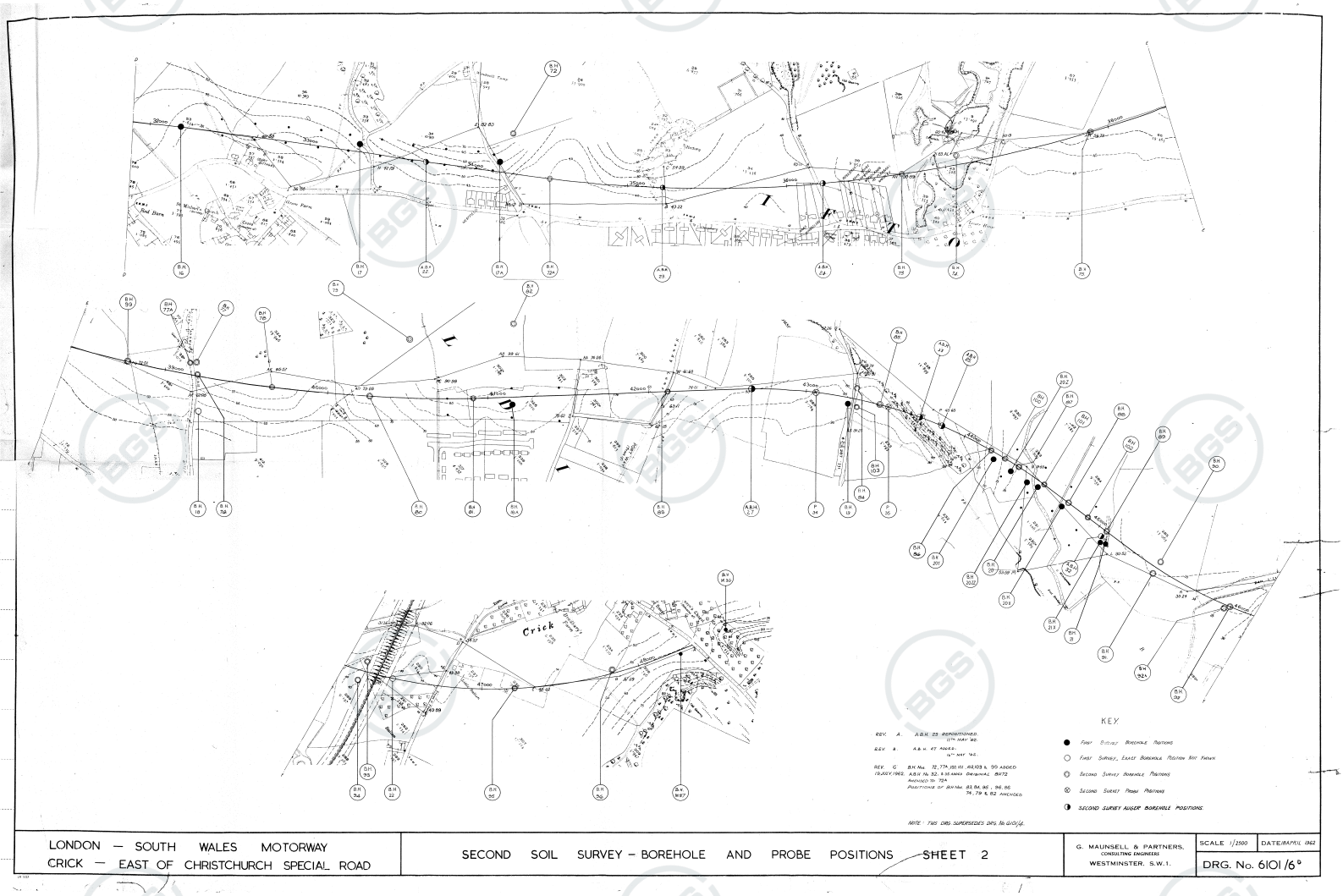
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

ST48NW, 28

ST42353, 87773

Borehole No. 7108

Sheet 1 of 1

Methods
Cable tool boring 150mm dia. from G.L to 3.50m. Rotary coring 92mm dia. from 3.50 10.00m using air/mist flush and mylar.

Dates 22/03/90 - 29/03/90

Job No. 7625

Coordinates [redacted]

Site SECOND SEVERN CROSSING
Main Onshore Ground Investigation

Ground Level 12.90 mOD

Client Department of Transport.

Depth m	Sample/Test	Field Records	Level mOD	Depth m (Thick)	Description	Legend
			12.80	0.10	TOPSOIL	
0.50 - 1.00	B 1				Firm brown sandy CLAY with some subangular fine to coarse limestone gravel. (TERRACE DEPOSITS)	
1.00 - 1.50	B 2			(1.80)		
1.20 - 1.65	SPT N(12)	2,3/3,4,2,3				
1.50 - 2.00	B 3					
			11.00	1.90	Loose to medium dense orange brown limestone GRAVEL with much sand. (TERRACE DEPOSITS)	
2.20 - 2.65	SPT N(9)	2,2/1,2,3,3		(1.10)		
2.20 - 2.65	D 4					
2.70 - 3.20	B 5					
3.00 - 3.30	SPT N(61*)	14,16/20,41,,	9.90	3.00	Recovered as non intact fragments of moderately weathered LIMESTONE very strong, moderately weathered CONGLOMERATE very strong and brown moderately weathered SANDSTONE strong. (Possible TERRACE DEPOSITS)	
3.00 - 3.30	D 6					
3.50 - 3.50	SPT N(50*)	50 for no pen.,/,,,				
	TCR SCR RQD If	Coring started at 3.50m.		(4.50)		
	17 0 0 NI					
6.50		CPT: 50 no pen.				
	25 0 0					
7.50			5.40	7.50	Assessed zone of core loss.	
	0 0 0 NA			(2.50)		
		CPT: 3,2/2, 50 for 75mm				
10.00			2.90	10.00		

Remarks
1. Inspection pit to 1.20m.
2. Chiselling, 3.00 to 3.50m, 1 hr.
3. Borehole backfilled with bentonite/cement grout on completion.

Scale 1:50

Logged by JL/GW

See key sheet for symbols and abbreviations

200890/1038

ST48NW128

Borehole No. 7108

Type of Installation:

Internal Diameter of Pipes:

Diameter of Filter Zone:

Job No. 7625

Site: SECOND SEVERN CROSSING
Main Onshore Ground Investigation

Client: Department of Transport.

Level mOD	Depth m	Legend	Description

Groundwater Observations during Drilling

Date	Time	Depth Hole m	Depth Casing m	Depth Water m	Remarks
22/03/90		3.50	3.40	DRY	
29/03/90	1000	3.50	3.00	DRY	Start of coring
29/03/90	1915	10.00	3.00	DRY	BH complete

Instrument Type (A):

Groundwater Observations

Date	Time	Depth m	Level mOD	Remarks

Notes

Remarks

See key sheet for symbols and abbreviations

170191/1405

Logged by JL/GW

BOREHOLE LOG

BOREHOLE Nº 64.

GROUND LEVEL : 70·3

DATE STARTED : 19·7·62

TYPE of BORING: Power Auger - Diamond Drill.

DIA of BORING: 6" and 2 7/8"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE Nº	Nº of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
Firm brown CLAY and boulders of limestone.	3' 6"	0'0"		• 1			Power Auger.
		3'6"					
LIMESTONE.	6' 6" +			100%			Diamond Drill.
		10'0"					

REMARKS :

KEY TO LABORATORY TESTS

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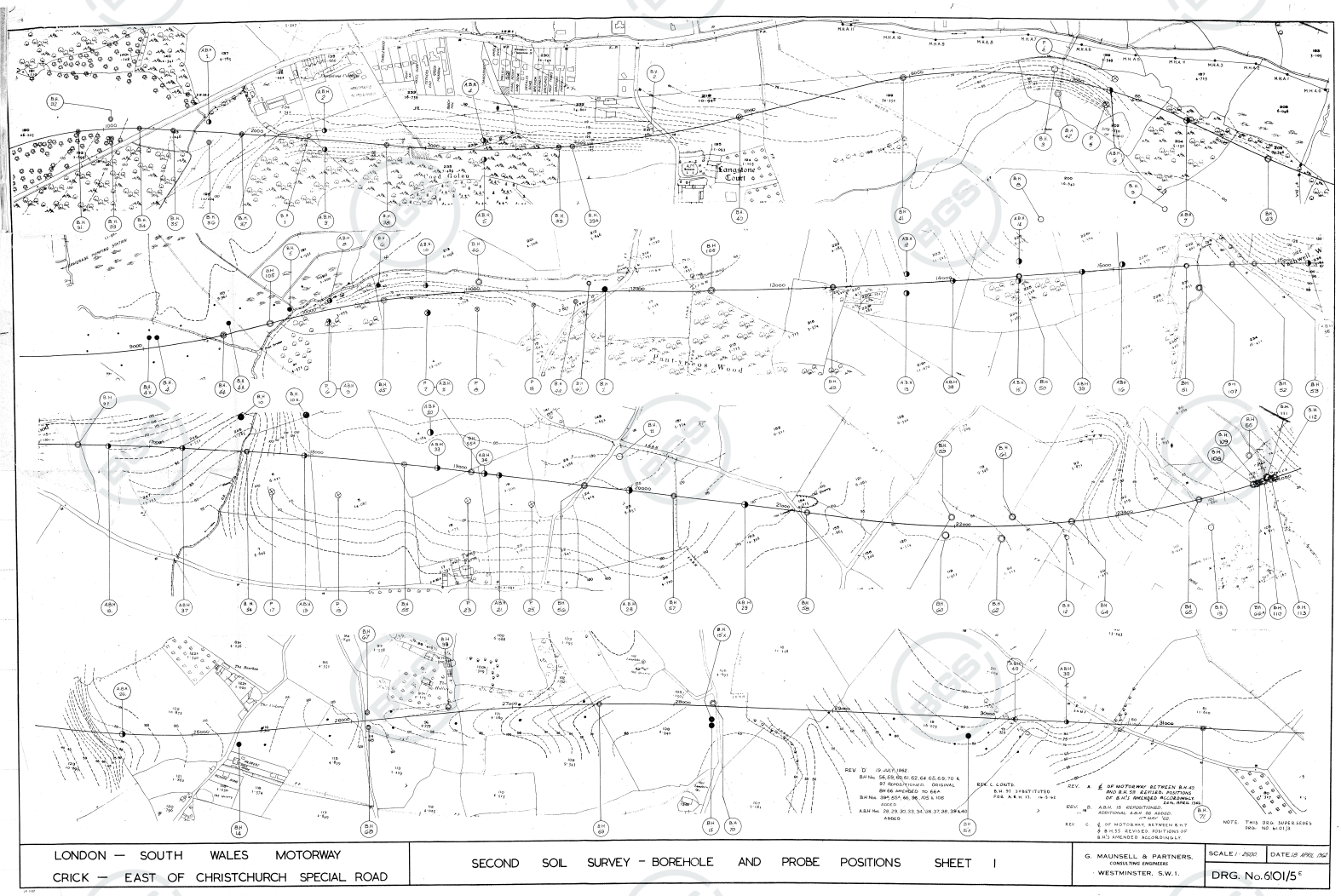
KEY TO SAMPLES.		
	UNDISTURBED SAMPLE	• DISTURBED SAMPLE
CORE BORING % RECOVERY	+ S.P.T. No OF BLOWS	WATER LEVEL.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

FOUNDATION ENGINEERING LIMITED;
111, WESTMINSTER BRIDGE ROAD,
LONDON, S.E.1.

BGS ID: 16023276 : BGS Reference: ST48NW81
British National Grid (27700) : 342094,187835



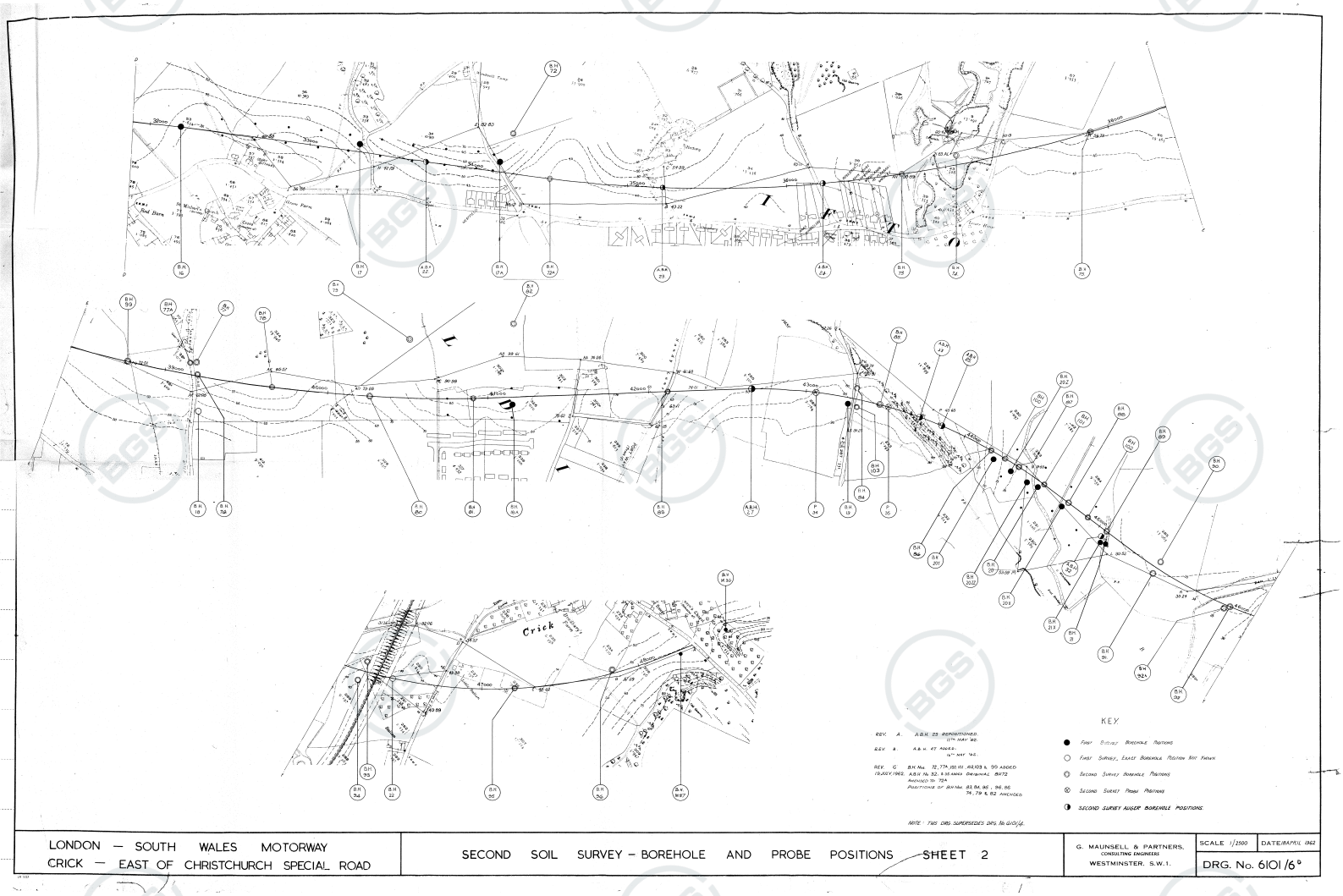
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/6

ST48NW, 29.

ST42341, 87829

Borehole No. 7109

Sheet 1 of 1

Methods
Cable tool boring 150mm dia. from G.L to 7.50m. Rotary coring 92mm dia. and open holing 143mm dia. from 7.50 to 9.80m using air/mist flush and mylar.

Dates 22/03/90 - 30/03/90

Job No. 7625

Coordinates [redacted]

Site SECOND SEVERN CROSSING
Main Onshore Ground Investigation

Ground Level 11.30 mOD

Client Department of Transport.

Depth m	Sample/Test		Field Records	Level mOD	Depth m (Thick)	Description	Legend
0.20 - 0.70	B 1				(0.70)	Firm brown gravelly CLAY. (MADE GROUND)	
0.70 - 1.20	B 2			10.60	0.70	Loose brown fine SAND. (TERRACE DEPOSITS)	
1.20 - 1.65 1.20 - 1.65	SPT D 3	N(9)	2,2/2,2,2,3		(1.10)		
1.70 - 2.20	B 4			9.50	1.80	Firm brown very sandy CLAY with a little to some subrounded gravel. (TERRACE DEPOSITS)	
2.20 - 2.65 2.20 - 2.65	SPT D 5	N(6)	2,1/1,2,1,2		(2.00)		
3.80 - 4.25 3.80 - 4.25	SPT D 6	N(11)	1,2/3,2,2,4	7.50	3.80	Medium dense brown subrounded to subangular GRAVEL with some clayey sand. (TERRACE DEPOSITS)	
4.30 - 4.90	B 7						
4.90 - 5.35 4.90 - 5.35	SPT D 8	N(12)	3,3/3,3,3,3		(3.20)		
6.00 - 6.45 6.00 - 6.45	SPT D 9	N(15)	2,3/3,4,4,4				
7.00 - 7.43 7.00 7.00 7.00 - 7.43 7.50 - 7.58 7.50 - 9.00	SPT W 11 W 13 D 10 SPT B 12	N(75*) N(50*)	8,10/ 12,13,19,31 for 50mm 50,/,,,	4.30	7.00	Probably very dense light brown subangular to subrounded sandstone and limestone gravel with some sand and occasional cobbles. (TERRACE DEPOSITS)	
				2.30	9.00	Probable bedrock.	
				1.50	(0.80) 9.80		

Remarks
1. Inspection pit to 1.20m. 2. Water added 3.80 to 7.50m.
3. Chiselling, 4.40 to 4.70m, 0.75 hrs
4. Chiselling, 6.60 to 7.50m, 2.50 hrs
5. Started coring at 7.00m. Barrel stuck inside casing. On pulling casing hole collapsed to 4.90m. cased to 6.50m and open holed to 9.80m. Hole terminated at 9.80m.
6. Borehole backfilled with bentonite/cement grout on completion.

200890/1039

Scale 1:50

Logged by JC

See key sheet for symbols and abbreviations

ST48NW/29

Borehole No. 7109

Type of Installation:

Internal Diameter of Pipes:

Diameter of Filter Zone:

Job No. 7625

Site: SECOND SEVERN CROSSING
Main Onshore Ground Investigation

Client: Department of Transport.

Level mOD	Depth m	Legend	Description

Groundwater Observations during Drilling

Date	Time	Depth Hole m	Depth Casing m	Depth Water m	Remarks
22/03/90	1800	3.00	3.00	DRY	
23/03/90	0800	3.00	3.00	2.60	
23/03/90		3.80	3.20	0.00	Water added
23/03/90		7.50	6.90	0.00	
29/03/90	1205	7.00	7.00	2.65	Start of coring
29/03/90	1835	9.80	7.00	2.90	
30/03/90	0800	9.80	7.50	3.05	BH complete

Instrument Type [A]:

Groundwater Observations

Date	Time	Depth m	Level mOD	Remarks

Notes

Remarks

See key sheet for symbols and abbreviations

200890/1047

Logged by JC

BOREHOLE LOG

BOREHOLE Nº 108

GROUND LEVEL : 33

TYPE of BORING: Shell and Auger.

DATE STARTED : 17·10·62.

DIA of BORING: 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE Nº	Nº of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
Red brown CLAY.	2' 6"	0'0"					
		2' 6"		• 1			
Loose brown sandy CLAY.	2' 3"			• 2			
		4' 9"		3	17 blows/ft.	Tu	
Grey silty CLAY.	2' 0"		X				
		6' 9"	X	• 4			
				• 5			
Grey sandy CLAY.	6' 9"						
		13' 6"					
Hard CLAY with sandstone.	0' 6"+	14' 0"		• 6			

REMARKS :

KEY TO LABORATORY TESTS

ω = MOISTURE CONTENT ; S = SIEVE ANALYSIS ; H = FULL MECHANICAL ANALYSIS ; A = PLASTICITY INDEX; P = DRY DENSITY/MOISTURE RELATION; T_d = DRAINED TRIAXIAL ; T_u = UNDRAINED TRIAXIAL ; R_d = REMOULDED DRAINED TRIAXIAL ; R_u = REMOULDED UNDRAINED TRIAXIAL ; K = C.B.R. (UNSOAKED) ; K_s = C.B.R (SOAKED); C = CONSOLIDATION ; U = UNCONFINED COMPRESSION TEST ; B = SHEAR BOX.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

KEY TO SAMPLES.	▌ UNDISTURBED SAMPLE	• DISTURBED SAMPLE
▯ CORE BORING % RECOVERY	+ S.P.T. No. OF BLOWS	▽ WATER LEVEL.

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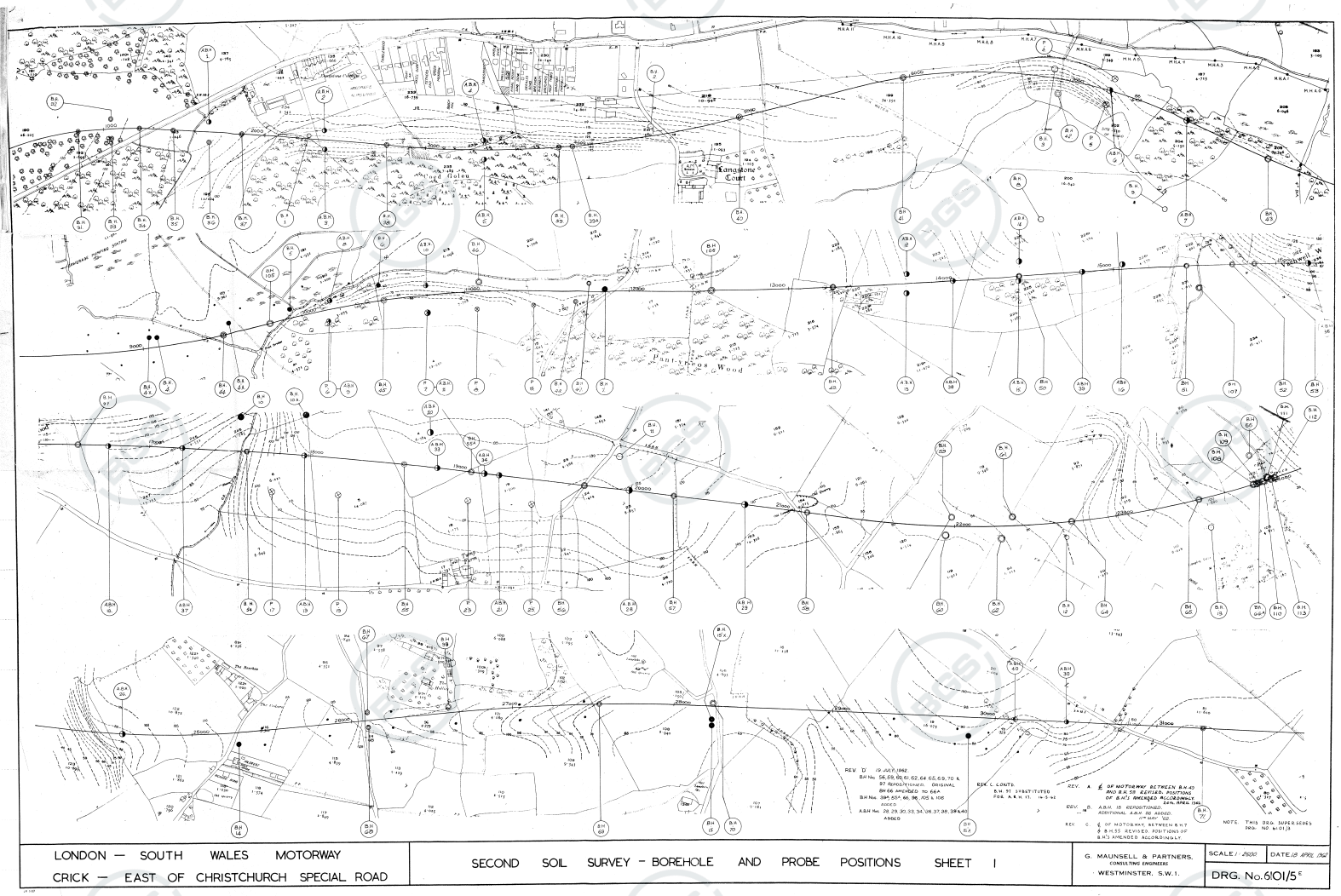
LONDON, S.E.1.

BGS ID: 16023295 : BGS Reference: ST48NW92
British National Grid (27700) : 342430,187770



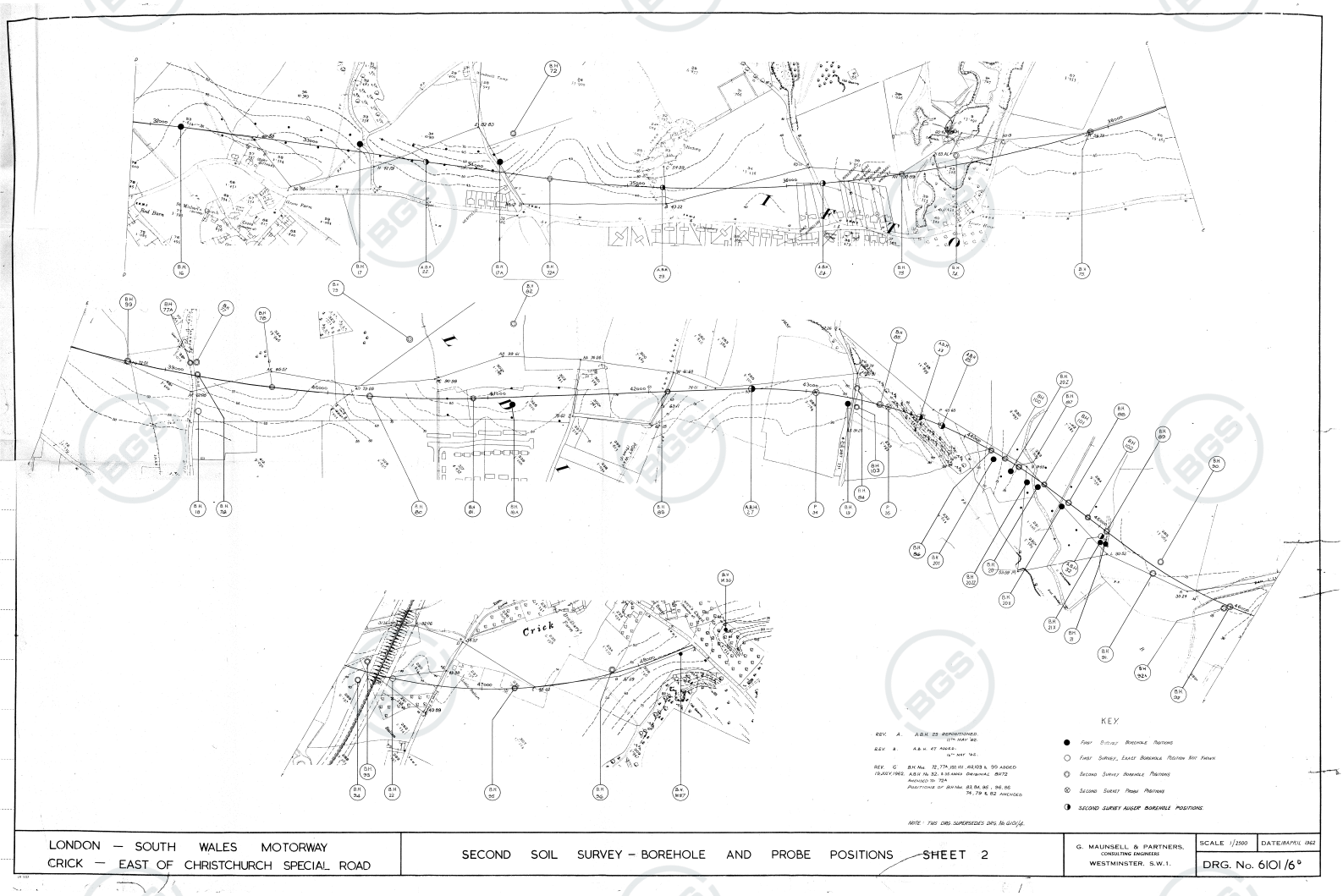
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

BOREHOLE LOG

BOREHOLE Nº 109

GROUND LEVEL : 33

TYPE of BORING. Shall and Auger.

DATE STARTED : 17·10·62.

DIA of BORING: 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE Nº	Nº of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
Firm red brown CLAY.	3' 10"	0'0"		• 1			
Loose sandy CLAY.	1' 5"	3' 10"		• 2			
Firm blue SILT with some sand.	2' 9"	5' 3"		3	17 blows/ft.	Tu	
		8' 0"		• 4			
Firm blue CLAY with coarse sand.	3' 0" +	11' 0"		• 5 • 6			

REMARKS :

KEY TO LABORATORY TESTS

W = Moisture content ; S = Sieve analysis ; H = Full Mechanical analysis ; A = Plasticity index; P = Dry density/Moisture relation ; T_d = Drained triaxial ; T_u = Undrained triaxial ; R_d = Remoulded drained triaxial ; R_u = Remoulded undrained triaxial ; K = C.B.R. (unsoaked) ; K_s = C.B.R (soaked) ; C = Consolidation ; U = Unconfined compression test ; B = Shear box

KEY TO SAMPLES.

	Undisturbed Sample	• Disturbed Sample
▯ Core Boring % Recovery	+ S.P.T. No. of Blows	⏚ Water Level.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

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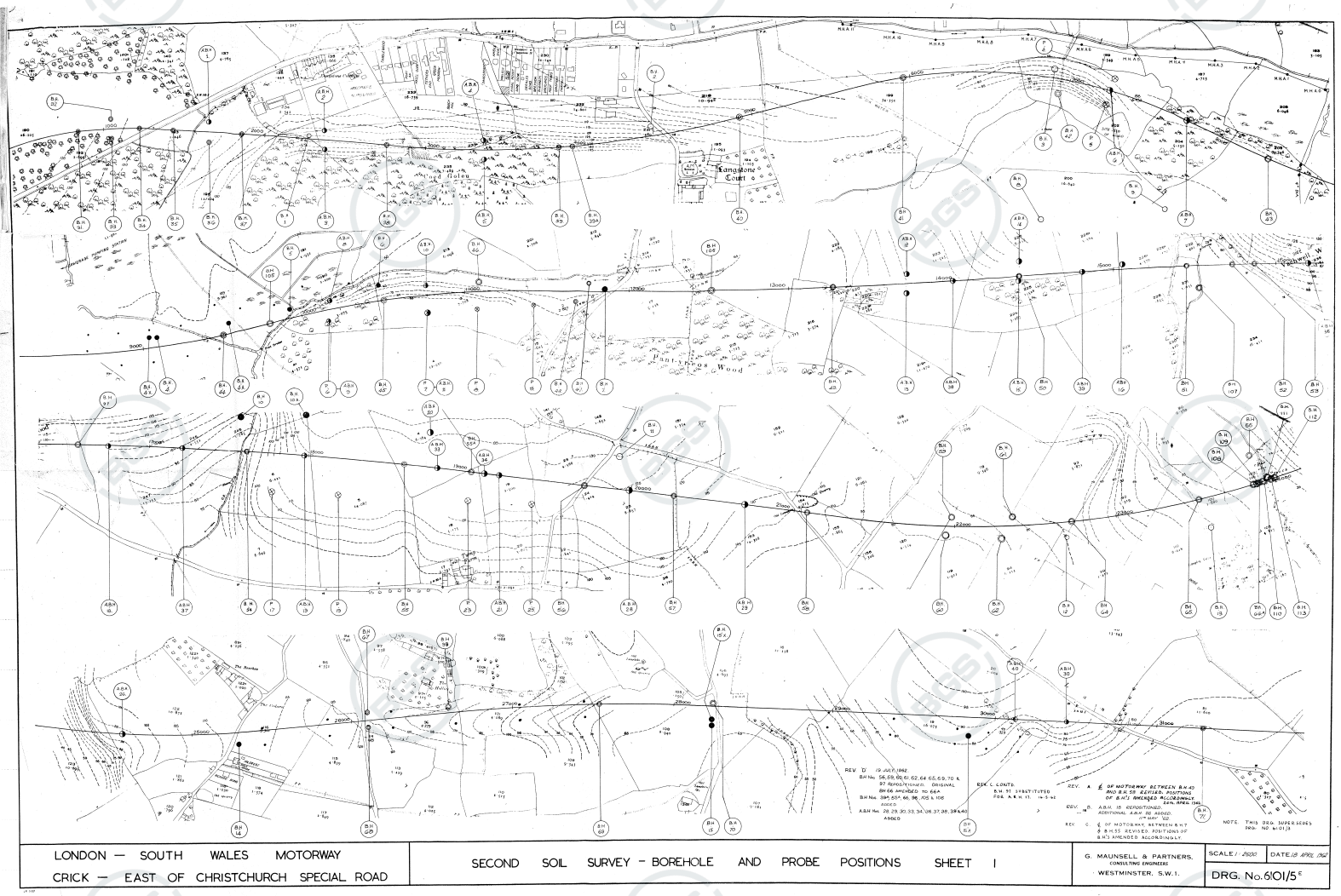
BGS ID: 16023296 : BGS Reference: ST48NW93
British National Grid (27700) : 342438,187771



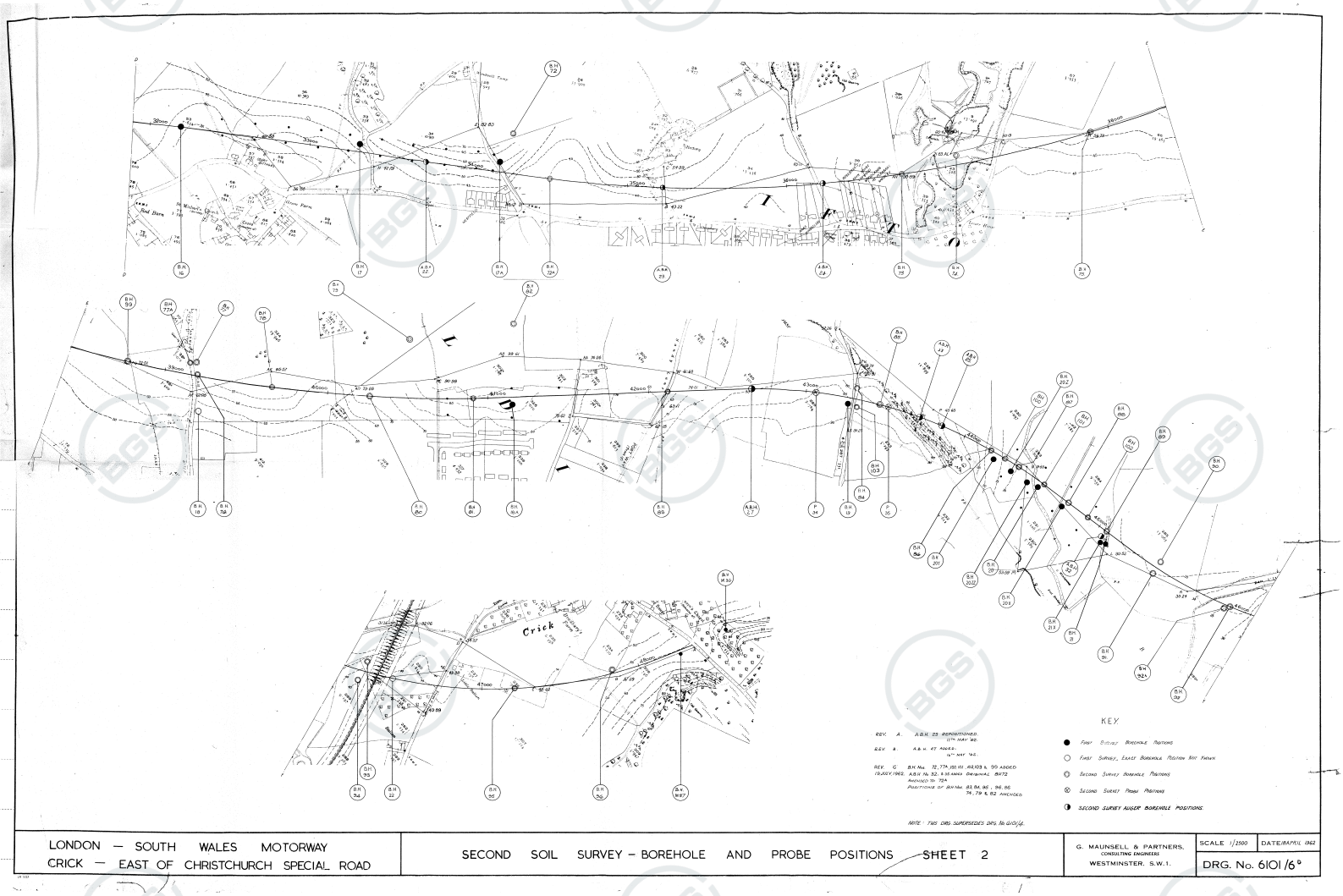
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

BOREHOLE LOG

BOREHOLE Nº 66A.

GROUND LEVEL : 32·3

TYPE of BORING: Shell and Auger.

DATE STARTED : 19·7·62.

DIA of BORING: 8"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE Nº	Nº of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
TOPSOIL.	1'0"	0'0"					
		1'0"		• 1			
Firm yellow red-brown sandy silty CLAY.				• 2			
		4'0"					
Soft blue-grey silty organic CLAY.	3'0"			! 3	25	Tu	Shell and
				• 4	blows/ft.		Auger.
		7'0"		• 5			
Soft blue-grey silty sandy CLAY.	3'0"						
		10'0"		! 6	22	Tu	
				• 7	blows/ft.		
Soft grey-brown silty sandy CLAY.	4'0"						
		14'0"					
c.m.g. GRAVEL with pieces of sandstone.	2'0"			+ 8	55		
		16'0"		• 9	blows/ft.		
Stiff red-grey CLAY with pieces of sandstone.	5'0"						
				! 10	110	Tu	
		21'0"		• 11	blows/ft.		
Firm black silty CLAY.	2'6"						
		23'6"		+ 12	165		
Stiff red-grey marly silty sandy CLAY with limestone and sandstone	1'6"	25'0"			blows/ft.		

REMARKS :

KEY TO LABORATORY TESTS

w = Moisture content ; S = Sieve analysis ; H = Full Mechanical analysis ; A = Plasticity index; P = Dry density/Moisture relation ; T_d = Drained triaxial ; T_u = Undrained triaxial ; R_d = Remoulded drained triaxial ; R_u = Remoulded undrained triaxial ; K = C.B.R. (unsoaked) ; K_s = C.B.R (soaked); C = Consolidation ; U = Unconfined compression test ; B = Shear box.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

KEY TO SAMPLES.	! Undisturbed Sample	• Disturbed Sample
Core Boring % Recovery	+ S.P.T. No of Blows	▽ Water Level.

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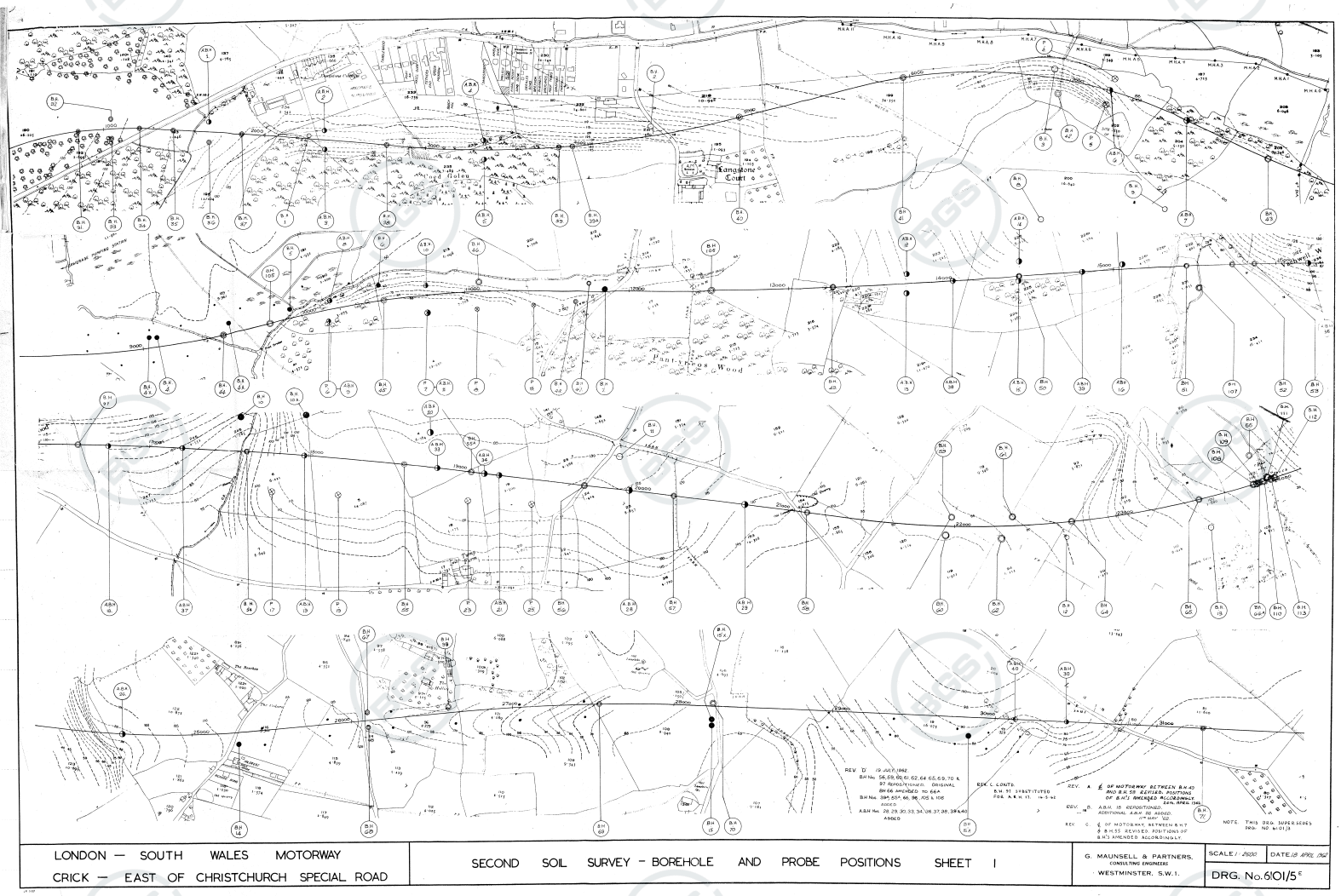
111, WESTMINSTER BRIDGE ROAD,
LONDON, S.E.1.

BGS ID: 16023280 : BGS Reference: ST48NW84
British National Grid (27700) : 342443,187770



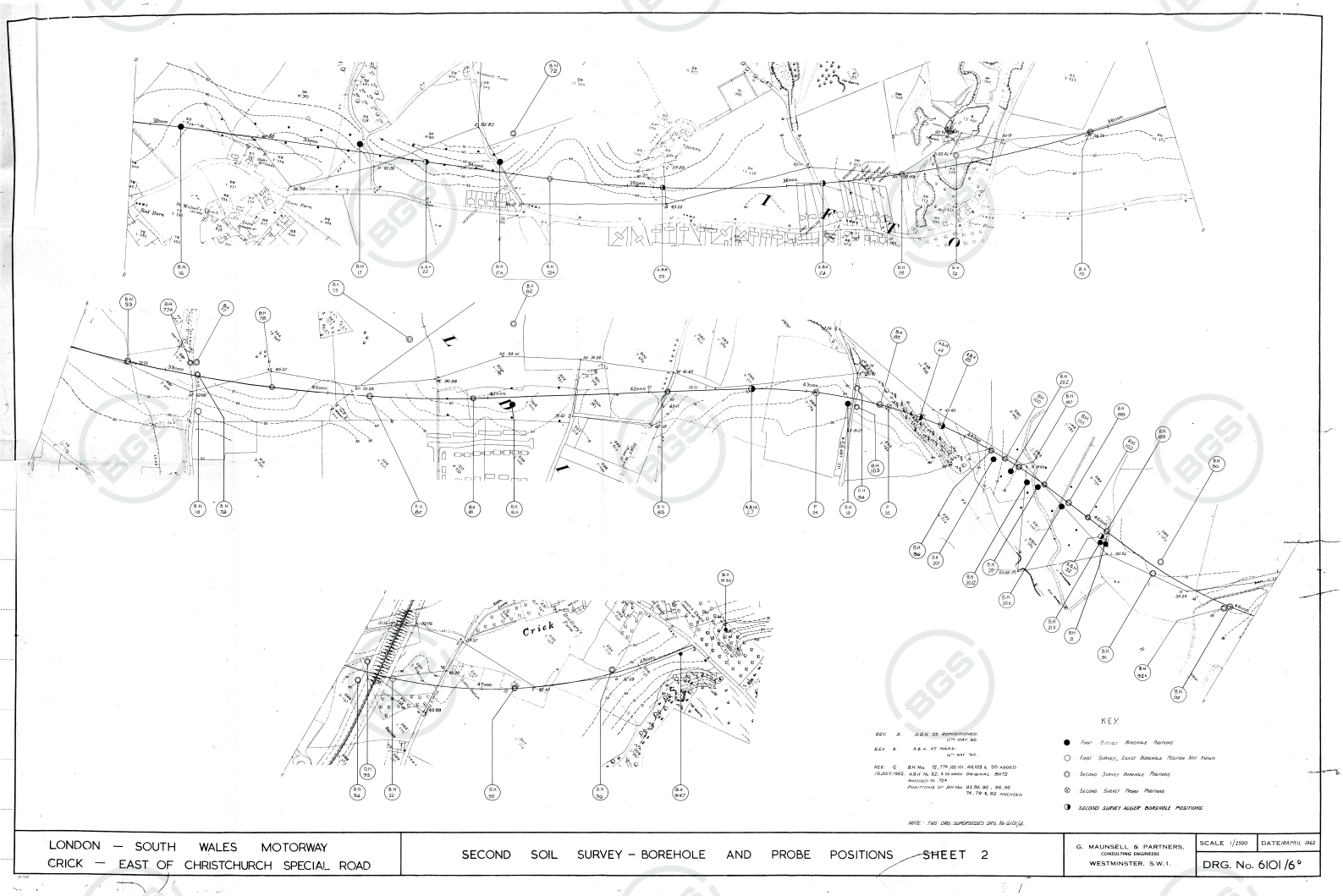
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/6°

BOREHOLE LOG

BOREHOLE No 61.

GROUND LEVEL : 80·0

DATE STARTED : 14·7·62.

TYPE of BORING: Power Auger - Diamond Drill.

DIA of BORING: 6" and 2 7/8".

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE No	No of BLOWS or LOAD.	LABORATORY TESTS.	TOOLS USED.
Firm red CLAY slightly silty 8'0" to 9'0"	11'6"	0'0"		1 2 3 4	8 tons. 5 tons.	P.A. P.A.	Power Auger.
SANDSTONE.	1'0"	11'6"					
LIMESTONE.	7'6"+	12'6"		100%			Diamond Drill.
		20'0"					

REMARKS :

KEY TO LABORATORY TESTS

ω = MOISTURE CONTENT ; S = SIEVE ANALYSIS ; H = FULL MECHANICAL ANALYSIS ; A = PLASTICITY INDEX ; P = DRY DENSITY/MOISTURE RELATION ; T_d = DRAINED TRIAXIAL ; T_u = UNDRAINED TRIAXIAL ; R_d = REMOULDED DRAINED TRIAXIAL ; R_u = REMOULDED UNDRAINED TRIAXIAL ; K = C.B.R. (UNSOAKED) ; K_s = C.B.R. (SOAKED) ; C = CONSOLIDATION ; U = UNCONFINED COMPRESSION TEST ; B = SHEAR BOX.

KEY TO SAMPLES.		
	UNDISTURBED SAMPLE	DISTORBED SAMPLE
CORE BORING % RECOVERY	+ S.P.T. No of BLOWS	WATER LEVEL.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

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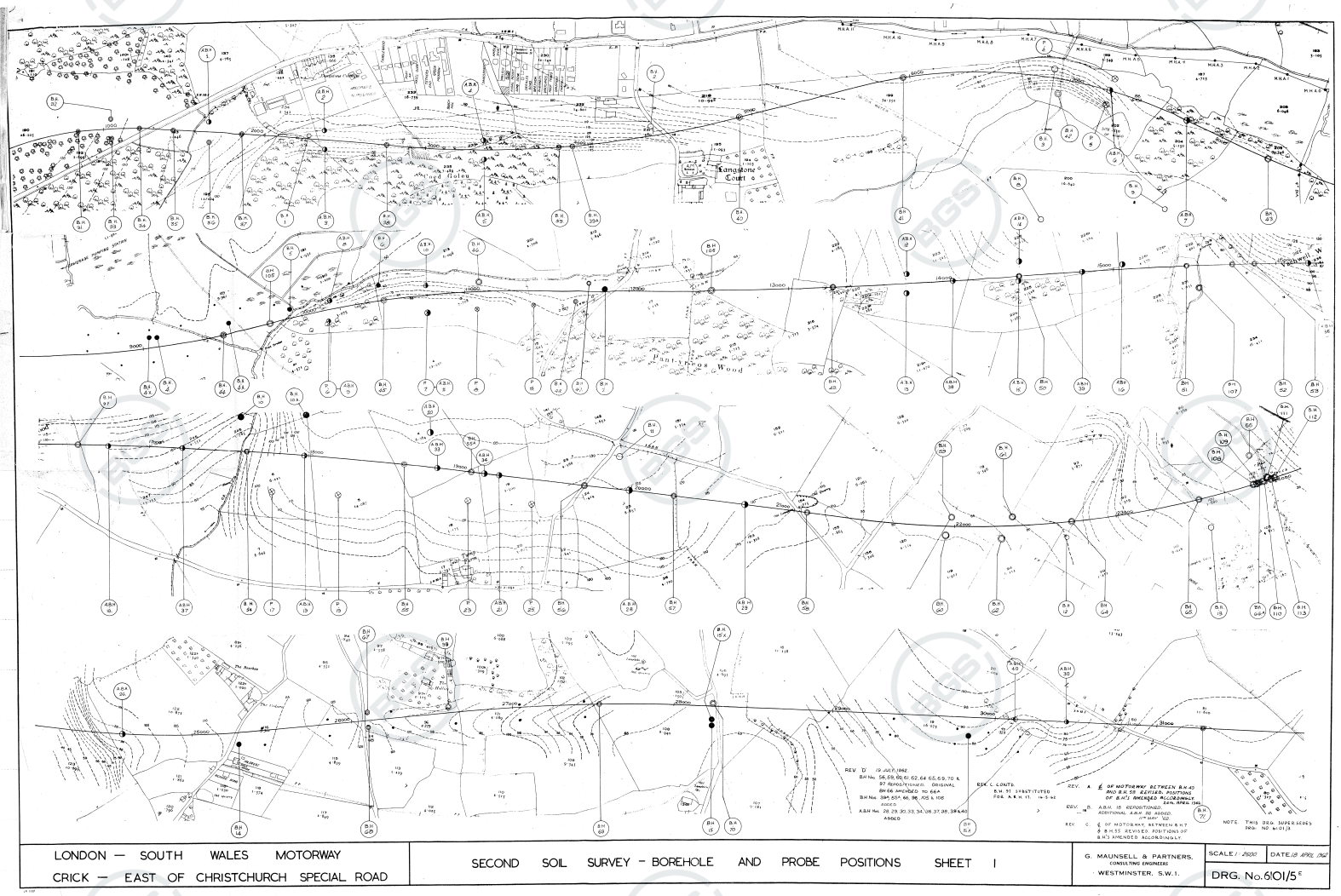
LONDON, S.E.1.

BGS ID: 16023274 : BGS Reference: ST48NW79
British National Grid (27700) : 341996,187885



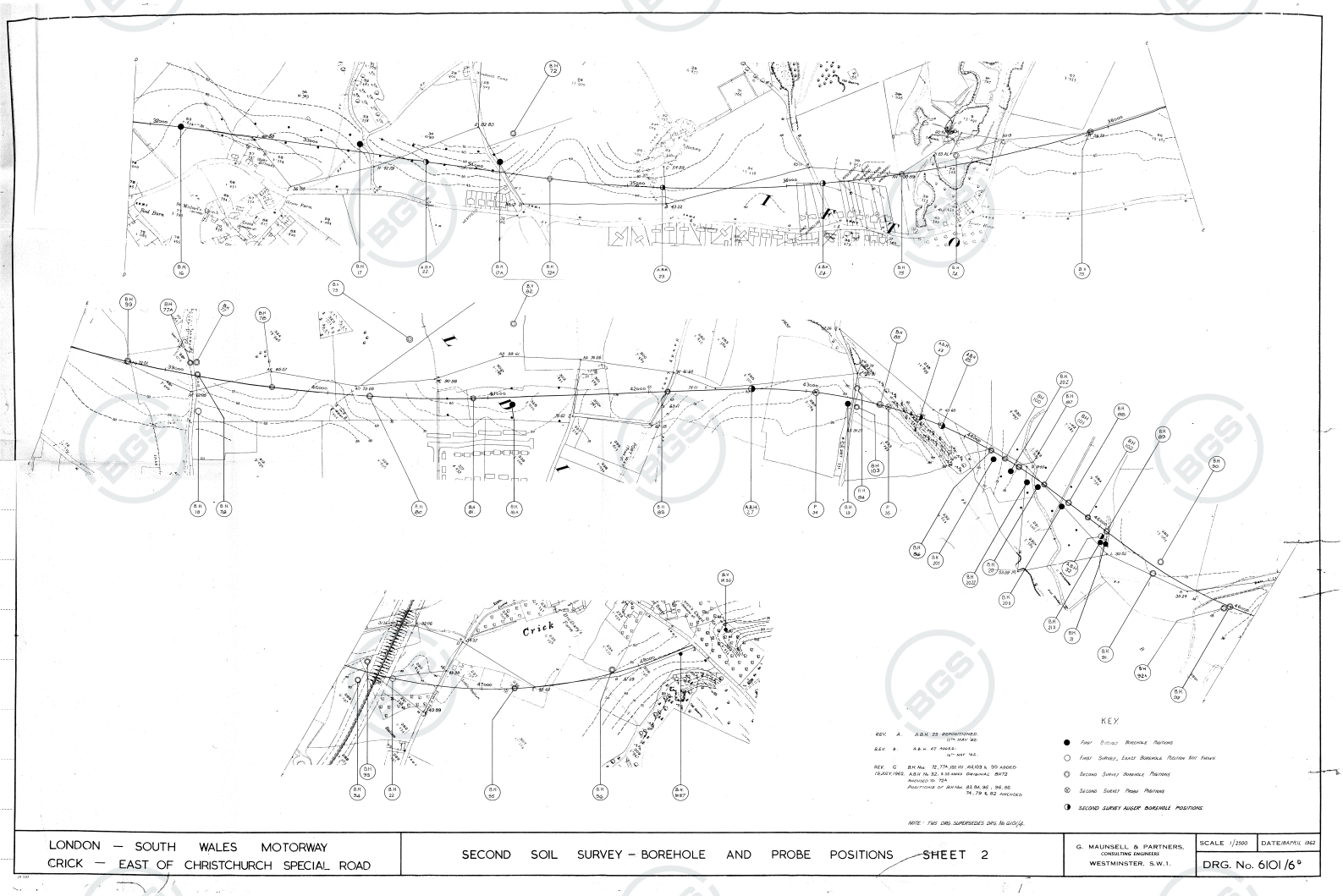
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE 18 APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/6

ST48NW/53

Trial Pit No. 7411

Methods
Machine dug to 4.70m by Fiat/Hitachi 130.
No support used.
Logged on excavated material below 1.20m.

Dates 06/04/90

Job No. 7625

Sheet 1 of 1

Coordinates 342452 E 187740 N

Site SECOND SEVERN CROSSING
Main Onshore Ground Investigation

Ground Level 9.73 mOD

Client Department of Transport

Sample/Test Depth m	Sample/Test	Level mOD	Depth m (Thick)	Description	Legend
0.10 - 0.80	B 1	9.63	0.10	TOPSOIL	
0.10	D 2		(0.70)	Firm to stiff brown in parts sandy CLAY with much angular gravel and many angular sandstone and limestone cobbles and boulders. (MADE GROUND)	
0.80 - 1.10	D 3	8.93	0.80		
1.10	B 4	8.63	(0.30) 1.10	Loose brown slightly clayey medium SAND. From 0.90 to 0.95m, sandy clay. (Probable MADE GROUND)	
1.10	D 5		(0.40)	Soft grey CLAY. (ALLUVIUM)	
1.50	D 6	8.23	1.50		
			(0.20)	Firm grey CLAY with a little medium gravel. (ALLUVIUM)	
1.70	D 7	8.03	1.70		
1.90	D 8	7.73	(0.30) 2.00	Soft red brown mottled grey sandy CLAY with a little gravel. (ALLUVIUM)	
1.90 - 2.00	B 9				
2.00	D 10		(0.40)	Loose grey mottled red brown in parts slightly clayey medium SAND. (ALLUVIUM)	
2.00 - 2.40	B 11				
2.40 - 3.40	B 12	7.33	2.40		
2.40	D 13		(1.00)	Soft grey very sandy CLAY with a little subangular gravel and occasional red brown clayey sand lenses upto 150mm thick. (ALLUVIUM)	
3.40 - 4.30	B 14	6.33	3.40		
			(1.20)	Dense grey to dark brown clayey sandy rounded GRAVEL with some cobbles. (TERRACE DEPOSITS) From 4.30m, becoming brown and very clayey.	
4.30 - 4.60	B 15				
4.60	D 16	5.13	4.60		
		5.03	4.70	Soft to firm red brown and grey in parts sandy CLAY. (Possible HEAD DEPOSITS)	

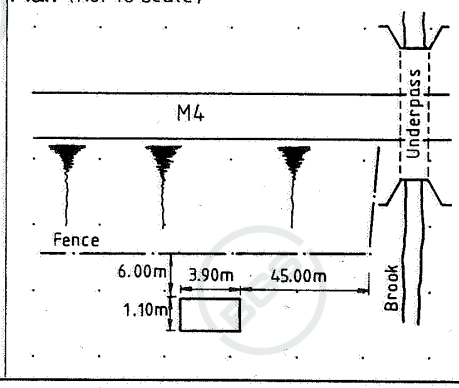
Remarks

Insitu Tests: None
Groundwater: Not encountered
Variability of Faces: None
Stability of Faces: Stable
Weather: Fine

See key sheet for symbols and abbreviations

160890/1244

Plan (Not to scale)



Scale 1:50

Logged by PA

GDS 1990-3

BOREHOLE LOG

BOREHOLE Nº 110

GROUND LEVEL : 33

TYPE of BORING: Shell and Auger.

DATE STARTED : 17·10·62

DIA of BORING: 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE Nº	Nº of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
		0'0"					
Red brown CLAY.	4'0"						
		4'0"		•1			
Loose sandy CLAY.	2'0"			•2			
		6'0"					
Firm blue SILT with some sand.	1'6"	7'6"		•3			
Soft blue SILT.	3'0" +			•4			
		10'6"					

REMARKS: Attempted U4ˢ at 4'0" and 7'6".

KEY TO LABORATORY TESTS

ω = MOISTURE CONTENT; S = SIEVE ANALYSIS; H = FULL MECHANICAL ANALYSIS; A = PLASTICITY INDEX; P = DRY DENSITY/MOISTURE RELATION; T_d = DRAINED TRIAXIAL; T_u = UNDRAINED TRIAXIAL; R_d = REMOULDED DRAINED TRIAXIAL; R_u = REMOULDED UNDRAINED TRIAXIAL; K = C.B.R. (UNSOAKED); K_s = C.B.R (SOAKED); C = CONSOLIDATION; U = UNCONFINED COMPRESSION TEST; B = SHERR BX.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

KEY TO SAMPLES.		
	UNDISTURBED SAMPLE	DISTURBED SAMPLE
CORE BORING % RECOVERY	S.P.T. Nº OF BLOWS	WATER LEVEL.

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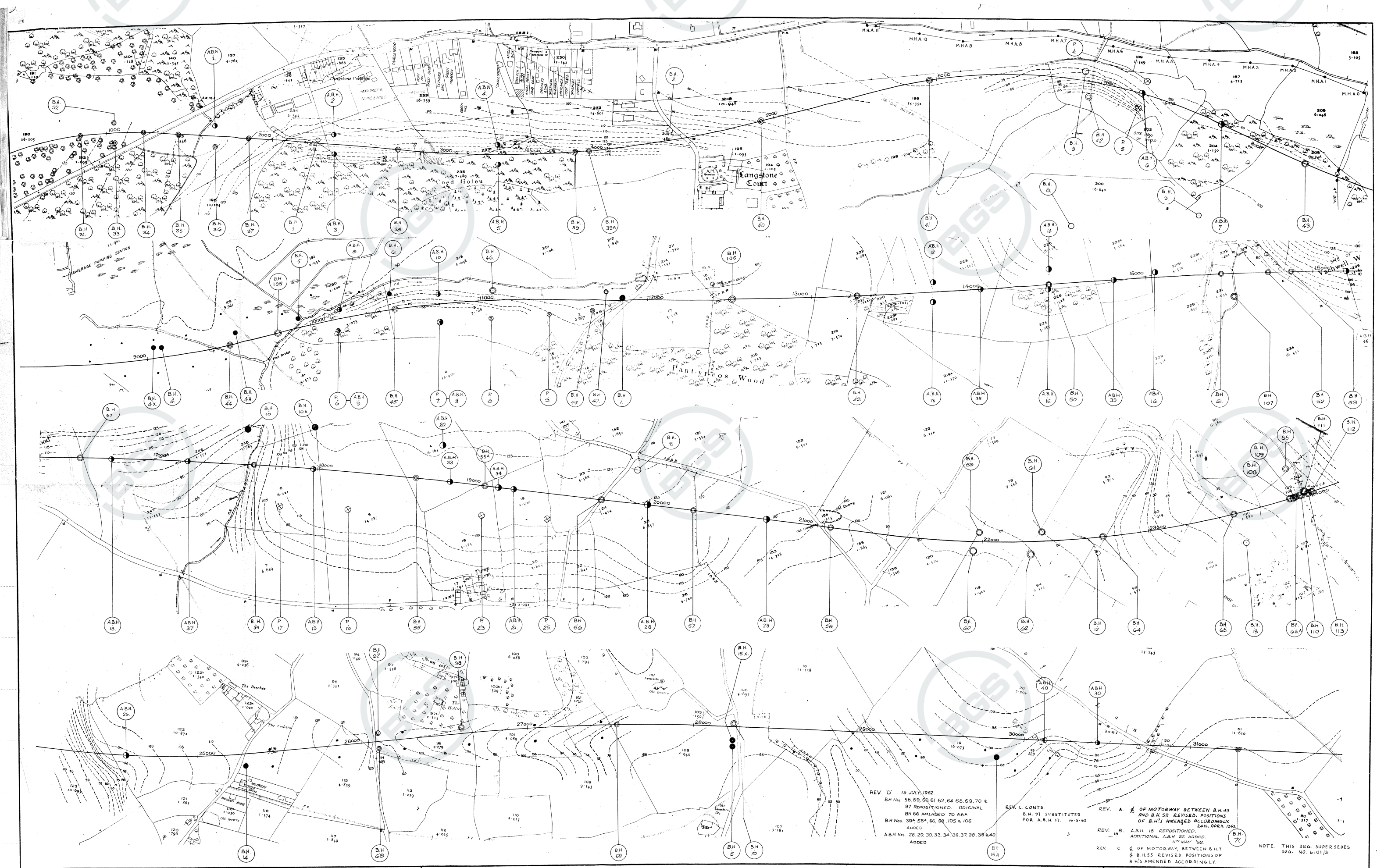
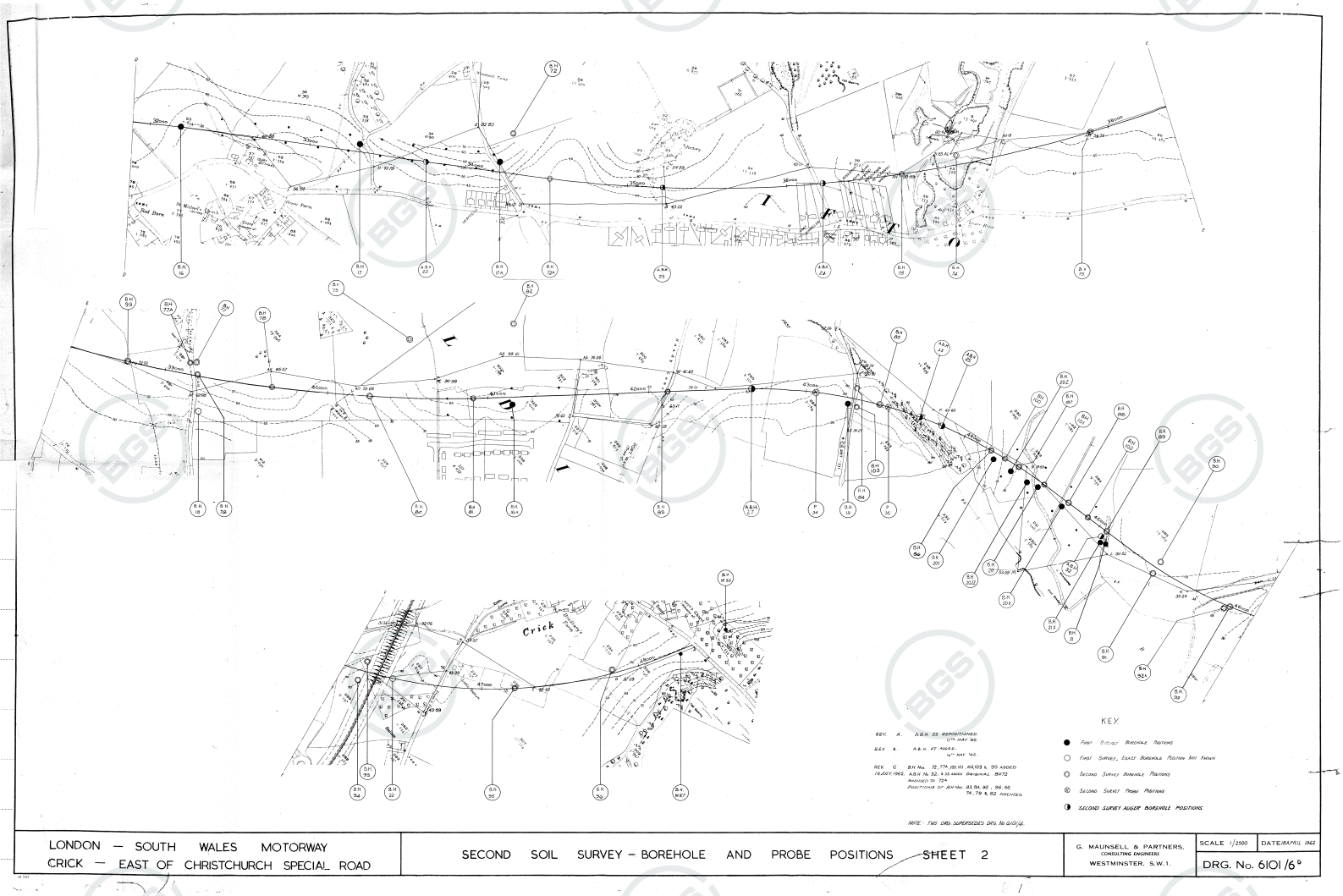
LONDON, S.E.1.



LONDON — SOUTH WALES MOTORWAY CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD	SECOND SOIL SURVEY - BOREHOLE AND PROBE POSITIONS SHEET 1	G. MAUNSELL & PARTNERS. CONSULTING ENGINEERS WESTMINSTER, S.W.1.	SCALE 1/2500 DATE 18 APRIL 1962 DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

ST48NW/52

Trial Pit No. 7412

Sheet 1 of 2

Methods
Machine dug to 1.70m by Fiat/Hitachi 130.
No support used.
Looged on excavated material below 1.20m.

Dates 05/04/90

Job No. 7625

Coordinates 342454 E 187753 N

Site SECOND SEVERN CROSSING
Main Onshore Ground Investigation

Ground Level 11.77 mOD

Client Department of Transport

Sample/Test Depth m	Sample/Test	Level mOD	Depth m (Thick)	Description	Legend
0.00 - 0.10	D 1	11.67	0.10	a. TOPSOIL	
0.10 - 1.40	B 2		(1.30)	b. Firm to stiff red brown very silty CLAY with many cobbles and occasional boulders of sandstone and conglomerate. (FILL)	
		10.37	1.40		
			(0.30)	c. Grey angular limestone BOULDERS in a little matrix of firm red brown sandy clay. (FILL)	
		10.07	1.70		

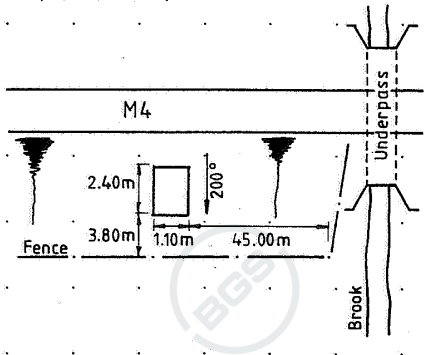
Remarks

Insitu Tests: None
Groundwater: Not encountered
Variability of Faces: See sheet 2
Stability of Faces: Stable
Weather: Fine

See key sheet for symbols and abbreviations

160890/1250

Plan (Not to scale)



Scale 1:50

Logged by PA

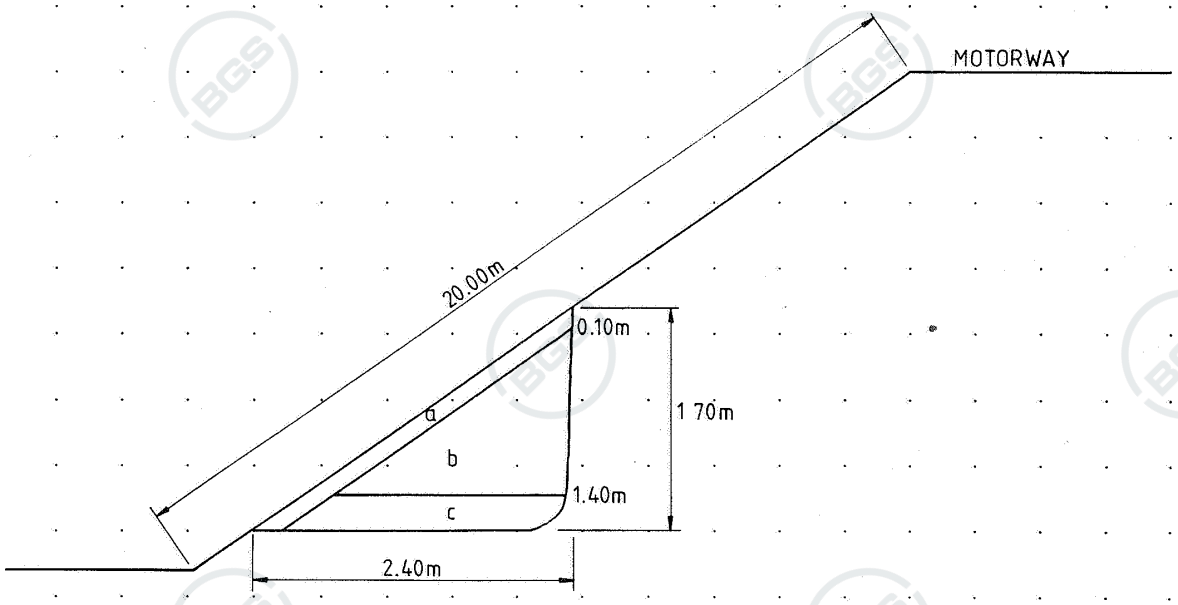
GDS 1990-3

ST48NW/52

			Trial Pit No. 7412
Methods Machine dug to 1.70m by Fiat/Hitachi 130. No support used. Looged on excavated material below 1.20m.	Dates 05/04/90	Job No. 7625	Sheet 2 of 2
	Coordinates 342454 E 187753 N	Site SECOND SEVERN CROSSING Main Onshore Ground Investigation	
	Ground Level 11.77 mOD	Client Department of Transport	

Sketch of Faces

NOT TO SCALE



Remarks

See key sheet for symbols and abbreviations

090890/1635

Logged by PA

GDS 1990-3

BOREHOLE LOG

BOREHOLE No 62

GROUND LEVEL : 85·6

TYPE of BORING : Power Auger.

DATE STARTED : 14·7·62.

DIA of BORING : 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE No	No of Blows or Load.	LABORATORY TESTS.	TOOLS USED.
Firm red-brown CLAY and Gravel.	2' 6"	0'0"					Power Auger.
		2'6"		• 1			
				2	10 tons.	P.A.	
Firm to stiff red-brown CLAY.	12' 9" +			• 3			
				4	5 tons.	P.A.	
				• 5			
LIMESTONE.		15' 3"					

REMARKS :

KEY TO LABORATORY TESTS

W = Moisture content ; S = Sieve analysis ; H = Full Mechanical analysis ; A = Plasticity index ; P = Dry density/Moisture relation ; T_d = Drained triaxial ; T_u = Undrained triaxial ; R_d = Remoulded drained triaxial ; R_u = Remoulded undrained triaxial ; K = C.B.R. (unsoaked) ; K_s = C.B.R (soaked) ; C = Consolidation ; U = Unconfined compression test ; B = Shear box.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

KEY TO SAMPLES.		
	Undisturbed Sample	Disturbed Sample
Core Boring % Recovery	+ S.P.T. No of Blows	Water Level.

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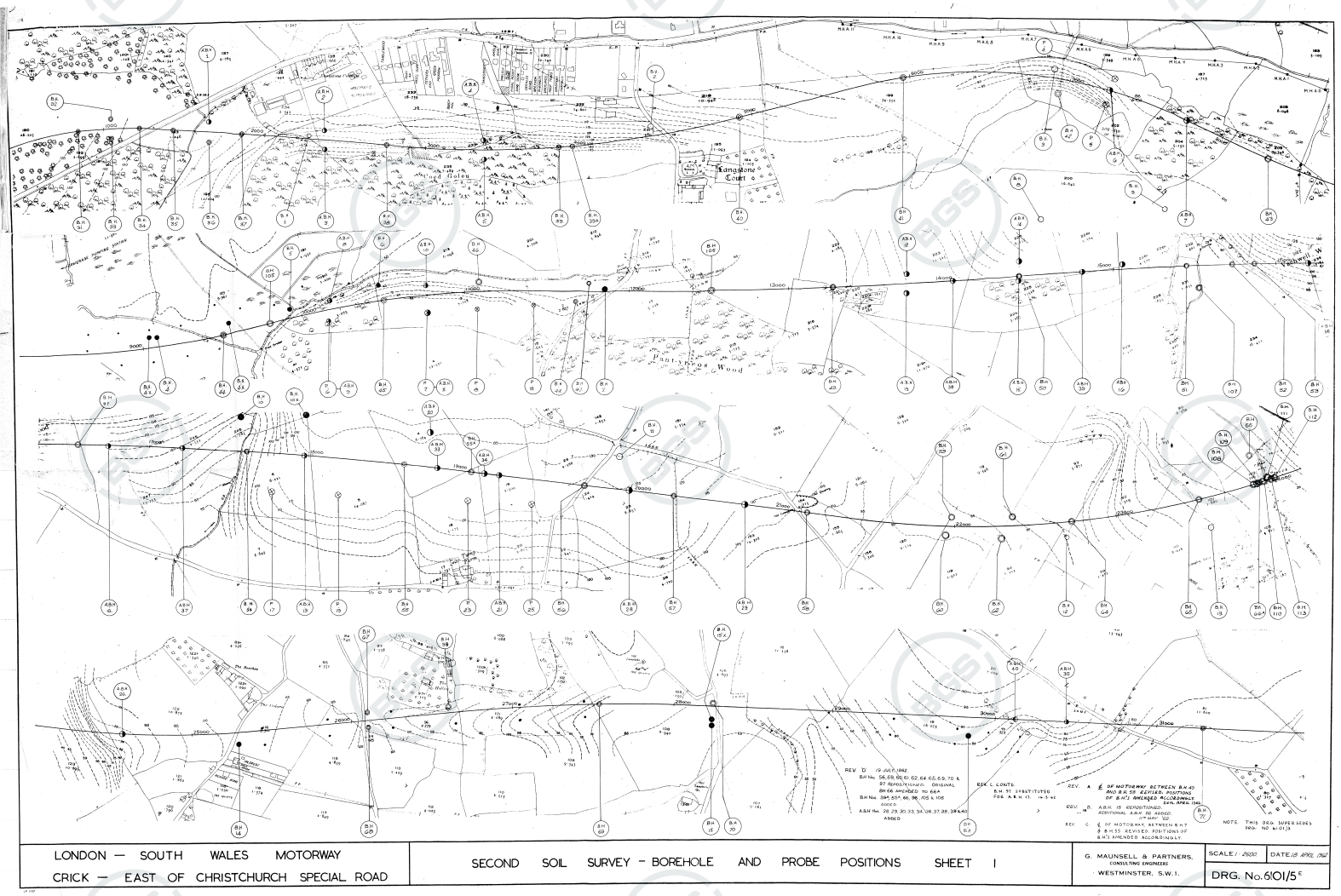
BGS ID: 16023275 : BGS Reference: ST48NW80
British National Grid (27700) : 341962,187855



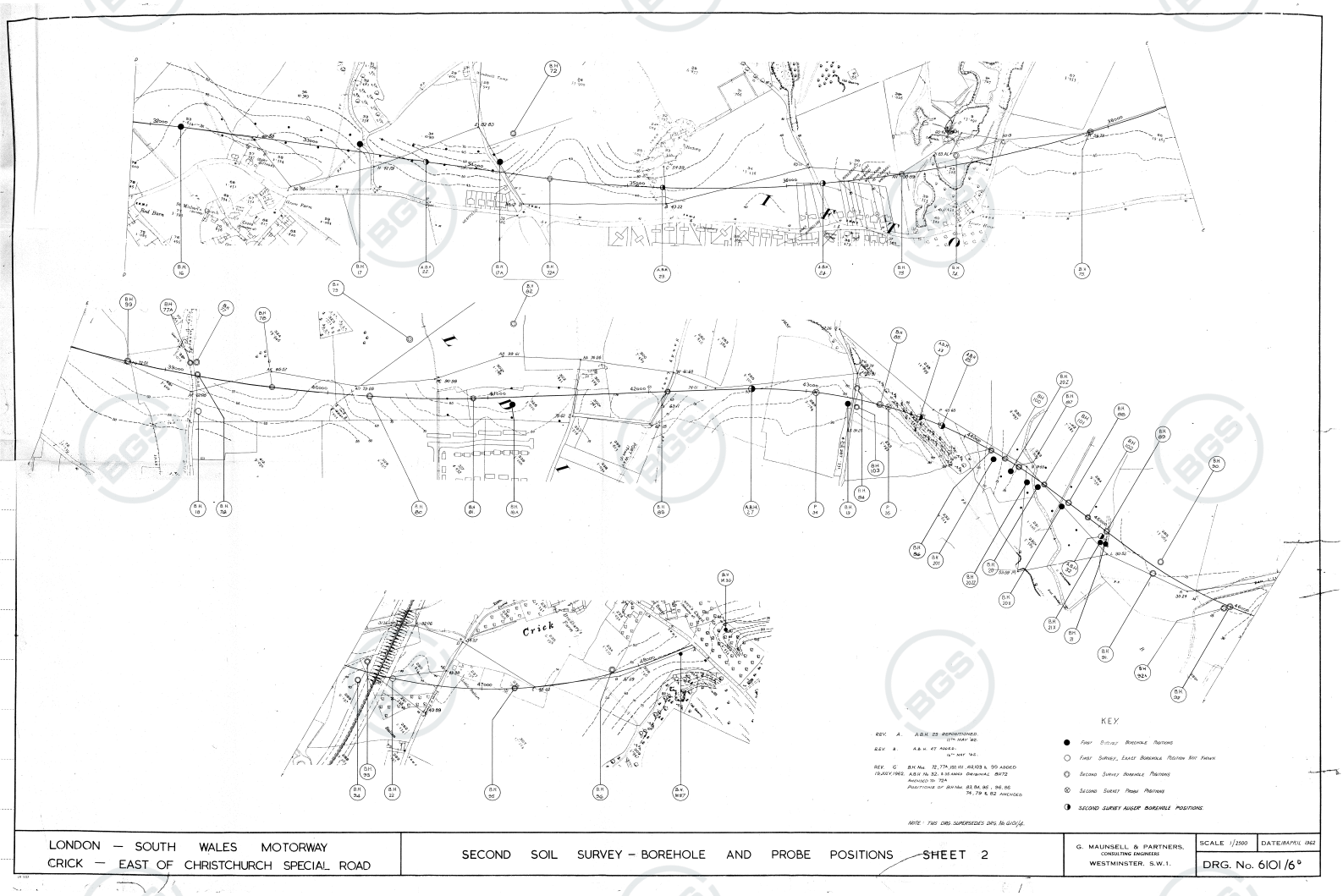
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

BOREHOLE LOG

BOREHOLE Nº 66.

GROUND LEVEL : 34·1

TYPE of BORING: Power Auger.

DATE STARTED : 9·7·62

DIA OF BORING: 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE Nº	Nº of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
		0'0"					
TOPSOIL.	3' 0"			• 1			Power Auger.
		3'0"		2	5tons.	Tu	
Soft grey silty CLAY with stones	3' 6"			• 3			
		6' 6"		+ 4	12 blows/ft.		
Firm red-brown silty sandy CLAY with soft layers and stones	18' 6"			5	1 ton.		
				• 6			
				+ 7	50 blows/ft.		
		25'0"		+ 8	30 blows/ft.		
Firm to stiff red-brown sandy silty marly CLAY.	5' 0" +			+	45 blows/ft.		
		30'0"					

REMARKS :

KEY TO LABORATORY TESTS

ω = MOISTURE CONTENT ; S = SIEVE ANALYSIS ; H = FULL MECHANICAL ANALYSIS ; A = PLASTICITY INDEX; P = DRY DENSITY/MOISTURE RELATION ; T_d = DRAINED TRIAXIAL ; T_u = UNDRAINED TRIAXIAL ; R_d = REMOULDED DRAINED TRIAXIAL ; R_u = REMOULDED UNDRAINED TRIAXIAL ; K = C.B.R. (UNSOAKED) ; K_s = C.B.R (SOAKED); C = CONSOLIDATION ; U = UNCONFINED COMPRESSION TEST ; B = SHEAR BOX

KEY TO SAMPLES.		
	UNDISTURBED SAMPLE	DISTURBED SAMPLE
CORE BORING % RECOVERY	S.P.T. Nº OF BLOWS	WATER LEVEL.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

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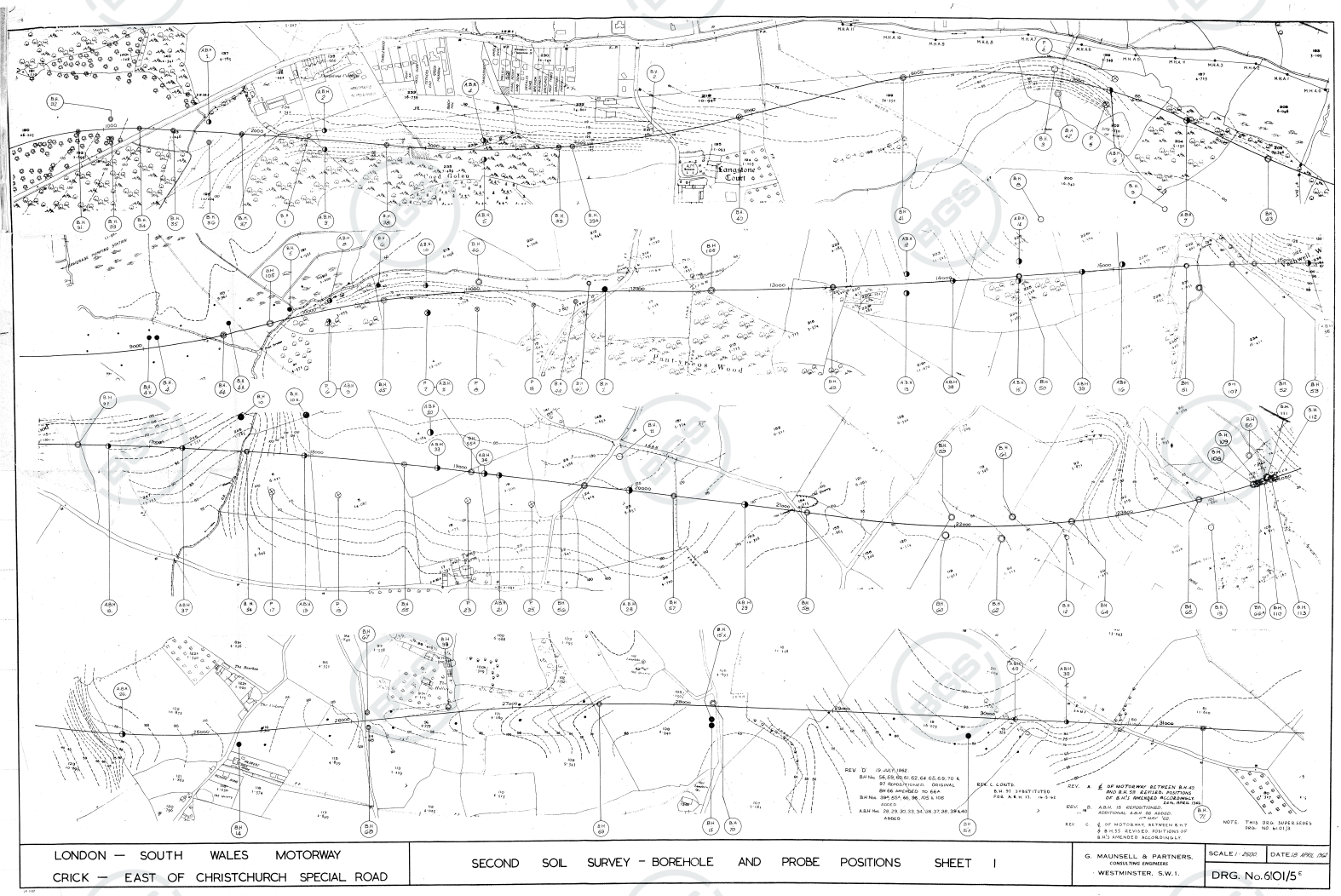
BGS ID: 16023278 : BGS Reference: ST48NW83
British National Grid (27700) : 342444,187823



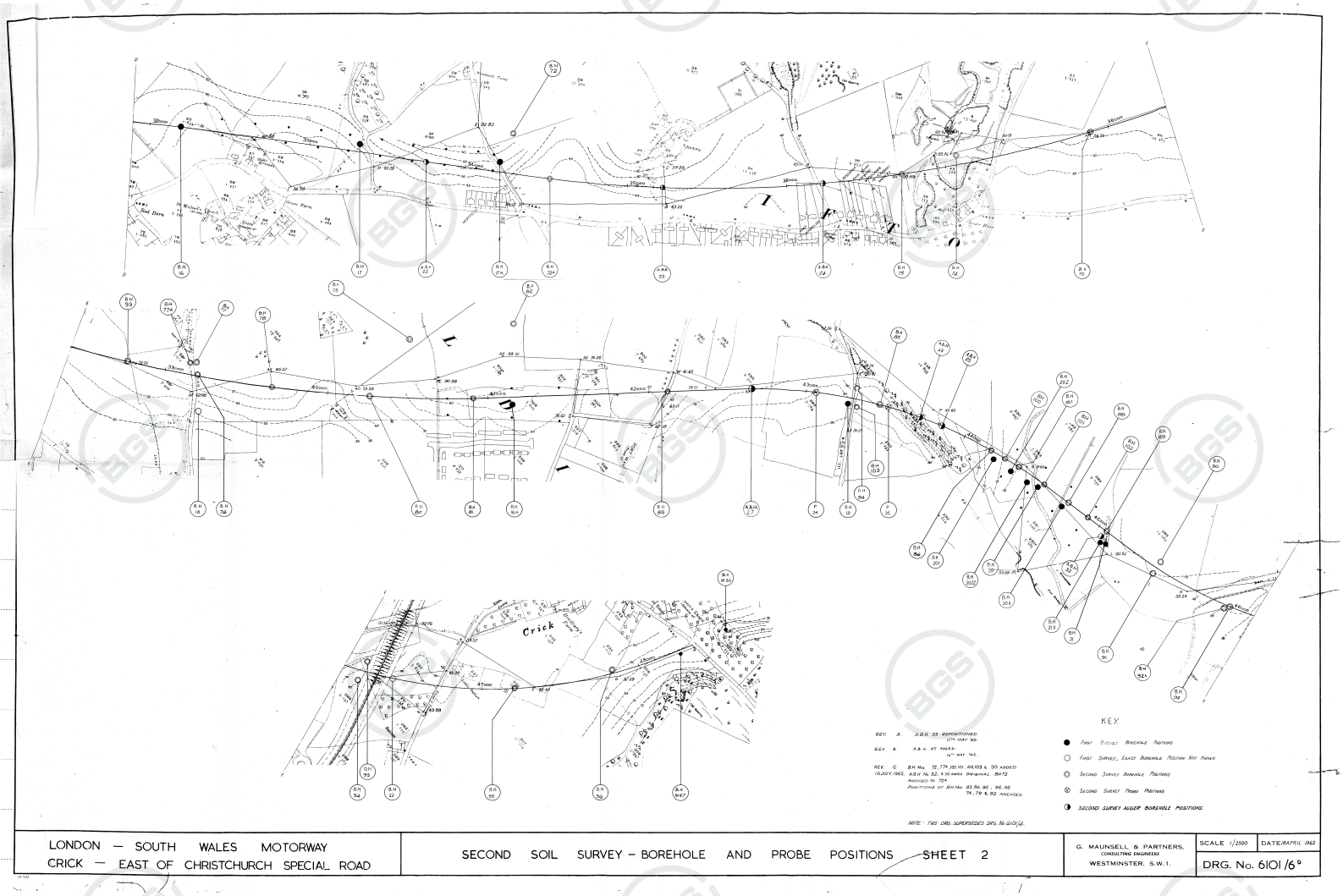
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

BOREHOLE LOG

BOREHOLE No 111

GROUND LEVEL : 33

TYPE of BORING : Shell and Auger.

DATE STARTED : 17·10·62

DIA of BORING : 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE No	No of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
TOPSOIL.	1' 0"	0'0" / 1'0"					
Firm red brown CLAY.	2' 6"	3'6"		• 1			
Loose sandy CLAY.	1' 3"	4'9"		• 2			
Soft blue SILT with layers of coarse sand.	6' 3"	11'0"		• 3 4 5	10 blows/ft.	Tu	
Firm red CLAY with weathered limestone.	3' 0" +	14'0"		• 6			

REMARKS : Attempted U4 at 3' 0"

KEY TO LABORATORY TESTS

w = MOISTURE CONTENT ; S = SIEVE ANALYSIS ; H = FULL MECHANICAL ANALYSIS ; A = PLASTICITY INDEX ; P = DRY DENSITY/MOISTURE RELATION ; T_d = DRAINED TRIAXIAL ; T_u = UNDRAINED TRIAXIAL ; R_d = REMOULDED DRAINED TRIAXIAL ; R_u = REMOULDED UNDRAINED TRIAXIAL ; K = C.B.R. (UNSOAKED) ; K_s = C.B.R (SOAKED) ; C = CONSOLIDATION ; U = UNCONFINED COMPRESSION TEST ; B = SHEAR BOX.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

KEY TO SAMPLES.	UNDISTURBED SAMPLE	DISTURBED SAMPLE
CORE BORING % RECOVERY	+ S.P.T. No OF BLOWS	WATER LEVEL.

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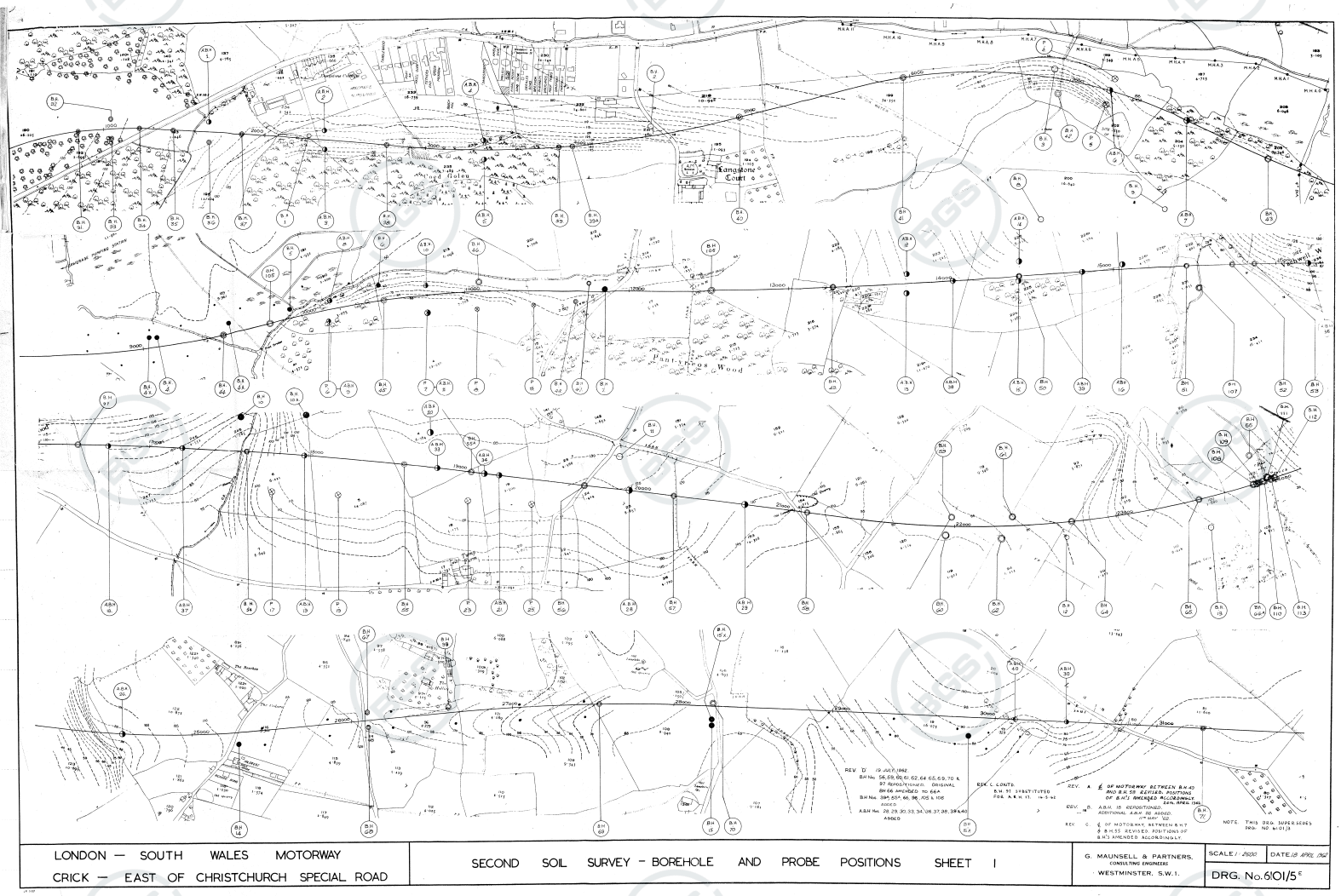
LONDON, S. E. 1.

BGS ID: 16023298 : BGS Reference: ST48NW95
British National Grid (27700) : 342460,187774



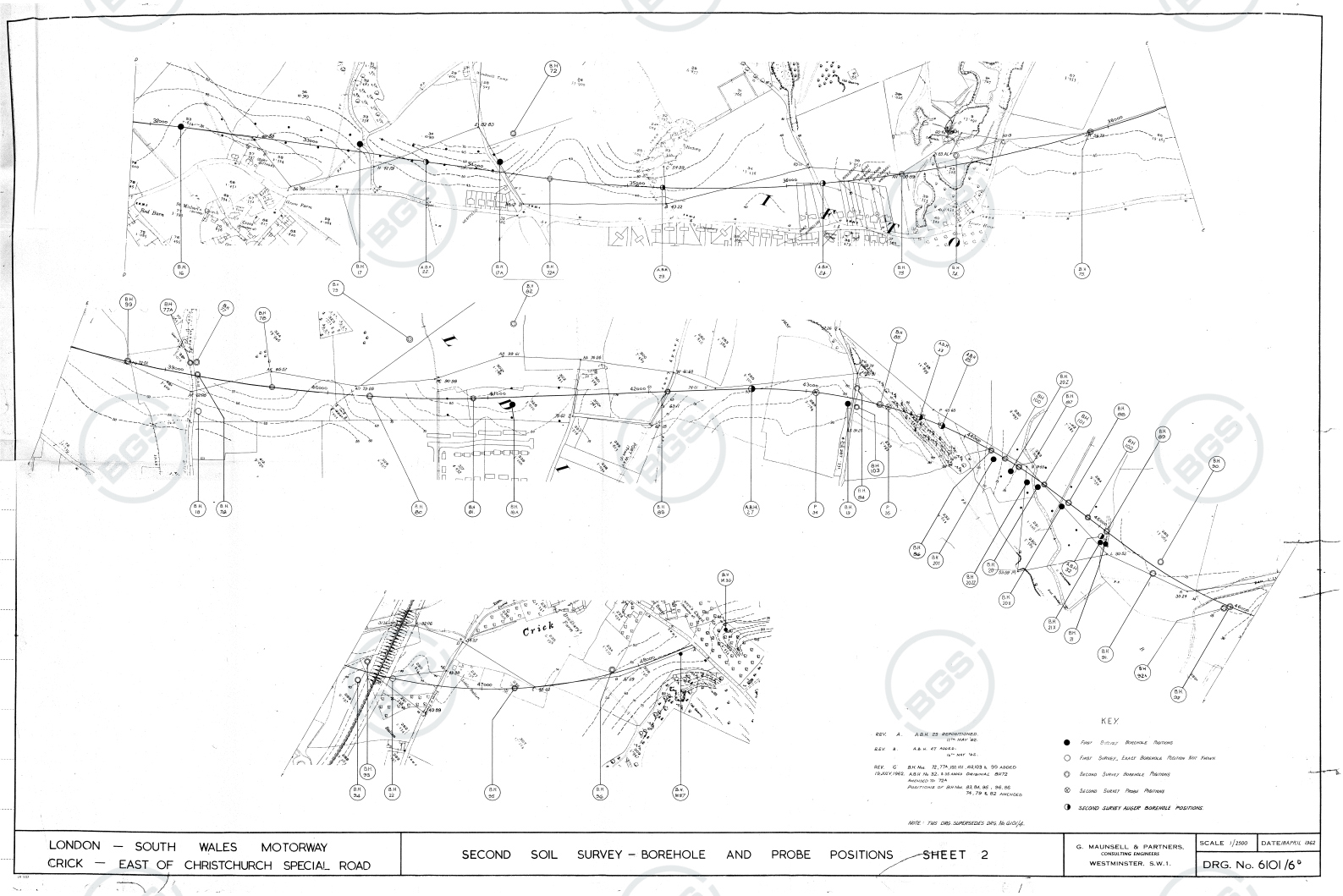
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/5



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS WESTMINSTER, S.W.1.

SCALE 1/2500 DATE APRIL 1962

DRG. No. 6101/6*

BOREHOLE LOG.

BOREHOLE No 113

GROUND LEVEL : 33

TYPE of BORING: Shell and Auger.

DATE STARTED : 17·10·62

DIA of BORING: 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE No	No of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
TOPSOIL.	1'0"	0'0"					
		1'0"					
Loose sandy CLAY.	2'9"			• 1			
		3'9"		• 2			
Firm red CLAY with traces of sand.	5'0"			3	18 blows/ft.	TU	
		9'0"					
Firm red CLAY with pieces of weathered limestone.	1'6"+	10'6"		• 4.			

REMARKS:

KEY TO LABORATORY TESTS

W = MOISTURE CONTENT; S = SIEVE ANALYSIS; H = FULL MECHANICAL ANALYSIS; A = PLASTICITY INDEX; P = DRY DENSITY/MOISTURE RELATION; Td = DRAINED TRIAXIAL; Tu = UNDRAINED TRIAXIAL; Rd = REMOULDED DRAINED TRIAXIAL; Ru = REMOULDED UNDRAINED TRIAXIAL; K = C.B.R. (UNSOAKED); Ks = C.B.R (SOAKED); C = CONSOLIDATION; U = UNCONFINED COMPRESSION TEST; B = SHEAR BOX.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

KEY TO SAMPLES.		
	UNDISTURBED SAMPLE	DISTURBED SAMPLE
CORE BORING % RECOVERY	+ S.P.T. No OF BLOWS	WATER LEVEL.

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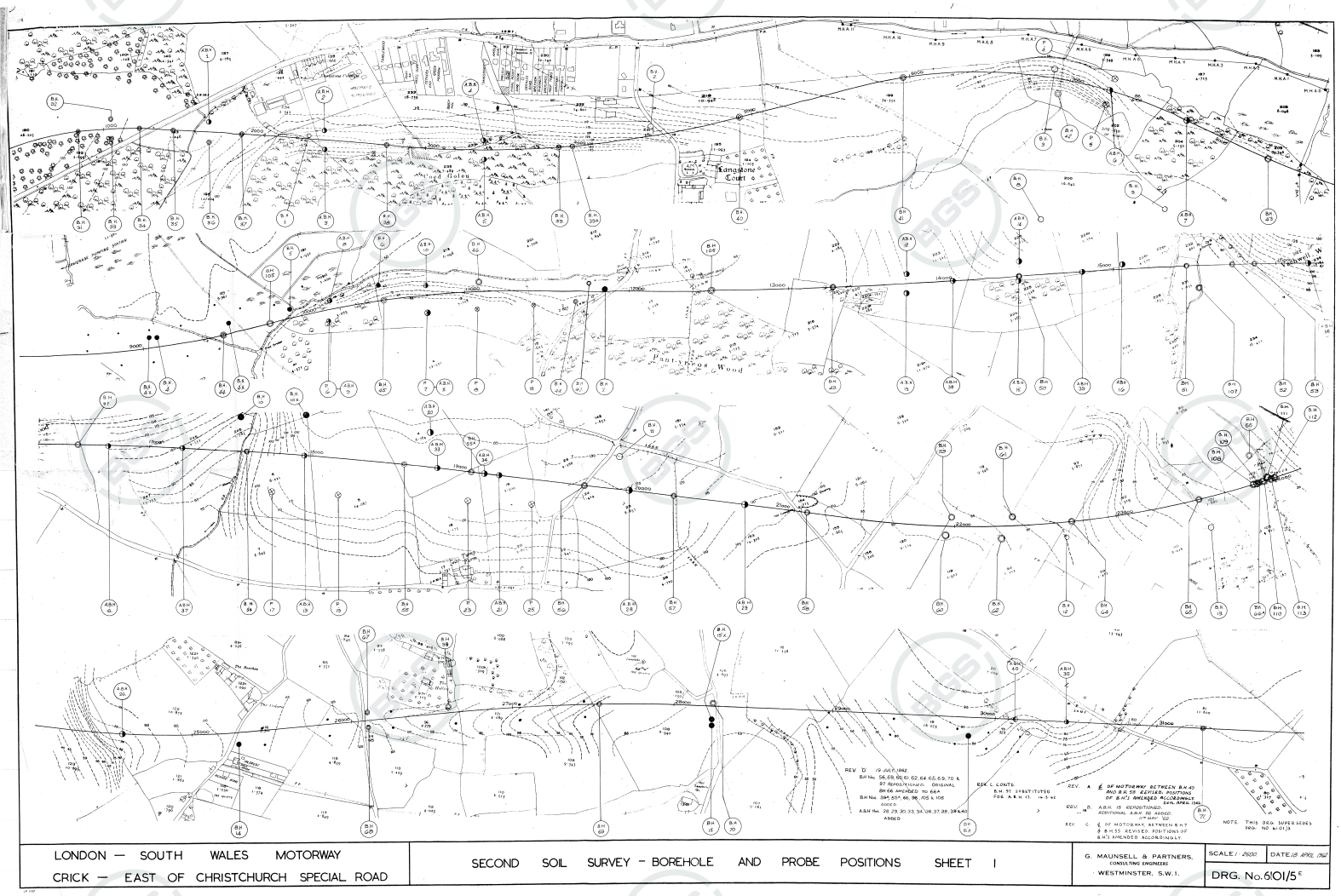
BGS ID: 16023301 : BGS Reference: ST48NW97
British National Grid (27700) : 342465,187767



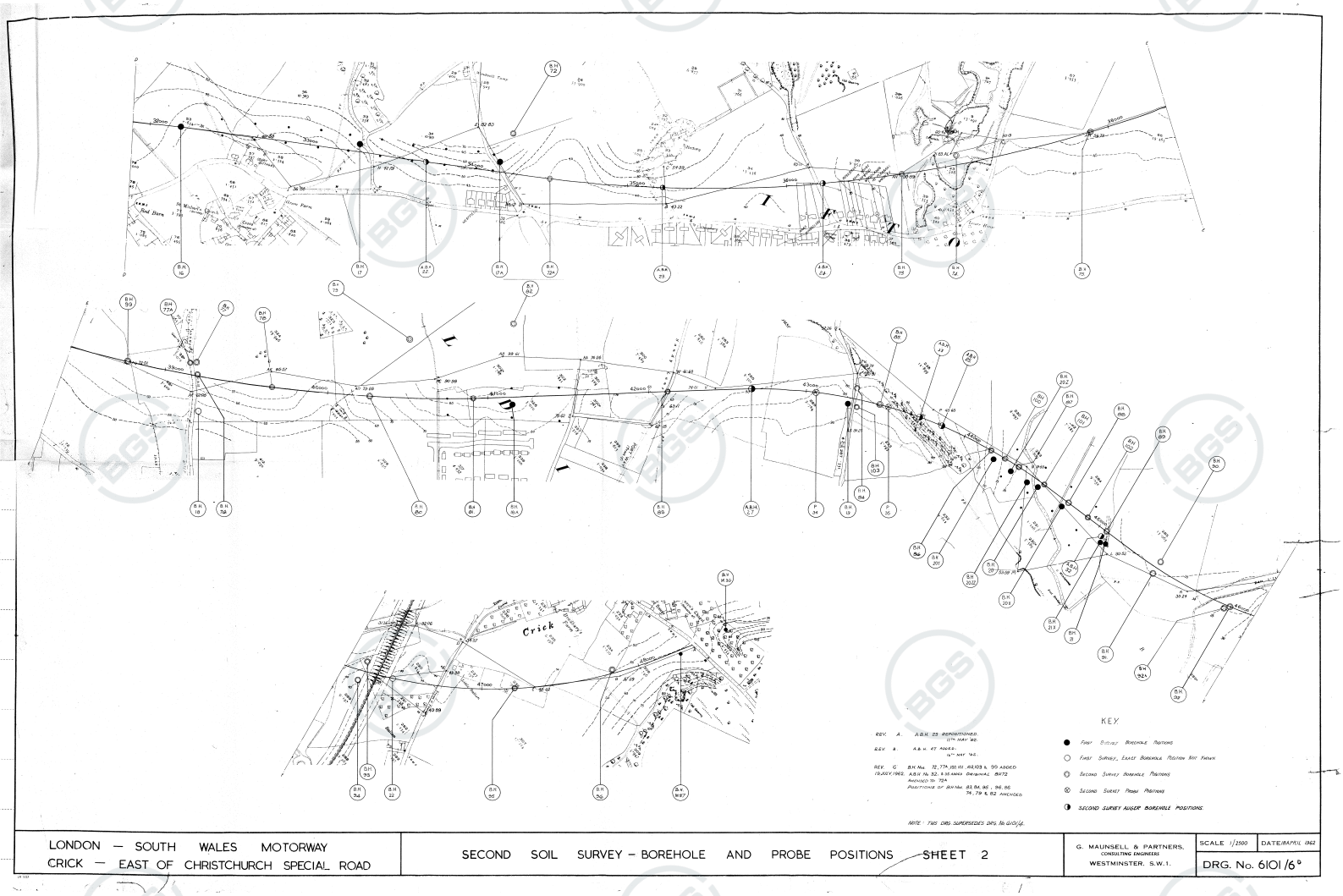
LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE 18 APRIL 1962

DRG. No. 6101/5 E



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

BOREHOLE LOG

BOREHOLE Nº 112

GROUND LEVEL : 33

TYPE of BORING: Shell and Auger.

DATE STARTED : 16·10·62.

DIA of BORING: 6"

DESCRIPTION	THICKNESS	DEPTH	LEGEND	SAMPLE Nº	Nº of BLOWS OR LOAD.	LABORATORY TESTS.	TOOLS USED.
TOPSOIL.	1'0"	0'0"					
		1'0"		1	22	Tu	
Firm red·brown CLAY.	3'0"			2	blows/ft		
		4'0"		3			
Mottled sandy CLAY.	4'6"						
		8'6"		4	29	Tu	
Red CLAY and weathered limestone.	2'6" +				blows/ft.		
		11'0"		5			

REMARKS: Attempted U4 at 5'0".

KEY TO LABORATORY TESTS

ω = MOISTURE CONTENT; S = SIEVE ANALYSIS; H = FULL MECHANICAL ANALYSIS; A = PLASTICITY INDEX; P = DRY DENSITY/MOISTURE RELATION; T_d = DRAINED TRIAXIAL; T_u = UNDRAINED TRIAXIAL; R_d = REMOULDED DRAINED TRIAXIAL; R_u = REMOULDED UNDRAINED TRIAXIAL; K = C.B.R. (UNSOAKED); K_s = C.B.R (SOAKED); C = CONSOLIDATION; U = UNCONFINED COMPRESSION TEST; B = SHEAR BOX.

KEY TO SAMPLES.		
	▌ UNDISTURBED SAMPLE	● DISTURBED SAMPLE
▯ CORE BORING % RECOVERY	+ S.P.T. No. OF BLOWS	⏚ WATER LEVEL.

LONDON - SOUTH WALES MOTORWAY

COLDRA - CRICK.

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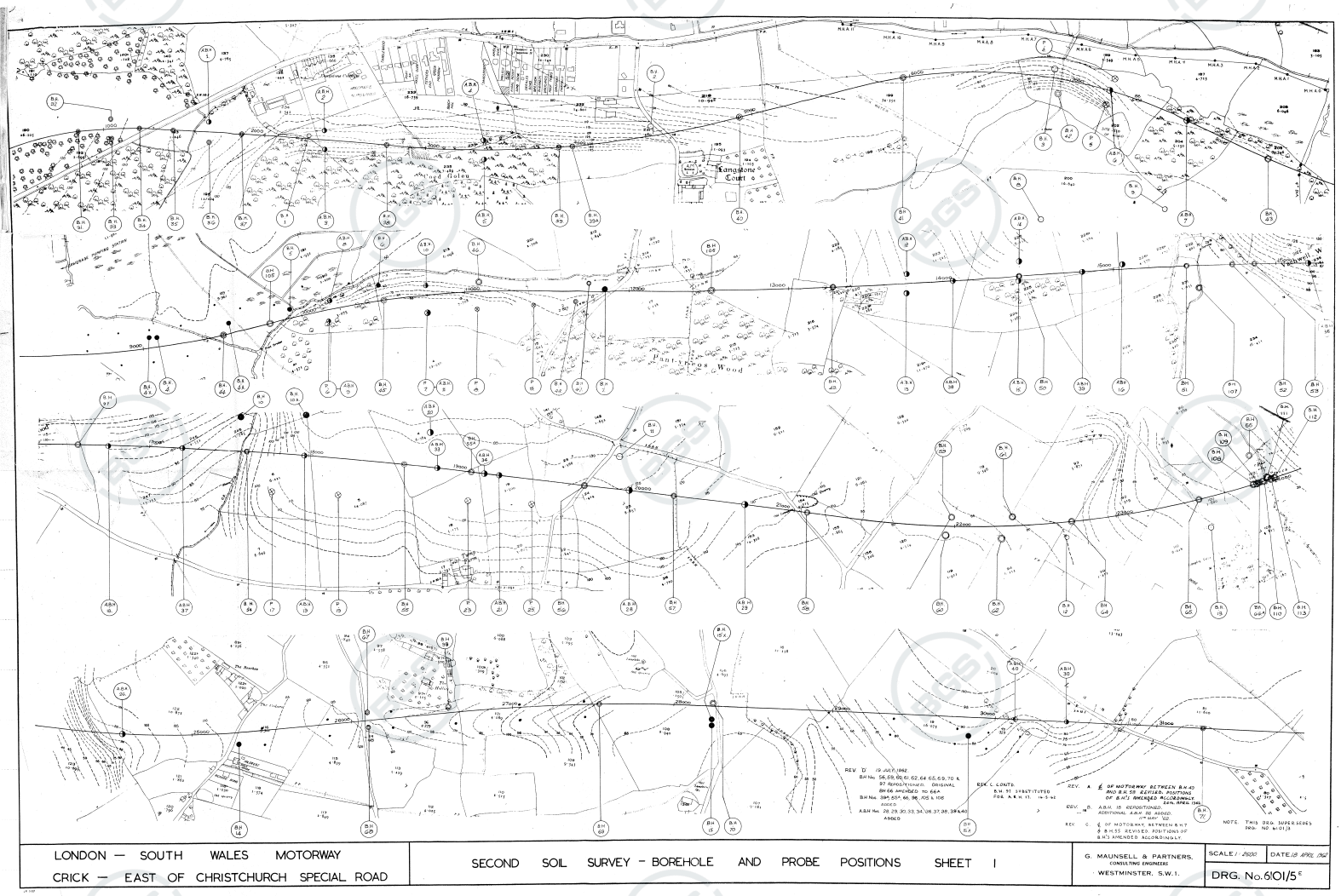
LONDON, S.E.1.

BGS ID: 16023299 : BGS Reference: ST48NW96
British National Grid (27700) : 342471,187767



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

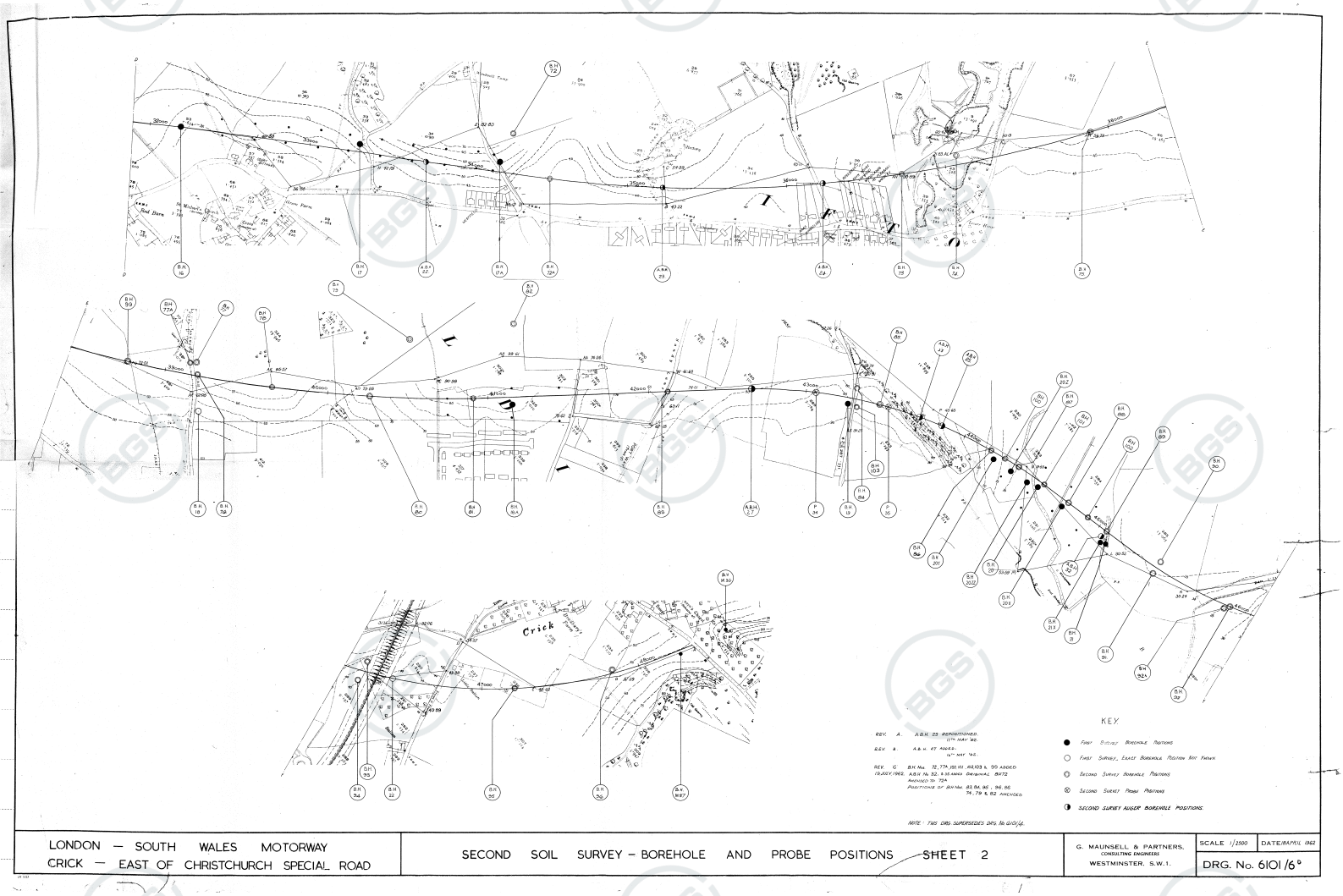
SECOND SOIL SURVEY – BOREHOLE AND PROBE POSITIONS SHEET 1

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE 18 APRIL 1962

DRG. No. 6101/5 E

BGS ID: 16023299 : BGS Reference: ST48NW96
British National Grid (27700) : 342471,187767



LONDON — SOUTH WALES MOTORWAY
CRICK — EAST OF CHRISTCHURCH SPECIAL ROAD

SECOND SOIL SURVEY — BOREHOLE AND PROBE POSITIONS — SHEET 2

G. MAUNSELL & PARTNERS, CONSULTING ENGINEERS, WESTMINSTER, S.W.1.

SCALE 1/2500 DATE MAY 1962

DRG. No. 6101/6

C. Site Walkover Survey Photographs

Photo C.1: View looking to the east towards the site entrance on St Bride's Road

Photo C.2: View looking towards the northern section of the site

Photo C.3: View of the south-western edge of site looking towards the west

Photo C.4: View of the north-eastern edge of site showing the animal water trough in the site centre and a steep sloped section

Photo C.5: Close-up view of animal water trough and blue alkathene pipe water supply in the centre of the site

Photo C.6: Blue alkathene pipe near the gate along St Bride's Road

Photo C.7: View from the western edge of site looking towards the north-east

Photo C.8: View from the western edge of site looking towards the north

Photo C.9: View showing hedges from the centre of the site looking towards the south-east

Photo C.10: View of bricks and roots located along the northern edge of site

Photo C.11: View of the northern edge of site looking towards the west

Photo C.12: View of the northern edge of site looking towards the east including view of silage for cattle feeding

Photo C.13: View towards site entrance at the eastern edge of site

Photo C.14: View from the site entrance looking westwards

Photo C.15: View of metal caravan at the eastern edge of site

Photo C.16: Wooden boards beside metal caravan at eastern edge of the site