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Innovative Land Development Solutions

GEOENVIRONMENTAL ASSESSMENT

LAND AT MARDEN
HEREFORDSHIRE

Report No: 17331/1
Date: January 2018

Prepared For

SIGNATURE NEW HOMES
and
THE TRUSTEES OF THE DUDLEY PRICE DISCRETIONARY SETTLEMENT

PROJECT QUALITY ASSURANCE
INFORMATION SHEET

GEOENVIRONMENTAL ASSESSMENT

LAND AT MARDEN
HEREFORDSHIRE

Report Status:	**Final**
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Georisk Management Limited has been commissioned to carry out a geoenvironmental assessment of the above site, which is to be developed for housing.

Phase I	Comments
The Site	The site is situated in the east of the village of Marden, Herefordshire and can be located approximately by National Grid Reference 352690, 247620. It is a roughly rectangular shaped plot covering an area of approximately 5.2 hectares. Much of the site comprises an agricultural field which had been sown for wheat at the time of this investigation with the south-eastern part comprising an arable field. The entire site is bordered by hedgerows and mature trees form the eastern boundary. A drainage ditch forms the boundary between the two fields which then flows along the southern site boundary. A large depression (mapped as a pond), approximately 2 m in depth, is present immediately beyond the southern site boundary. These features were noted to be dry at the time of the site walkover. Site levels fall from approximately 68 m AOD in the north-east to approximately 63 m AOD in the south-west; The site is bound by Marden Primary School to the west, an unnamed road with residential development beyond forming the northern boundary and agricultural land associated with New House Farm to the south and east.
Site History	Historical maps indicate the site has remained undeveloped since the earliest available published map of 1887.
Geology	The geology beneath the site is anticipated to comprise Head Deposits and River Terrace Deposits overlying the Raglan Mudstone Formation of Silurian age.
Coal Mining	The Coal Authority report that the site is not in an area affected by past coal mining.
Hydrology	Surface watercourses are mapped along the boundary between the two fields and the southern site boundary and flow in a westerly direction. A pond is mapped immediately beyond the southern site boundary – these features were all noted to be dry during the site walkover. The EA has records of 6 No. licensed discharge consents to controlled waters within 250 m of the site. The nearest consent is approximately 40 m to the north-east operated by CD Developments and involves discharging final/treated sewage effluent into a tributary of the River Lugg.
Flood Risk	Based on current information provided by the EA, the site is not in an area likely to be affected by river or surface water flooding. A flood risk assessment was beyond the scope of this report.
Hydrogeology	The Head Deposits are classified as a '*Secondary – Undifferentiated*' aquifer and the River Terrace Deposits and Raglan Mudstone Formation as '*Secondary A*' aquifers. The EA has records of 4 No. licensed groundwater abstractions from wells within 250 m of the site; the nearest is located approximately 40 m to the south-east (general farming and domestic), operated by O H Price and Son at New House Farm. It is not mapped by the EA within a groundwater Source Protection Zone.
Landfills	The EA/LA have no records of any historical or active licensed landfills within 250 m of the site. Within the Envirocheck report, an area of infilled ground (water) is identified approximately 140 m north-east of the site, which is dated 1964. No further details are provided; however, it appears to be coincident with a small pond shown on the historical maps.
Radon	Radon protection measures are not required for a development at the site.

Phase II	Comments
Ground Conditions	Topsoil was encountered across the site to depths of between 0.15 and 0.7 m begl. It typically consisted of brown locally slightly silty, slightly gravelly sand and clay with the gravel content being quartzite and sandstone. Plastic sacks were encountered locally in the topsoil in TP12. River Terrace Deposits were encountered beneath the topsoil to penetrated depths of between 1.0 and 4.0 m begl (maximum penetrated depth), with boreholes typically refusing in very dense granular strata. These deposits were predominantly granular ranging between medium dense to very dense locally clayey/silty sand and gravel (gravel content generally increasing with depth) with localised pockets of firm sandy to very sandy silt/clay and firm sandy gravelly clay. Clay materials were found to be more extensive in TP07 (below 0.3 m begl), TP11 (below 1.8 m begl) and TP14 (below 2.3 m begl). Soft clay was encountered in TP05 (0.3 to 1.2 m begl) and in TP16 (0.4 to 1.5 m begl).
Contamination	No visual or olfactory evidence of potential significant contamination was recorded during the fieldwork.
Trench Stability	Instability of trial pit excavations was observed in TP02, TP03, TP04, TP06, TP 11 and TP15 below depths of between 1.4 and 2.0 m begl.
Groundwater	During the fieldwork, groundwater was encountered in the River Terrace Deposits in TP01 to TP03, TP06, TP08, TP10, TP11 and TP14 to TP16 at depths of between 1.7 and 3.8 m begl. The results of groundwater monitoring show that the boreholes remained dry throughout the monitoring period until the final monitoring visit when groundwater levels were measured between 0.3 and 1.9 m begl. This final monitoring visit followed a period of heavy rainfall with waterlogged ground conditions observed and; therefore, these results are considered to reflect surface inundation rather than be representative of true groundwater levels.
Soil-Gas	No methane has been recorded in the borehole installations during the monitoring programme and steady state carbon dioxide levels range from 1.1 to 2.2 % by volume (v/v). A maximum positive gas flow of 0.2 l/hr was recorded and ambient atmospheric pressures ranged from 996 to 1017 mb.
Environmental Assessment	**Comments**
Soil Contamination	All results for contaminants of concern are below the relevant assessment criteria.
Risk Evaluation: Human Health	Based on the investigation carried out, no significant risks exist to future site users and no specific remediation is considered necessary at the site with respect to human health. Site-won topsoil should be carefully stripped and stockpiled for re-use in gardens/landscaped areas to provide a clean growing medium.
Risk Evaluation: Soil Gas	Gas protection not considered necessary for the proposed development.
Statutory Consultation	This report should be submitted to all relevant regulators for approval prior to finalising development levels and before any construction work starts on site.
Geotechnical Assessment	**Comments**
Foundations	This investigation has recorded topsoil overlying River Terrace Deposits generally comprising medium dense to very dense granular soil with localised pockets/horizons of soft and firm silt/clay to a maximum penetrated depth of 4.0 m begl. Groundwater ingress was recorded in several trial pits at depths of between 1.7 and 3.8 m begl, which tended to promote instability of trial pit sides. Based on the ground conditions encountered, it is considered that traditional strip/trench fill foundations should be viable for the proposed development with footings extending into competent River Terrace Deposits comprising medium dense to very dense granular soil. This investigation and subsequent laboratory testing indicates that the mass behaviour of the soils is granular/non-shrinkable and; therefore, a minimum founding depth of 0.6 m is considered appropriate providing at least 300 mm penetration into competent soil is achieved. As groundwater was encountered locally below 1.7 m begl, which caused instability of trial pit excavations. Strict controls must be put in place by site management to ensure that foundation excavations are not over-deepened thereby encountering groundwater and/or leading to the collapse of trench excavations. If foundation excavations are over-deepened and groundwater is encountered, spread foundation construction will not be possible to the satisfaction of NHBC and an alternative solution will need to be adopted.

Geotechnical Assessment	Comments
Foundations	For 600 mm wide foundations placed at a minimum depth of 0.6 m begl with at least 300 mm penetration into competent medium dense River Terrace Deposits, an allowable bearing pressure of 150 kN/m^2 is considered appropriate with total settlements not anticipated to exceed 25 mm. Should any soft/loose materials be encountered at the foundation horizon, these should be removed, foundations deepened appropriately and replaced with lean mix concrete.
Floor Slabs	A ground bearing slab could be utilised providing all topsoil and any subsoil was removed and, where necessary replaced with engineered granular fill or, alternatively, a suspended floor slab design could be adopted.
Pavement Design	For preliminary design purposes, the following long-term equilibrium CBR values could be assumed for the various near surface materials present at the site: • cohesive River Terrace Deposits: 3-4 %; • granular River Terrace Deposits: 5 %. Caution would need to be exercised to ensure that any loose areas within the formation are excavated and filled with suitably compacted granular fill. Once road alignments and levels have been finalised, in situ CBR tests should be undertaken to allow detailed design of road formations to be made.
Buried Concrete	A Design Sulphate Class of DS-1 and an ACEC class of AC-1 apply at the site.
Dewatering	The findings of this investigation indicate that water ingress may occur in excavations below approximately 1.7 m begl (associated with sewer construction for example) and may require more sophisticated groundwater control techniques such as well-pointing.
Excavations	Conventional mechanical excavation for foundations and services should be readily achievable in River Terrace Deposits. Shallow excavations should remain stable in the short-term; however, instability may occur in excavations deeper than 2 m begl or excavations that are left open for extended periods of time. Support should be provided in any excavations requiring man entry. Care should be taken to limit the exposure of any excavation prepared to receive concrete, which may cause deterioration and a reduction in bearing capacity. Any foundation excavations would need to be inspected by qualified personnel and any soft or loose materials that are encountered should be removed and replaced with compacted granular fill or lean mix concrete.
Soakaways	Infiltration testing has been attempted in TP09 and TP10, in general accordance with BRE:365 2016. The infiltration rates within the gravel River Terrace Deposits were recorded as $1x10^{-4}$ ms^{-1} at a depth between approximately 1.25 and 1.75 m begl. The recorded infiltration rates within the sand River Terrace Deposits were variable, ranging between $1x10^{-4}$ and $1x10^{-5}$ ms^{-1} at depths of between approximately 1.2 and 1.9 m begl. Based on these test results, it is considered that the use of a soakaway drainage system at the site is feasible within granular River Terrace Deposits subject to the variable results outlined above. It would be prudent to carry out further soakaway tests in targeted areas where soakaways are proposed to confirm design infiltration rates.
Additional Work	**Comments**
Various	This report should be submitted to all relevant regulators for approval prior to finalising development levels and before any construction work starts on site.

The above summary is intended for reference purposes only and specific details should be obtained by reading the entire report.

FOREWORD

This report has been prepared for the sole internal use and reliance of the Client(s) named on the Project Quality Assurance Information Sheet. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Georisk Management Ltd (Georisk). If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

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

The findings and opinions conveyed in this report are based on information obtained from a variety of sources as detailed within this report and which Georisk believes is reliable. All reasonable care and skill has been applied in examining the information obtained, nevertheless, Georisk cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

The report represents the findings and opinions of experienced geoenvironmental consultants. Georisk does not provide legal advice and the advice of lawyers may also be required.

Any recommendations made or opinions expressed in the Report are based on the exploratory hole records, an examination of samples and the results of the site and laboratory tests. No liability can be accepted for conditions not revealed by the exploratory holes particularly between positions. Whilst every effort is made to ensure accuracy of data supplied any opinion expressed as to the possible configuration of strata between or below investigation locations is for guidance only and no responsibility is accepted as to its accuracy.

Unless otherwise specifically stated, this report assumes that ground levels will not change significantly from those existing at present and that the proposed development will be of two to three storey construction. If this is not to be the case, some modifications to this report may be required.

The groundwater conditions entered on the borehole records and from any monitoring programme are those observed at the time of the investigation. Groundwater levels are susceptible to seasonal fluctuations and may be higher during wetter periods than those encountered during this investigation.

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

Georisk reserves the right to amend the conclusions and recommendations made in this report in the light of any further or more detailed information that may become available.

GEOENVIRONMENTAL ASSESSMENT

LAND AT MARDEN
HEREFORDSHIRE

1. INTRODUCTION

1.1 Georisk Management Limited (Georisk) has been instructed by Signature New Homes and The Trustees of the Dudley Price Discretionary Settlement to carry out a geoenvironmental assessment of a parcel of land located in Marden, Herefordshire. The work was carried out in accordance with Georisk's proposal letter reference 17331/LO.001/AMG dated 1 November 2017, which was accepted by Signature New Homes via email dated 10 November 2017.

1.2 The site is to be developed for housing and the principal aims of this investigation are as follows:

- to carry out Phase I hazard identification and assessment (desk study) including determination of an initial conceptual model based on '*source-pathway-target*' principles;
- to determine the prevalent ground and groundwater conditions at the site;
- to provide an assessment of the concentrations of a range of potential contaminants of concern within the near surface soils, including Phase II evaluation of risk to human health and environmental receptors;
- to identify any potential geoenvironmental constraints or opportunities associated with the development of the site for a residential end use;
- to provide general geotechnical design recommendations for the proposed development scheme.

1.3 This report presents the factual data obtained from the programme of fieldwork, laboratory testing and monitoring implemented by Georisk, together with an assessment of the contamination status of the near surface soils and general engineering considerations for the proposed development scheme.

2. INFORMATION SOURCES

2.1 The information sources used in the production of this report were as follows:

- site walkover to appraise current layout and conditions;
- review of British Geological Survey (BGS) maps and publications;
- review of information contained within public domain environmental databases maintained by the Local Authority and Environment Agency (EA) as presented in a Landmark Envirocheck Report dated November 2017;
- information gained with respect to the ground and groundwater conditions established in the programme of fieldwork and monitoring carried out by Georisk;
- appraisal of laboratory data resulting from chemical and geotechnical testing scheduled by Georisk;
- topographical survey of the site by Architype reference 8010 PL010 dated March 2015;
- proposed development layout by Architype reference 8010 PL050 dated March 2015.

3. REFERENCE SOURCES

3.1 This report has been prepared with regard to the following sources of reference and guidance, supplemented with experience of similar sites:

- *Investigation of Potentially Contaminated Sites – Code of Practice. British Standards Institute BS10175 (2011);*
- *Code of Practice for Site Investigations. BS5930 (2015);*
- *Suitable 4 Use Levels. LQM/CIEH (2015);*
- *Human health toxicological assessment of contaminants in soil. Science Report SC050021/SR2 EA (2009);*
- *Updated technical background to the CLEA Model. Science Report SC050021/SR3 EA (2009);*
- *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document. SP1010 DEFRA/CL:AIRE (2014);*
- *Model Procedures for the Management of Land Contamination. CLR11, DEFRA and EA (2004);*
- *Guidance on Comparing Soil Contamination Data with a Critical Concentration. CIEH and CL:AIRE (2008);*
- *Guidance for the Safe Development of Housing on Land Affected by Contamination. R & D Publication 66, NHBC, Environment Agency and CIEH (2008);*
- *Concrete in Aggressive Ground. BRE Special Digest 1: Part 1 Assessing the aggressive chemical environment. Building Research Establishment (2005);*
- *Radon: guidance on protective measures for new dwellings. BRE Report BR211 (2007);*
- *Code of practice for the characterization and remediation from ground gas in affected developments. BS8485 (2015);*
- *Guidance on Evaluation of Development Proposals on sites where Methane and Carbon Dioxide are Present. NHBC Report Edition No. 4 (2007);*
- *Assessing Risks Posed by Hazardous Ground Gases to Buildings. CIRIA Report C669 (2006);*
- *Passive venting of soil gases beneath buildings. DETR/ARUP Environmental PIT Research Report (1997);*
- *Protective measures for housing on gas-contaminated land. BRE/EA Report BR414 (2001);*
- *Site preparation and resistance to moisture. The Building Regulations 2000 Approved Document C (2004 edition)*
- *Specification for topsoil requirements for use (BS 3882:2015);*
- *Soakaway Design. BRE Digest 365 (2016);*
- *NHBC Standards (2017).*

4. THE SITE

4.1 The site is situated to the east of the village of Marden, Herefordshire and can be located approximately by National Grid Reference 352690, 247620. The current site layout is shown on Drawing No. 17331/1 in Appendix A and on the photograph overleaf.

4.2 It is a roughly rectangular shaped plot orientated south-west to north-east and covers an area of approximately 5.2 hectares. Much of the site comprises an agricultural field which had been sown for wheat at the time of this investigation with the south-eastern part comprising an arable field. The entire site is bordered by hedgerows and mature trees form the eastern boundary.

4.3 A drainage ditch forms the boundary between the two fields which then flows along the southern site boundary. A large depression (mapped as a pond), approximately 2 m in depth, is present immediately beyond the southern site boundary. These features were noted to be dry at the time of the site walkover.

4.4 Site levels fall from approximately 68 m AOD in the north-east to approximately 63 m AOD in the south-west. A topographic survey of the site is included on Drawing No. 17331/1 in Appendix A.

4.5 The site is bound by Marden Primary School to the west, an unnamed road with residential development beyond forming the northern boundary and agricultural land associated with New House Farm to the south and east.

View of the site looking west

5. SITE HISTORY

5.1 The history of the site and the surrounding area has been assessed by reviewing available historical County Series and Ordnance Survey maps. The maps studied are included in Appendix B of this report and a summary is presented in Table 1.

Year	Site	Surrounding Area
1887	The site comprises two areas of undeveloped agricultural land with a drainage ditch forming the boundary between the two areas.	The surrounding area comprises predominantly undeveloped agricultural land and orchards. A pond is mapped immediately beyond the southern site boundary with two more mapped within 150 m of the site. New House Farm is situated to the south-east together with associated ponds. Several houses together with pumps and wells are mapped to the north-east and north-west. Drainage ditches are mapped to form field boundaries to the south-west.
1904	Orchards are mapped in the east and central western areas of the site.	A 'tank' is mapped approximately 75 m to the south-east. A 'Mission Room' has been constructed approximately 10 m to the north.
1952	The orchards are no longer mapped in the central western site area.	No significant changes are mapped.
1964	No significant changes are mapped.	No significant changes are mapped.

Year	Site	Surrounding Area
1972	The orchard in the east is no longer mapped. A watercourse is mapped on the southern boundary flowing in a westerly direction.	The pond beyond the southern boundary is now shown as marshy ground. The tank to the south-east is no longer mapped. Residential developments are now mapped to the north and north-west. A number of buildings have been constructed associated with New House Farm.
1975	No significant changes are mapped.	No significant changes are mapped.
1985	No significant changes are mapped.	Further residential development has taken place to the north of the site. A 'Sports Ground' and associated facilities are mapped 50 m west. The configuration of buildings at New House Farm has changed.
1990	No significant changes are mapped.	Residential development has continued to the north.
1995	Marshy ground is mapped on the southern site boundary.	Marden Primary School is mapped immediately beyond the western boundary.
2000	No significant changes are mapped.	No significant changes are mapped.
2006	No significant changes are mapped.	No significant changes are mapped.
2017	No significant changes are mapped.	No significant changes are mapped.

Table 1: Summary of Historical Land Usage

6. GEOENVIRONMENTAL SETTING

6.1 Geology and Mining

Geology

6.1.1 The geology of the site has been appraised from information published by the BGS (1:50,000 scale geological map sheet No. 198; Hereford) and the BGS Geology Viewer. The site is recorded to be underlain by Head Deposits (clay, silt, sand and gravel) in the east with River Terrace Deposits (sand and gravel) beneath the west of the site. The solid geology is recorded as the Raglan Mudstone Formation of Silurian age.

Mining

6.1.2 The '*Interactive Map Viewer*' on The Coal Authority website indicates the site lies outside a '*Coal Mining Reporting Area*' and; therefore, no further assessment is required in respect of this potential development constraint.

6.2 Hydrology

6.2.1 Surface watercourses are mapped along the boundary between the two fields and the southern site boundary and flow in a westerly direction. A pond is mapped immediately beyond the southern site boundary – these features were all noted to be dry during the site walkover.

6.2.2 The EA has records of 6 No. licensed discharge consents to controlled waters within 250 m of the site. The nearest consent is approximately 40 m to the north-east operated by CD Developments and involves discharging final/treated sewage effluent into a tributary of the River Lugg.

6.2.3 Based on current information provided by the EA, the site is not in an area likely to be affected by river or surface water flooding. A flood risk assessment was beyond the scope of this report.

6.3 Hydrogeology

6.3.1 The Head Deposits are classified as a '*Secondary – Undifferentiated*' aquifer, which are '*assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.*

6.3.2 The River Terrace Deposits and Raglan Mudstone Formation are classified as '*Secondary A*' aquifers, which are defined 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*'.

6.3.3 The EA has records of 4 No. licensed groundwater abstractions from wells within 250 m of the site; the nearest is located approximately 40 m to the south-east (general farming and domestic), operated by O H Price and Son at New House Farm.

6.3.4 The site is not by the EA within a groundwater Source Protection Zone.

6.4 Waste Management

6.4.1 The EA/LA have no records of any active or historical landfills within 500 m of the site.

6.4.2 Within the Envirocheck report, an area of infilled ground (water) is identified approximately 140 m north-east of the site, which is dated 1964. No further details are provided; however, it appears to be coincident with a small pond shown on the historical maps.

6.5 Pollution

6.5.1 The EA has no records of any significant or major pollution incidents to controlled waters within 500 m of the site.

6.5.2 The EA website does not identify any sites within 250 m of the study area that are potential pollution hazards or potential sources of industrial pollution and regulated under the EC Integrated Pollution Prevention and Control Directive (IPPC).

6.6 Radon

6.6.1 Information provided by the BGS and contained in the Envirocheck Report indicates that radon protection measures are not required for a new housing development at the site.

6.7 Supporting Information

6.7.1 The supporting Envirocheck Report data is presented in full as Appendix H.

7. INITIAL CONCEPTUAL SITE MODEL AND INVESTIGATION STRATEGY

7.1 Environmental Setting

7.1.1 Based on the findings of the Phase I Desk Study presented in Sections 4 to 6 of this report, the environmental setting of the site can be summarised as follows:

- the site is situated in the east of the village of Marden, Herefordshire and can be located approximately by National Grid Reference 352690, 247620;
- it is a roughly rectangular shaped plot covering an area of approximately 5.2 hectares. Much of the site comprises an agricultural field which had been sown for wheat at the time of this investigation with the south-eastern part comprising an arable field. The entire site is bordered by hedgerows and mature trees form the eastern boundary;
- a drainage ditch forms the boundary between the two fields which then flows along the southern site boundary. A large depression (mapped as a pond), approximately 2 m in depth, is present immediately beyond the southern site boundary. These features were noted to be dry at the time of the site walkover;
- site levels fall from approximately 68 m AOD in the north-east to approximately 63 m AOD in the south-west;
- the site is bound by Marden Primary School to the west, an unnamed road with residential development beyond forming the northern boundary and agricultural land associated with New House Farm to the south and east;
- historical maps indicate the site has remained undeveloped since the earliest available published map of 1887;
- the geology beneath the site is anticipated to comprise Head Deposits and River Terrace Deposits overlying the Raglan Mudstone Formation of Silurian age;
- the Coal Authority report that the site is not in an area affected by past coal mining;
- surface watercourses are mapped along the boundary between the two fields and the southern site boundary and flow in a westerly direction. A pond is mapped immediately beyond the southern site boundary – these features were all noted to be dry during the site walkover;
- the EA has records of 6 No. licensed discharge consents to controlled waters within 250 m of the site. The nearest consent is approximately 40 m to the north-east operated by CD Developments and involves discharging final/treated sewage effluent into a tributary of the River Lugg;
- based on current information provided by the EA, the site is not in an area likely to be affected by river or surface water flooding. A flood risk assessment was beyond the scope of this report;
- the Head Deposits are classified as a '*Secondary – Undifferentiated*' aquifer and the River Terrace Deposits and Raglan Mudstone Formation as '*Secondary A*' aquifers;
- the EA has records of 4 No. licensed groundwater abstractions from wells within 250 m of the site; the nearest is located approximately 40 m to the south-east (general farming and domestic), operated by O H Price and Son at New House Farm;
- the site is not mapped by the EA within a groundwater Source Protection Zone;
- the EA has no records of any historical or active licensed landfills within 250 m of the site;
- the Envirocheck report identifies an area of infilled ground (water) located approximately 140 m north-east of the site, which is dated 1964 - no further details are provided. This appears to be coincident with a small pond shown on the historical maps;
- radon protection measures are not required for a development at the site.

7.2 Initial Conceptual Model and Preliminary Risk Assessment

General

7.2.1 The initial conceptual model and preliminary risk assessment are based on information derived from the desk study to provide a qualitative assessment of risk posed to human health and environmental receptors from potential on and off-site sources of contamination as defined within Part IIA of the Environmental Protection Act (1990). For a significant risk to exist, it must be established that contamination has the potential to cause harm to susceptible targets. This is known as "*pollutant linkage*" and requires three criteria to be identified at a significant level:

- the presence of substances that may cause harm (SOURCE);
- the presence of a receptor which may be harmed (TARGET);
- the existence of a plausible pollutant linkage between the source and the target (PATHWAY).

7.2.2 EA R&D66 (2008) includes a risk classification system based on classification of consequence and probability. Table 2 shows a risk matrix, in which the likelihood or probability of each pollutant linkage being realised is ranked against the severity of the consequences. The result is the risk classification, based upon which risk management actions can be implemented. The individual sources, pathways and receptors identified are assessed against this risk matrix; potential pollutant linkages and associated risks are recorded.

		Severity of Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability of pollutant linkage	**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

Table 2: Risk Matrix

7.2.3 Definitions of risk terminology are as follows.

7.2.4 **Very high risk:** there is a probability that severe harm could arise to a designated receptor from an identified source, or there is evidence that severe harm to a designated receptor is currently occurring.

7.2.5 **High risk:** harm is likely to arise to a designated receptor from an identified source.

7.2.6 **Moderate risk:** it is possible that harm could arise to a designated receptor from an identified source. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.

7.2.7 **Low risk:** it is possible that harm could arise to a designated receptor from an identified source, but it is likely that this harm, if realised, would at worst normally be mild.

7.2.8 **Very low risk:** there is a low possibility that harm could arise to the receptor. In the event of such harm being realised it is not likely to be severe.

7.2.9 Professional judgement and experience has been used to estimate the combination of probability and consequence of the harm posed by the pollutant linkages identified. This allows the risk to be evaluated on a qualitative basis. The risk category is used to prioritise /target the site investigation. Using this matrix and the available screening limits it has been possible to carry out a semi-quantitative risk assessment for the sources, pathways and receptors which have been identified at the site.

7.2.10 The initial conceptual model also illustrates the contaminants of concern identified from the contamination assessment, and demonstrates the potential pathways and receptors which are considered likely to exist at the site.

7.2.11 Risk is based on a consideration of both:

- the likelihood of an event (probability); and
- the severity of the potential consequences.

7.2.12 A pollutant linkage must be established before tests for probability and consequence are applied. If there is no pollutant linkage then there is no potential risk and there is no need to apply tests for probability and consequence. The risk assessment needs to include a logical and transparent system to define categories of severity of consequence and probability of occurrence. The initial conceptual model and preliminary risk assessment are discussed below.

Proposed Development

7.2.13 The proposed development is to comprise housing with private gardens together with hard-surfaced areas for parking and access roads as shown on the drawing entitled '*Proposed Site Layout*' reference 8010 PL050 dated March 2015 by Architype.

Potential On-Site Sources of Contamination

7.2.14 Based on information derived from the Phase I Desk Study, no potential on-site sources of significant contamination have been identified that could affect the proposed development; however, as the site is to be developed for a sensitive end use, routine soil testing and risk assessment should be carried out as part of a Phase II assessment.

Potential Off-Site Sources of Contamination

7.2.15 Based on the information derived from the Phase I Desk Study, no potential significant off-site sources of contamination have been identified that could affect the proposed development.

7.2.16 The Envirocheck report shows an area of potentially infilled ground (former pond) mapped approximately 140 m to the north-east and recorded to have been infilled by 1964. Due to the time that has passed since this feature has been infilled, it is considered highly unlikely that significant levels of soil-gas are still being generated and the level of risk to the development is very low/negligible.

Targets/Receptors

7.2.17 The following site-specific targets are considered potentially feasible:

- site workers – construction personnel involved in redevelopment works;

- long term site users – house occupants;
- plant life – garden or landscaped areas;
- building fabric and foundations;
- controlled waters – unnamed watercourse forming the southern site boundary;
- controlled waters – Secondary A aquifers (River Terrace Deposits and Raglan Mudstone Formation).

Pathways

7.2.18 The potential pathways that are considered relevant to this site are as follows:

- direct contact with and/or incidental ingestion of any contaminated soils or dusts derived from contaminated soil;
- consumption of homegrown produce;
- inhalation of dust derived from any contaminated soil;
- migration of mobile contaminants into controlled waters receptors;
- migration of hazardous soil-gases via permeable strata or via ducts/drains into confined spaces;
- direct contact between contaminated soils and building substructures.

Pollutant Linkages

7.2.19 Based on the '*source-pathway-target*' information presented above, the following potential pollutant linkages have been identified at the site:

Source	Pathway	Target	Consequence	Probability	Risk
Possible nominal contamination within-near surface soils	Dermal contact	Site user: female child 0-6 years	Minor	Unlikely	Very Low
		Site construction worker	Minor	Unlikely	Very Low
	Ingestion	Site user: female child 0-6 years	Minor	Unlikely	Very Low
		Site construction worker	Minor	Unlikely	Very Low
	Consumption of home-grown vegetables	Site user: female child 0-6 years	Minor	Unlikely	Very Low
	Ingestion of soil attached to home-grown vegetables	Site user: female child 0-6 years	Minor	Unlikely	Very Low
	Dermal contact with dust derived from contaminated soil	Site user: female child 0-6 years	Minor	Unlikely	Very Low
		Site construction worker	Minor	Unlikely	Very Low
	Ingestion of dust derived from contaminated soil	Site user: female child 0-6 years	Minor	Unlikely	Very Low
		Site construction worker	Minor	Unlikely	Very Low
	Inhalation of dust derived from contaminated soil	Site user: female child 0-6 years	Minor	Unlikely	Very Low
		Site construction worker	Minor	Unlikely	Very Low
	Migration of mobile contaminants	Controlled waters	Minor	Unlikely	Very low
	Direct contact	Buildings	Minor	Unlikely	Very low
	Direct contact	Water supply pipework	Minor	Unlikely	Very low
	Indoor inhalation of soil-gases	Site user: female child 0-6 years	Mild	Unlikely	Very low

Table 3: Pollutant Linkages

7.2.20 Based on the known previous land usage of the site and surrounding area, the identified pollutant linkages and geological setting, it is considered that the site represents a **very low** risk to controlled waters. No further assessment of risk to controlled waters is considered necessary unless significant contamination is identified at the site.

7.2.21 Based on the proposed end use of the site, the site is considered to represent a **very low** risk to human health, which should be assessed through a basic programme of chemical testing, soil-gas monitoring and risk assessment in accordance with current guidance.

Contaminants of Concern

7.2.22 The following potential contaminants are considered appropriate for a general assessment of the site:

- selected toxic and phytotoxic metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc);
- speciated polyaromatic hydrocarbons (PAH);
- pH;
- cyanide;
- phenol;
- sulphate.

7.3 Investigation Strategy

7.3.1 Based on the information presented above, Table 4 presents the strategy for the proposed ground investigation.

Exploratory Holes	Purpose
All exploratory holes: TP01 to TP17 and BH01 to BH07	To determine prevalent ground and groundwater conditions across site, including: • nature and extent of any Made Ground; • nature and extent of any soil contamination; • suitability of the ground for foundations and pavement design.
All boreholes: BH01 to BH07	Undertake in situ Standard Penetration Tests (SPT) to determine a geotechnical strength profile.
Selected boreholes BH01, BH04 and BH07	Construction of groundwater and soil-gas monitoring installations to facilitate assessment of risk posed by any hazardous soil-gases and establish standing water levels.
Selected trial pits TP09 and TP10	Infiltration testing in general accordance with BRE:365 (2016).

Table 4: Investigation Strategy

8. FIELDWORK, MONITORING AND LABORATORY TESTING

8.1 Fieldwork

8.1.1 The fieldwork was carried out on 23 and 24 November 2017 and comprised the following elements:

- 7 No. dynamic percussive sampling boreholes, designated BH01 to BH07, formed to a maximum depth of 2.0 m below existing ground level (begl);
- in situ Standard Penetration Tests (SPT) in BH01 to BH07;
- construction of 3 No. 50 mm diameter combined soil-gas and groundwater monitoring wells in BH01, BH04 and BH07;
- 17 No. trial pits, designated TP01 to TP17, machine excavated to a maximum depth of 4.0 m begl;

- infiltration testing in general accordance with BRE:365 (2016) in TP09 and TP10.

8.1.2 The fieldwork was supervised by Georisk. All soil description and sample logging was carried out in accordance with BS 5930 (2015) and the exploratory hole records are presented in Appendix C.

8.1.3 The positions of the exploratory holes were set out by Georisk and the approximate locations are shown on the Exploratory Hole Location Plan included as Drawing No. 17331/1 in Appendix A.

8.1.4 Small disturbed samples were recovered from the exploratory holes as necessary to facilitate sample description and for subsequent laboratory testing.

8.1.5 Observations of groundwater encountered during the fieldwork are included on the relevant exploratory hole records include in Appendix C.

8.1.6 Infiltration testing was attempted in TP09 and TP10 in general accordance with BRE:365 (2016) and the test results are included in Appendix D and discussed in Section 12.

8.2 Soil-Gas and Groundwater Monitoring

8.2.1 Combined soil-gas and groundwater monitoring installations were constructed in BH01, BH04 and BH07 as shown on the borehole records included in Appendix C. Monitoring has been carried out on three occasions between 1 December 2017 and 3 January 2018 and the following measurements were taken in sequence:

- atmospheric pressure (mb);
- relative pressure (mb);
- flow monitoring (l/hr);
- measurement of CO_2, CH_4 and O_2 gas concentrations (% by volume; % v/v);
- groundwater level (metres below existing ground level; m begl).

8.2.2 The results of the soil-gas and groundwater monitoring are presented in Appendix E.

8.3 Chemical Testing

8.3.1 A programme of chemical testing was scheduled by Georisk on selected soil samples retrieved from the exploratory holes. The testing was carried out at an independent UKAS accredited laboratory for the contaminants of concern as indicated in Section 7. The chemical test results are presented in Appendix F.

8.4 Geotechnical Testing

8.4.1 Routine geotechnical testing comprising Atterberg Limits has been carried out on selected samples. The testing was carried out in accordance with BS1377 (1990) at an independent UKAS accredited laboratory and the results are presented in Appendix G.

9. GROUND AND GROUNDWATER CONDITIONS

9.1 General

9.1.1 Full details of the ground conditions encountered by Georisk are presented on the exploratory hole records included in Appendix C; however, a summary is presented below.

9.2 Topsoil

9.2.1 Topsoil was encountered across the site to depths of between 0.15 and 0.7 m begl. It typically consisted of brown locally slightly silty, slightly gravelly sand and clay with the gravel content being quartzite and sandstone. Plastic sacks were encountered locally in the topsoil in TP12.

9.3 River Terrace Deposits

9.3.1 River Terrace Deposits were encountered beneath the topsoil to penetrated depths of between 1.0 and 4.0 m begl (maximum penetrated depth), with boreholes typically refusing in very dense granular strata.

9.3.2 These deposits were predominantly granular ranging between medium dense to very dense locally clayey/silty sand and gravel (gravel content generally increasing with depth) with localised pockets of firm sandy to very sandy silt/clay and firm sandy gravelly clay.

9.3.3 Clay materials were found to be more extensive in TP07 (below 0.3 m begl), TP11 (below 1.8 m begl) and TP14 (below 2.3 m begl). Soft clay was encountered in TP05 (0.3 to 1.2 m begl) and in TP16 (0.4 to 1.5 m begl).

9.3.4 The results of 13 No. Standard Penetration Tests (SPT) carried out in the River Terrace Deposits at depths of 1.0 and 2.0 m begl returned 'N' values between 17 and 61, which are summarised in Table 5.

Depth (m begl)	Minimum SPT 'N' value	Maximum SPT 'N' value	Material Description
1.0	17	61	Medium dense to very dense SAND/GRAVEL
2.0	45	60	Dense to very dense SAND/GRAVEL

Table 5: Summary of SPT Results in the River Terrace Deposits

9.3.5 Two samples of clay River Terrace Deposits were scheduled for Atterberg Limit determinations and natural moisture content tests. The test results are presented on a Plasticity Chart included as Drawing 17331/2 in Appendix A and summarised in Table 6.

Test	Minimum (%)	Maximum (%)
Liquid Limit	25	31
Plastic Limit	19	20
Plasticity Index	6	11
Modified Plasticity Index	6	9
Moisture Content	11	15
Plasticity	Low	-
Volume Change Potential	Non-shrinkable	-

Table 6: Summary of Atterberg Limit Test Results on River Terrace Deposits

9.4 Evidence of Contamination

9.4.1 No visual or olfactory evidence of potential significant contamination was recorded during the fieldwork.

9.5 Trench Stability

9.5.1 Instability of trial pit excavations was observed at the following locations:

- TP02: below 2.0 m begl;
- TP03: below 1.7 m begl;
- TP04: below 1.7 m begl;
- TP06: below 1.4 m begl;
- TP11: below 1.6 m begl;
- TP15: below 2.0 m begl.

9.6 Groundwater

9.6.1 During the fieldwork, groundwater was encountered in the River Terrace Deposits at the following locations:

- TP01: 3.8 m begl;
- TP02: 2.4 m begl;
- TP03: 1.8 m begl;
- TP06: 2.2 m begl;
- TP08: 2.6 m begl;
- TP10: 2.0 m begl;
- TP11: 1.7 m begl;
- TP14: 2.2 m begl;
- TP15: 2.0 m begl;
- TP16: 2.4 m begl.

9.6.2 Groundwater monitoring standpipes were installed in BH01, BH04 and BH07 and have been monitored on three occasions between 1 December 2017 and 3 January 2018.

9.6.3 The results of the groundwater monitoring are included as Appendix E and show that the boreholes remained dry throughout the monitoring period until the final monitoring visit when groundwater levels were measured between 0.3 and 1.9 m begl. This final monitoring visit followed a period of heavy rainfall with waterlogged ground conditions observed and; therefore, these results are considered to reflect surface inundation rather than be representative of true groundwater levels.

9.7 Soil-Gas

9.7.1 The results of the soil-gas monitoring are presented in Appendix E and discussed in Section 11 of this report.

9.8 Development of Conceptual Model

9.8.1 Based on the ground and groundwater conditions revealed by the geoenvironmental investigation carried out and detailed above, the initial conceptual model described in Section 7 is considered to be representative of the actual site conditions in relation to the proposed development.

10. HUMAN HEALTH RISK ASSESSMENT

10.1 General

10.1.1 The UK approach to the assessment of contaminated land is based upon the principles of risk assessment, which is founded on the use of "*source-pathway-target"* principles in order to establish the potential presence of "*pollutant linkage*". The main legislative driver for dealing with historical land affected by contamination is Part 2A of the Environmental Protection Act 1990. Under Part 2A, land is considered to be contaminated if it is determined that there is a '*Significant Possibility of Significant Harm*' (SPOSH) to human health.

10.1.2 Georisk adopts a tiered approach to risk assessment in accordance with current UK guidance and good practice. The initial step of this process, known as Tier 1, is the comparison of site-derived data with relevant guideline levels.

10.1.3 Should the adopted criteria be exceeded then two courses of action are available. The first is to break the pollutant linkage by undertaking remedial works such as removing or treating the contaminated soil. Alternatively, a more detailed risk assessment can be carried out to determine whether a contamination risk actually exists.

10.1.4 The UK approach to the assessment of human health risk from contaminated land is set out in the CLEA (Contaminated Land Exposure Assessment) framework, which was first published in 2002 by the Department for Environment, Food and Rural Affairs (DEFRA) and the EA. The original guidance was withdrawn and revised guidance issued in 2009, which is set out in the following documents published by the EA:

- *Human health toxicological assessment of contaminants in soil*. Science Report SC050021/SR2;
- *Updated technical background to the CLEA Model*. Science Report SC050021/SR3.

10.1.5 The CLEA model uses generic assumptions about the fate and transport of chemicals in the environment and a generic conceptual model for site conditions together with human behaviour to estimate long term human exposure to soil contaminants.

10.1.6 Soil Guideline Values (SGV) were derived using the CLEA Model by comparing estimated exposure with 'Health Criteria Values' (HCV) that represent a tolerable risk to health from chronic exposure. SGVs are scientifically based 'generic assessment criteria' that can be used to simplify the assessment of risk to human health from chronic exposure to contaminants in soil. SGVs are a screening tool for the 'generic quantitative risk assessment' of land contamination.

10.1.7 Since revised SGVs were developed in 2009, revised Part 2A statutory guidance was then published in 2012. The revised Part 2A statutory guidance introduces a four category system for classifying land under Part 2A for cases of SPOSH to human health. Category 4 applies to land where the level of risk posed is acceptably low. DEFRA appointed CL:AIRE to develop '*Category 4 Screening Levels*' (C4SL), which would provide a simple test for deciding when land is suitable for use and definitely not contaminated. In March 2014, C4SLs were published for a limited number of contaminants.

10.1.8 Further to this, Suitable for Use Levels (S4UL) published by the Chartered Institute of Environmental Health (CIEH) and Land Quality Management (LQM) were issued in January 2015. These provide a comprehensive update of previous GAC published by CIEH. The S4UL are derived from the CLEA software produced by the EA and are based upon the concept of either 'tolerable' risk (where the relevant health criteria value is a tolerable daily intake), or 'minimal' risk (where the health criteria is an index dose).

10.1.9 The following hierarchy has been adopted by Georisk for determining which assessment criteria to be followed:

- Suitable 4 Use Levels (S4UL) developed by LQM/CIEH (2015);
- Category 4 Screening Levels (C4SL);
- Soil Screening Values (SSV) developed by Atkins AtRisk.

10.2 Human Health Risk Assessment Design

Proposed Development

10.2.1 The proposed development is to comprise housing with private gardens together with hard-surfaced areas for parking and access roads as shown on the drawing entitled '*Proposed Site Layout*' reference 8010 PL050 dated March 2015 by Architype.

Assessment Criteria

10.2.2 The assessment criteria used for the screening of contaminants is summarised in Table 7.

Contaminant Group	Determinands	Assessment Criteria Selected
ORGANIC CONTAMINANTS		
Non-halogenated hydrocarbons	Phenol	LQM/CIEH S4UL
Polyaromatic Hydrocarbons (PAH)	USEPA 16 priority compounds	LQM/CIEH S4UL
INORGANIC CONTAMINANTS		
Metals	Lead	C4SL
	Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Selenium, Zinc	LQM/CIEH S4UL
Non-metals	Cyanide	Atkins AtRisk Soil Screening Value (SSV)

Table 7: Human Health Risk Assessment Criteria

10.2.3 It should be noted that there is no S4UL for lead and that the SGV for lead has been withdrawn. As such, the only available authoritative published criteria for lead is the DEFRA C4SL. The C4SL for lead is considerably more conservative than the former SGV and is therefore considered appropriate for use.

End Use

10.2.4 In view of the proposed development, a 'residential – with homegrown produce' end use with 1 % organic matter content conceptual model is considered appropriate.

10.2.5 Taking into account the possibility of double digging in soft landscaped areas and/or installation of garden features, it is considered that the top 1 m of soil will need to be considered within the risk assessment, as the critical receptors (i.e. occupants of the proposed housing development) are most likely to be exposed to these materials.

Statistical Analysis

10.2.6 Given the unbiased nature of the sampling, it is considered appropriate to assess contaminant levels by comparing test results directly with the relevant C4SL, S4UL or SSV rather than carrying out statistical analysis at the initial stage.

Contaminants of Concern

10.2.7 The potential contaminants of concern are detailed in Section 7 and these contaminants have subsequently been targeted for chemical analysis.

10.3 Generic Quantitative Human Health Risk Assessment

10.3.1 The results of the soil testing can be summarised in Table 8.

Contaminant of Concern	Measured Concentration (mg/kg)		Critical Concentration (C4SL/S4UL/SSV) (mg/kg)	Number of Results that Exceed C4SL/S4UL/SSV
	Min	Max		
Arsenic	6.4	9.4	37	0 (10)
Cadmium	0.22	0.31	11	0 (10)
Chromium	22	31	910	0 (10)
Copper	18	24	2400	0 (10)
Cyanide	< 0.50	-	34	0 (10)
Lead	31	38	200	0 (10)
Mercury	0.12	0.23	40	0 (10)
Nickel	28	32	130	0 (10)
Phenol	< 0.30	-	120	0 (10)
Selenium	< 0.20	-	250	0 (10)
Zinc	58	76	3700	0 (10)
PAH Compounds				
Acenaphthene	< 0.10	-	210	0 (10)
Acenaphthylene	< 0.10	-	170	0 (10)
Anthracene	< 0.10	-	2400	0 (10)
Benzo(a)anthracene	< 0.10	-	7.2	0 (10)
Benzo(a)pyrene	< 0.10	-	2.2	0 (10)
Benzo(b)fluoranthene	< 0.10	-	2.6	0 (10)
Benzo(ghi)perylene	< 0.10	-	320	0 (10)
Benzo(k)fluoranthene	< 0.10	-	77	0 (10)
Chrysene	< 0.10	-	15	0 (10)
Dibenz(ah)anthracene	< 0.10	-	0.24	0 (10)
Fluoranthene	< 0.10	-	280	0 (10)
Fluorene	< 0.10	-	170	0 (10)
Indeno(123-cd)pyrene	< 0.10	-	27	0 (10)
Naphthalene	< 0.10	-	2.3	0 (10)
Phenanthrene	< 0.10	-	95	0 (10)
Pyrene	< 0.10	-	620	0 (10)

Table 8: Summary of Chemical Test Results

10.3.2 All test results for the contaminants of concern are below the relevant assessment criteria.

10.3.3 Concentrations of phytotoxic metals are below levels considered to pose a risk to new planting (refer to BS 3882:2015).

10.3.4 Based on the findings of the investigation carried out, no significant risks exist to future site users and no specific remedial action will be required. Site-won topsoil should be retained in all gardens and areas of soft landscaping to provide a clean growing medium.

10.3.5 Should any areas of previously unidentified potentially contaminated soil be encountered following demolition or during site construction works, we would recommend consultation with Georisk to ensure that our recommendations continue to apply. Any potentially contaminated soils should be left in situ pending further assessment.

10.3.6 During the redevelopment of the site, construction workers are likely to be in direct contact with the near-surface soils and appropriate Health and Safety measures will need to be implemented based on the findings of this investigation.

10.3.7 Neighbouring site users may be potentially exposed to residual contamination through generation of dust through site redevelopment activities. This is an acute exposure risk and is manageable by implementing an appropriate construction management plan; for example, dust suppression removes the potential pollutant linkage.

10.3.8 It is recommended that a copy of this report is supplied to utility companies and that their recommendations relating to appropriate supply pipes are adhered to.

10.3.9 This report should be submitted to NHBC and the Local Authority for approval prior to finalising development levels and before any construction work starts on site.

11. SOIL-GAS RISK ASSESSMENT

11.1 Risk Assessment Protocol

11.1.1 Current best practice for the assessment of soil-gas risk to low-rise housing developments is provided in NHBC Report Edition No. 4 entitled '*Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present*' dated March 2007 and BS8485 (2015) '*Code of practice for the characterization and remediation from ground gas in affected developments*'.

11.1.2 The NHBC has derived a series of 'Traffic Lights' to assess soil-gas risk for housing developments. It is a risk-based approach designed to allow design of gas protection for housing development by comparing measured gas emission rates to generic 'Traffic Lights'.

11.1.3 The 'Traffic Lights' include 'Typical Maximum Concentrations' provided for initial screening purposes and risk-based Gas Screening Values (GSVs) for considering situations where the 'Typical maximum Concentrations' are exceeded.

11.1.4 The 'Traffic Lights' have been related to appropriate remedial measures, which can be applied to conventional residential developments.

11.2 Monitoring Results

11.2.1 Gas monitoring installations were constructed in BH01, BH04 and BH07 and have been monitored on three occasions between 1 December 2017 and 3 January 2018. The results are presented in Appendix E and are summarised in Table 9 (in terms of maximum gas concentrations for methane and steady-state concentrations for carbon dioxide).

Well	Methane Concentrations (% v/v)	Carbon Dioxide Concentrations (% v/v)	Positive Flow Rates (l/hr)	Methane Gas Screening Value (GSV) (l/hr)	Carbon Dioxide Gas Screening Value (GSV) (l/hr)
BH01	0.0	1.1-1.5	0.1	n/a	0.0030
BH04	0.0	1.4-1.9	0.1-0.2	n/a	0.0038
BH07	0.0	1.5-2.2	0.1-0.2	n/a	0.0044

Table 9: Summary of Gas Monitoring Results

11.2.2 No methane has been recorded in the borehole installations during the monitoring programme.

11.2.3 Steady state carbon dioxide levels range from 1.1 to 2.2 % by volume (v/v).

11.2.4 A maximum positive gas flow of 0.2 l/hr was recorded.

11.2.5 Ambient atmospheric pressures ranged from 996 to 1017 mb.

11.3 Assessment and Protection Strategy Recommendations

11.3.1 For a 'Green' classification, the typical maximum concentrations for methane (1 % v/v) and carbon dioxide (5% v/v) have not been exceeded.

11.3.2 To provide a further detailed level of assessment, a Gas Screening Value (GSV) has also been determined. The GSV is calculated by multiplying the maximum borehole flow rate and the relevant gas concentrations (in terms of % v/v) and the GSV is then used to determine the level of gas protection necessary to protect future users.

11.3.3 From the monitoring results for carbon dioxide, a maximum GSV of 0.0044 l/hr has been calculated. This is significantly below the NHBC GSV of 0.78 l/hr for a 'Green' classification and in accordance with the NHBC report this is based on the maximum steady state carbon dioxide concentration and maximum flow recorded at the site.

11.3.4 The GSVs calculated from the monitoring results are indicative of a 'Green' classification and as the 'Typical Maximum Concentrations' for a 'Green' classification have not been exceeded in the boreholes, it is considered appropriate to adopt an 'Green' classification for the proposed development at the site.

11.3.5 Gas (methane and carbon dioxide) protection measures are not required for a 'Green' classification.

11.3.6 These recommendations should be agreed with the Local Authority and NHBC in advance of development works starting on site.

11.3.7 Based on current BGS information contained in the Landmark Envirocheck report, radon protection measures are not required for the proposed development.

12. ENGINEERING CONSIDERATIONS

12.1 Foundation Design

12.1.1 The proposed development comprises traditional houses as shown on the proposed layout included in Appendix A.

12.1.2 This investigation has recorded topsoil overlying River Terrace Deposits generally comprising medium dense to very dense granular soil with localised pockets/horizons of soft and firm silt/clay to a maximum penetrated depth of 4.0 m begl. Groundwater ingress was recorded in several trial pits at depths of between 1.7 and 3.8 m begl, which tended to promote instability of trial pit sides.

12.1.3 Based on the ground conditions encountered, it is considered that traditional strip/trench fill foundations should be viable for the proposed development with footings extending into competent River Terrace Deposits comprising medium dense to very dense granular soil. This investigation and subsequent laboratory testing indicates that the mass behaviour of the soils is granular/non-shrinkable and; therefore, a minimum founding depth of 0.6 m is considered appropriate providing at least 300 mm penetration into competent soil is achieved.

12.1.4 As groundwater was encountered locally below 1.7 m begl, which caused instability of trial pit excavations. Strict controls must be put in place by site management to ensure that foundation excavations are not over-deepened thereby encountering groundwater and/or leading to the collapse of trench excavations. If foundation excavations are over-deepened and groundwater is encountered, spread foundation construction will not be possible to the satisfaction of NHBC and an alternative solution will need to be adopted.

12.1.5 For 600 mm wide foundations placed at a minimum depth of 0.6 m begl with at least 300 mm penetration into competent medium dense River Terrace Deposits, an allowable bearing pressure of 150 kN/m^2 is considered appropriate with total settlements not anticipated to exceed 25 mm.

12.1.6 Should any soft/loose materials be encountered at the foundation horizon, these should be removed, foundations deepened appropriately and replaced with lean mix concrete.

12.2 Floor Slabs

12.2.1 A ground bearing slab could be utilised providing all topsoil and any subsoil was removed and, where necessary replaced with engineered granular fill or, alternatively, a suspended floor slab design could be adopted.

12.3 Road/Pavement Design

12.3.1 For preliminary design purposes, the following long-term equilibrium CBR values could be assumed for the various near surface materials present at the site:

- cohesive River Terrace Deposits: 3-4 %;
- granular River Terrace Deposits: 5 %.

12.3.2 Caution would need to be exercised to ensure that any loose areas within the formation are excavated and filled with suitably compacted granular fill. Once road alignments and levels have been finalised, in situ CBR tests should be undertaken to allow detailed design of road formations to be made.

12.4 Buried Concrete Requirements

12.4.1 For the near-surface soils, water soluble sulphate testing results (expressed as SO_4 in a 2:1 water:soil extract) were recorded as < 0.01 g/l with pH values of 6.5 to 8.4. Following the guidance given in the BRE Special Digest 1 (2005) and assuming '*mobile*' groundwater conditions for a '*natural ground*' site, the Aggressive Chemical Environment for Concrete (ACEC) classification has been determined. These indicate a Design Sulphate Class of DS-1 and an ACEC class of AC-1 apply at the site.

12.5 Excavations

12.5.1 Conventional mechanical excavation for foundations and services should be readily achievable in River Terrace Deposits.

12.5.2 Shallow excavations should remain stable in the short-term; however, instability may occur in excavations deeper than 2 m begl or excavations that are left open for extended periods of time. Support should be provided in any excavations requiring man entry.

12.5.3 Care should be taken to limit the exposure of any excavation prepared to receive concrete, which may cause deterioration and a reduction in bearing capacity. Any foundation excavations would need to be inspected by qualified personnel and any soft or loose materials that are encountered should be removed and replaced with compacted granular fill or lean mix concrete.

12.5.4 The findings of this investigation indicate that water ingress may occur in excavations below approximately 1.7 m begl (associated with sewer construction for example) and may require more sophisticated groundwater control techniques such as well-pointing.

12.6 Soakaways

12.6.1 Infiltration testing has been attempted in TP09 and TP10, in general accordance with BRE:365 2016. Where the test reached the 75 % but not the 25 % of the effective storage depth of the test, results were extrapolated as though the full depth of the test was achieved, in order to provide an indicative soil infiltration rate. In accordance with guidance in BRE:365 (2016), where it was not possible to carry out a full-depth soakage test, the soil infiltration rate calculation has been based on the time for the fall of the water level from 75 % to 25 % of the actual maximum water depth achieved in the test.

12.6.2 The results are presented in Appendix D and are summarised in Table 10.

Test Location	Test Number	Effective Depth of Test (m begl)	Material Type	Soil Infiltration Rate (ms^{-1})
TP09	1[a]	1.28 – 1.83	Slightly silty slightly gravelly SAND	6.9×10^{-6}
TP09	1[b]	1.16 – 1.49	Slightly silty slightly gravelly SAND	1.0×10^{-4}
TP09	2[a]	1.43 – 1.88	Slightly silty slightly gravelly SAND	9.6×10^{-6}
TP09	2[b]	1.36 – 1.67	Slightly silty slightly gravelly SAND	1.9×10^{-5}
TP10	1[b]	1.28 – 1.76	Sandy clayey GRAVEL	1.3×10^{-4}
TP10	2[b]	1.25 – 1.75	Sandy clayey GRAVEL	1.4×10^{-4}
TP10	3[b]	1.25 – 1.75	Sandy clayey GRAVEL	1.4×10^{-4}

[a] Test results extrapolated to calculate infiltration rate.
[b] Infiltration rate calculated based on actual maximum water depth achieved in test.

Table 10: Summary of Infiltration Test Results

12.6.3 The infiltration rates within the gravel River Terrace Deposits were recorded as $1x10^{-4}$ ms^{-1} at a depth between approximately 1.25 and 1.75 m begl.

12.6.4 The recorded infiltration rates within the sand River Terrace Deposits were variable, ranging between $1x10^{-4}$ and $1x10^{-5}$ ms^{-1} at depths of between approximately 1.2 and 1.9 m begl.

12.6.5 On the basis of these test results, it is considered that the use of a soakaway drainage system at the site is feasible within granular River Terrace Deposits subject to the variable results outlined above. It would be prudent to carry out further soakaway tests in targeted areas where soakaways are proposed to confirm design infiltration rates.

APPENDIX A
DRAWINGS

Drawing No.	Drawing Title
8010 PL050	Proposed Site Layout prepared by Architype dated March 2015
17331/1	Exploratory Hole Location Plan
17331/2	Plasticity Chart – River Terrace Deposits

Notes

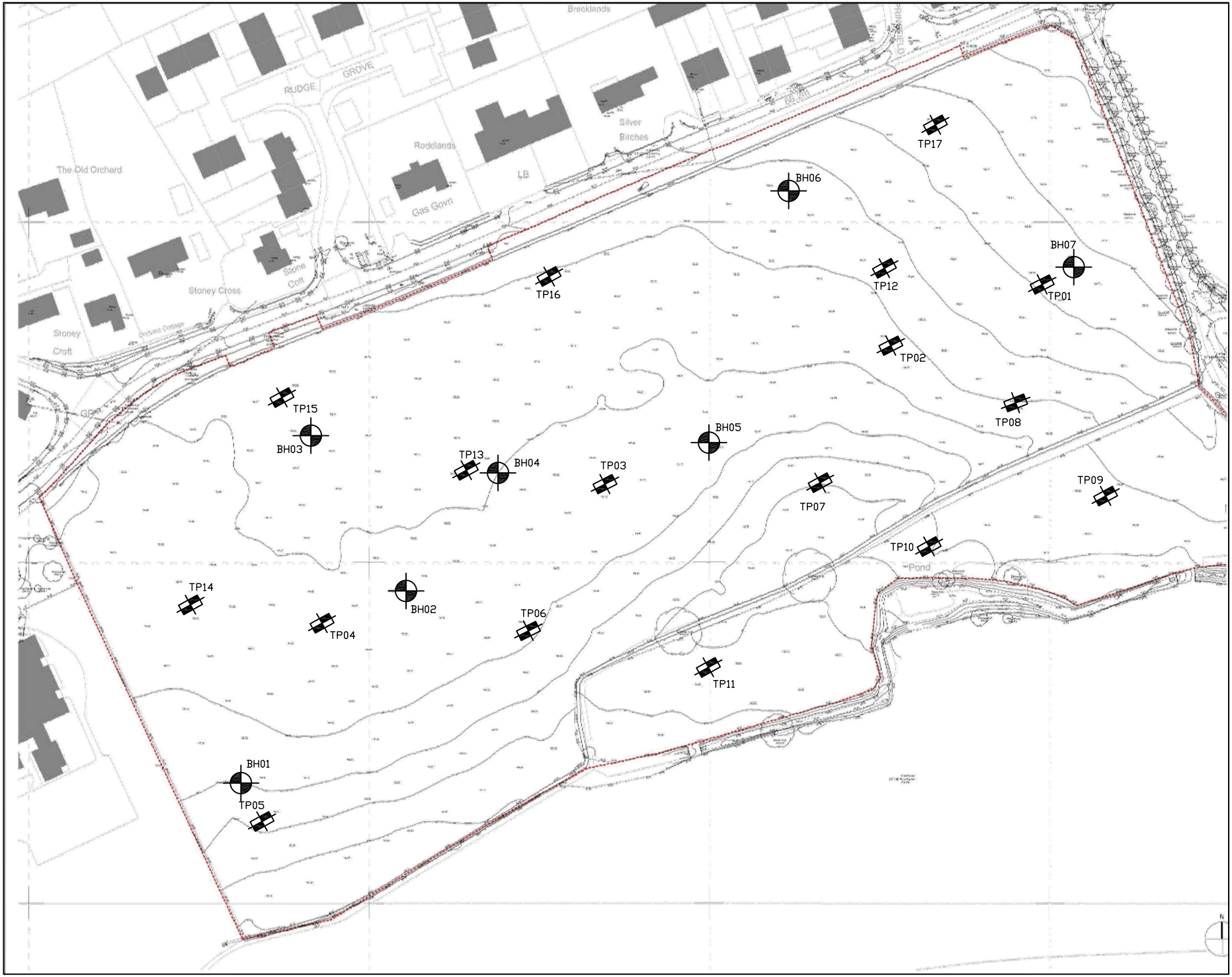
FOR PLANNING

Revisions

Rev & Date	Drawn	Checked

ARCHITYPE
Architype, Upper Twyford, Hereford, HR2 8AD
t 01981 542111 f 01981 542112 e west@architype.co.uk www.architype.co.uk

Project	Marden Housing
Client	Dudley Price Discretionary Trust
Dwg Title	Proposed Site Layout
Dwg No.	8010 PL050
Revision	
Scales	1:500 at A1
Date	23/Mar/15
Drawn by	MH
Checked by	PN



Notes

This drawing is to be read in conjunction with all development drawings, and designers risk assessments.

This drawing must not be scaled. Work to figured dimensions only.

KEY

TP01 Trial Pit Location

BH01 Borehole Location

Rev	Date	Description	Initials

Client

SIGNATURE NEW HOMES
AND THE
TRUSTEES OF THE DUDLEY PRICE
DISCRETIONARY SETTLEMENT

georisk MANAGEMENT

Summit Point, Summit Crescent, Smethwick, Birmingham B66 1BT
t. 0121 553 4044, f. 0121 553 1112
www.georisk-uk.com, email. enquiries@georisk-uk.com

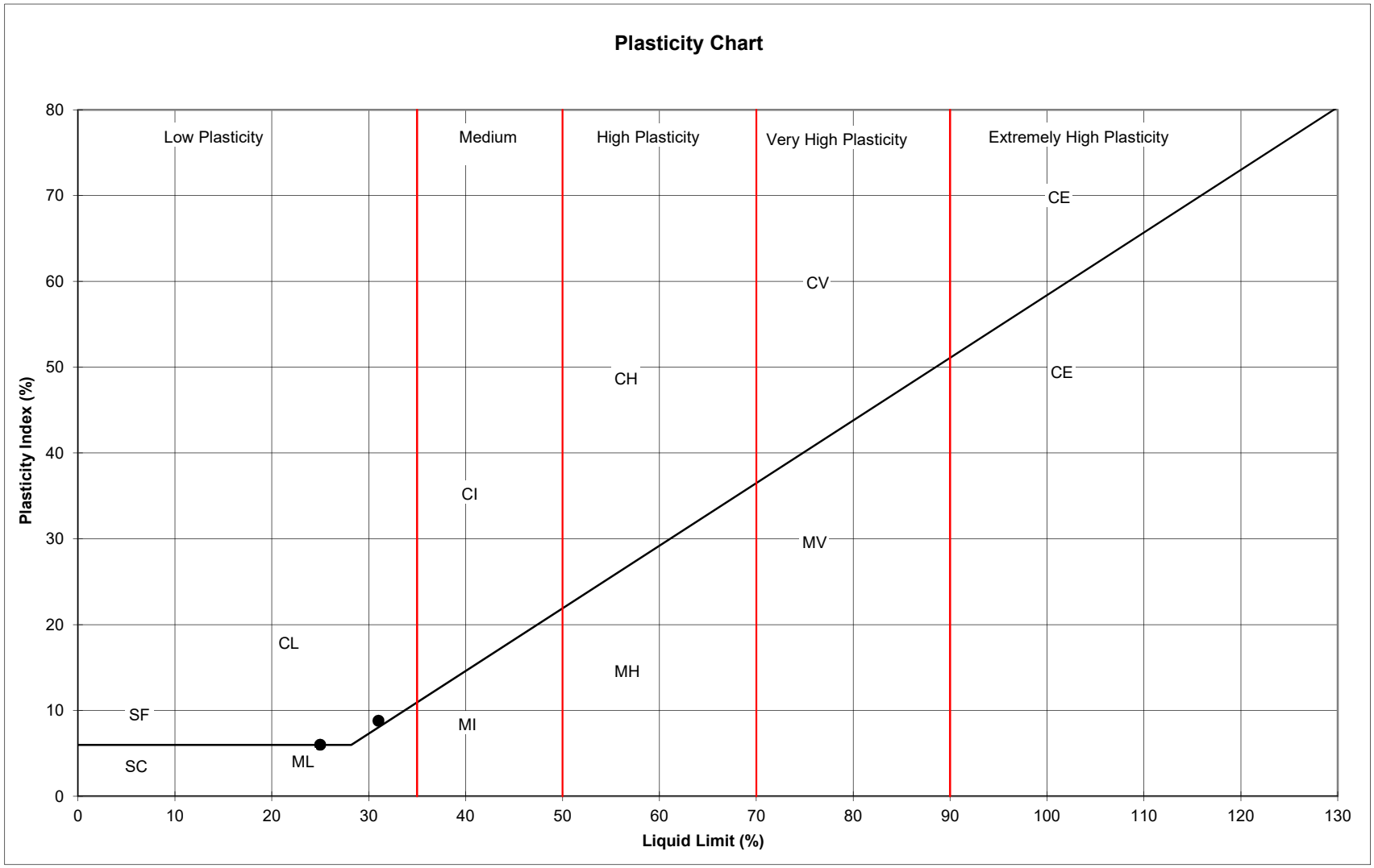
Contract

LAND AT MARDEN
HEREFORD

Drawing Title

EXPLORATORY HOLE LOCATION PLAN

Drawing Status	DRAFT		
Drawn By	MJL	Date	15/11/17
Checked/Approved	MY	Date	15/11/17
Scale	NTS	Drawing Number	17331/1

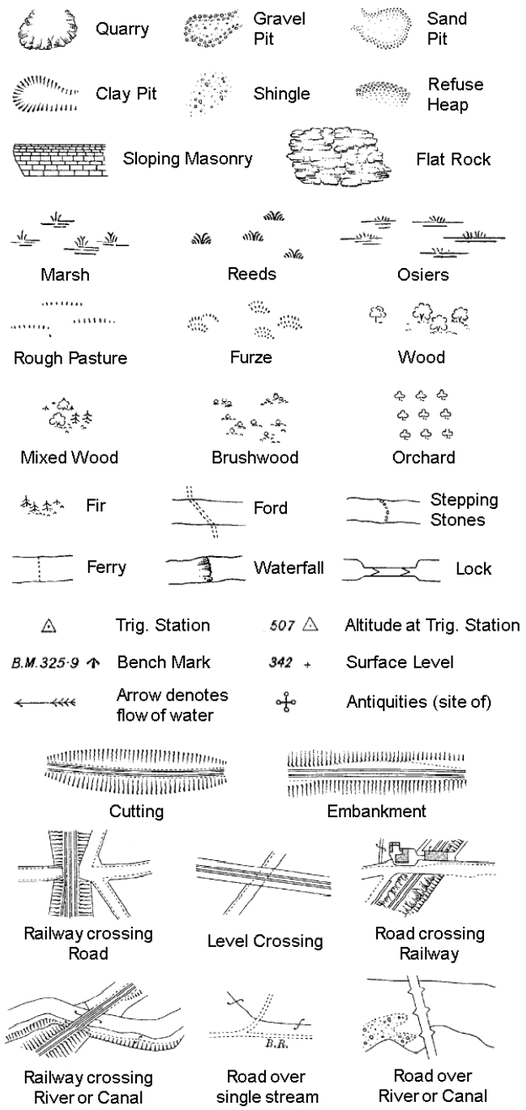


georisk MANAGEMENT	Drawing Title Plasticity Chart - River Terrace Deposits	Job Title Land at Marden, Herefordshire
	Drawing Number 17331/2	Client Signature New Homes and The Trustees of the Dudley Price Discretionary Settlement

APPENDIX B
HISTORICAL MAP EXTRACTS

Historical Mapping Legends

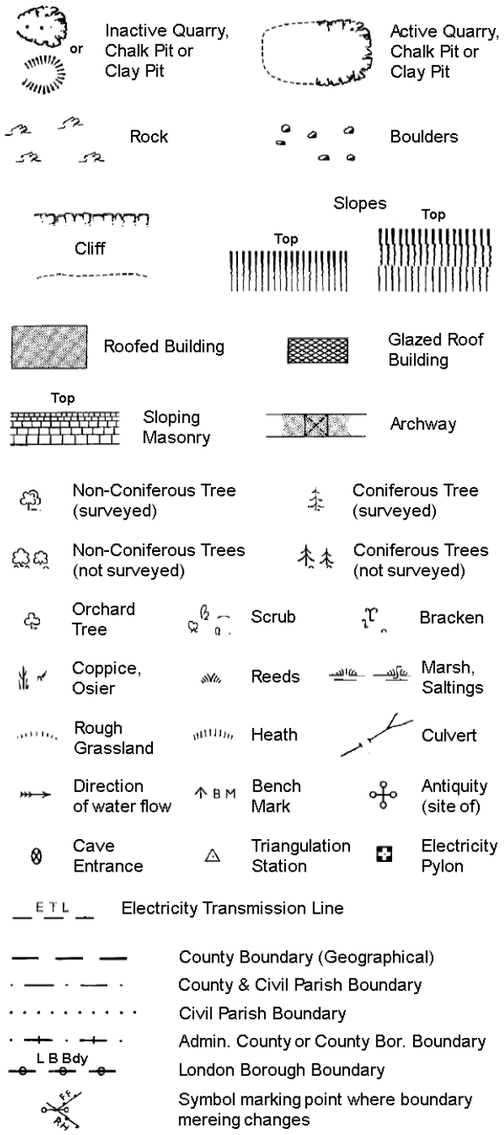
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)

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

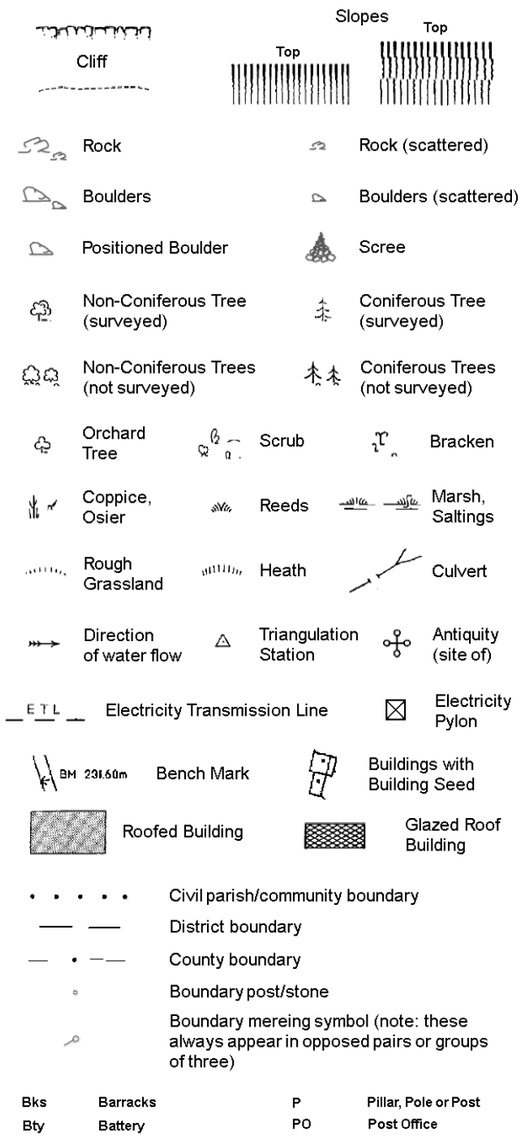
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
L B Bdy London Borough Boundary
Symbol marking point where boundary mereing changes

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

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



Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

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

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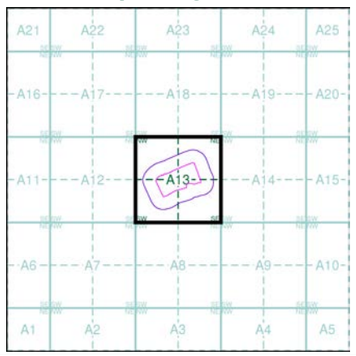
Historical Mapping & Photography included:

Historical Map - Segment A13



Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	100

Site Details

Marden, HEREFORD, HR1 3EH

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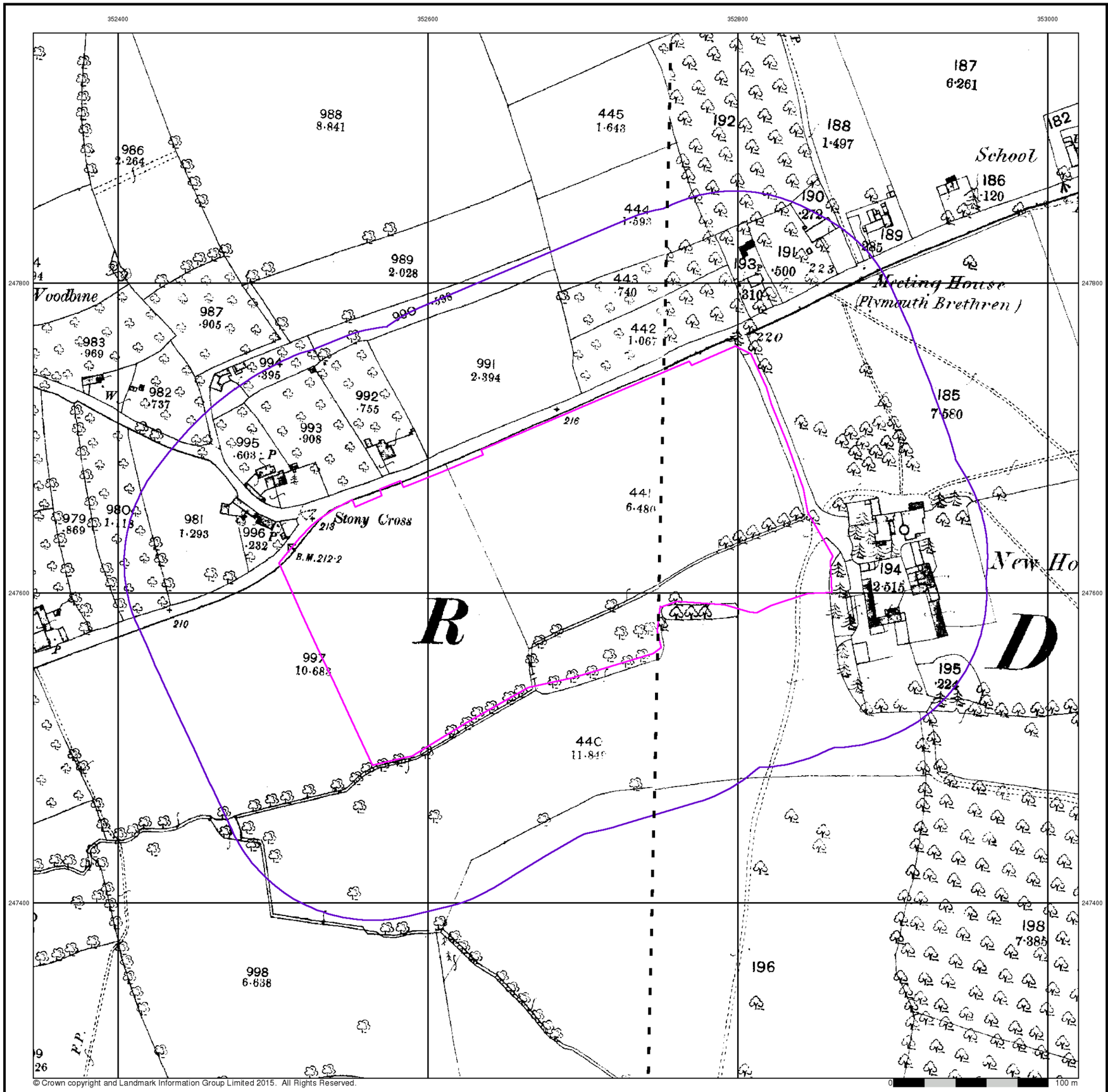
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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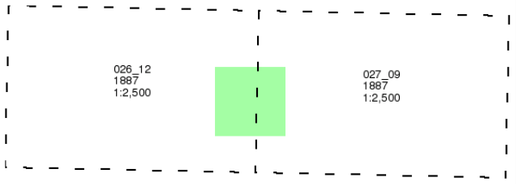
Herefordshire

Published 1887

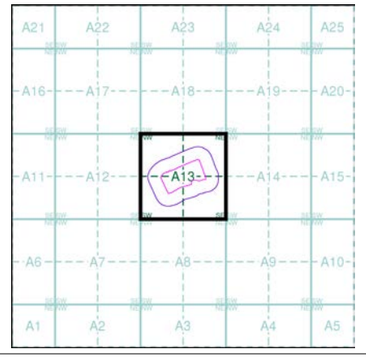
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



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Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	100

Site Details

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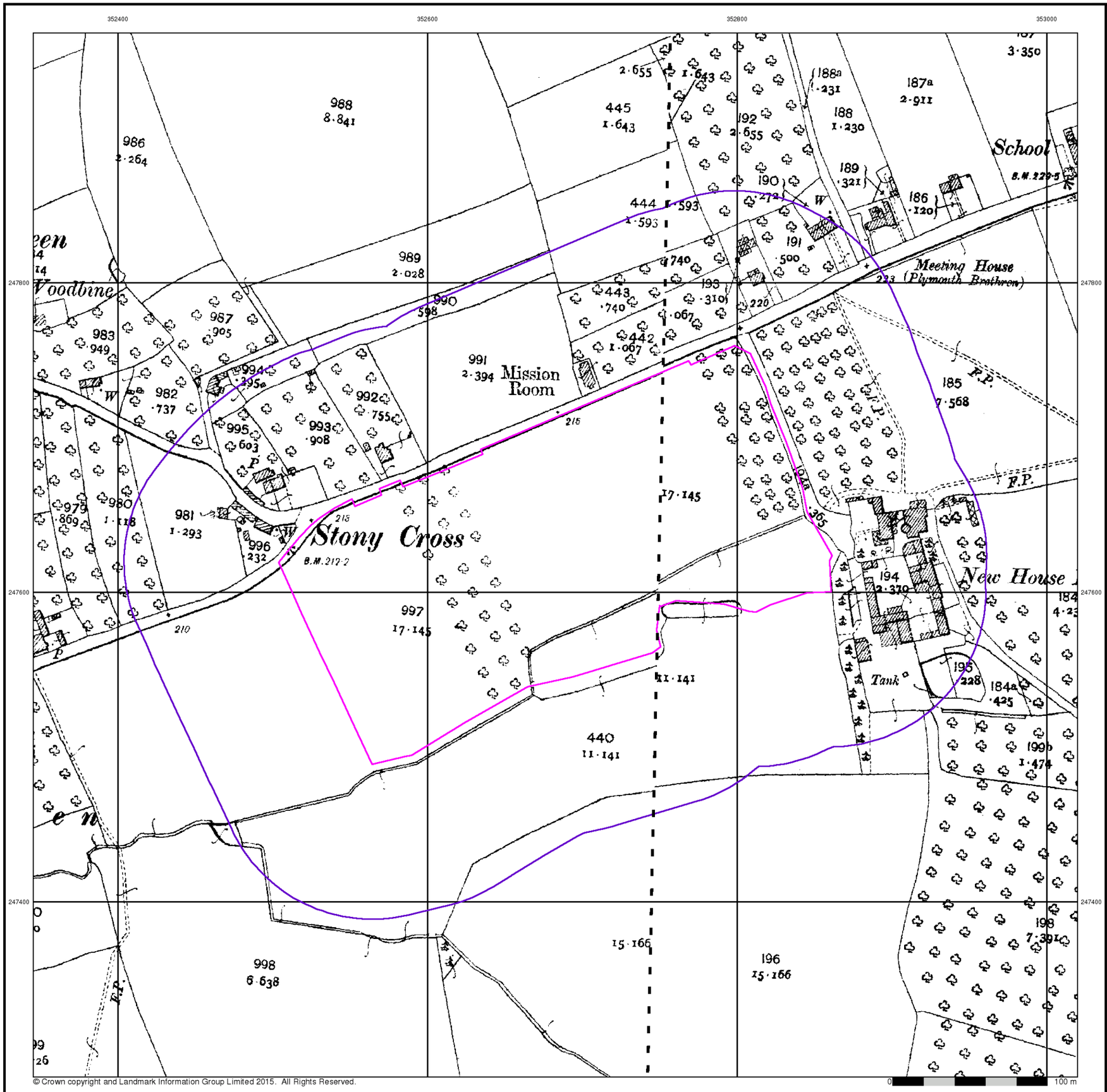

0 100 m

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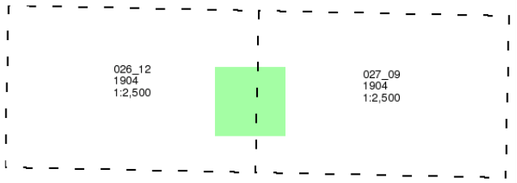
Herefordshire

Published 1904

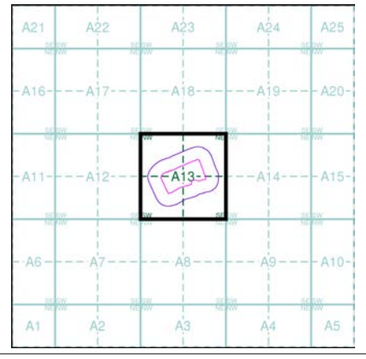
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



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Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	100

Site Details

Marden, HEREFORD, HR1 3EH

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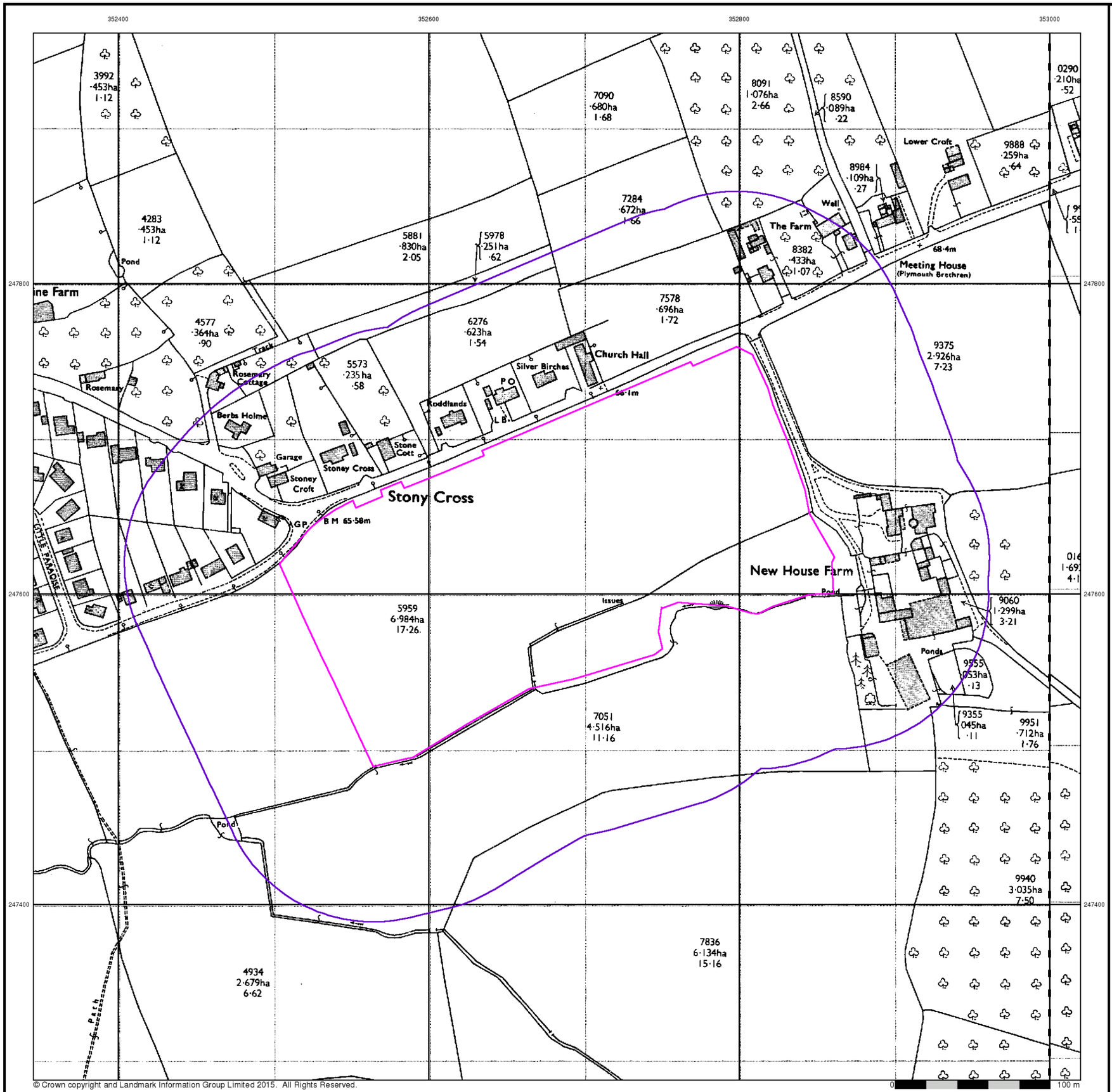

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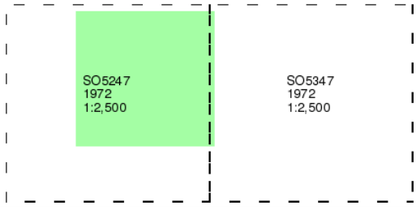
Ordnance Survey Plan

Published 1972

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



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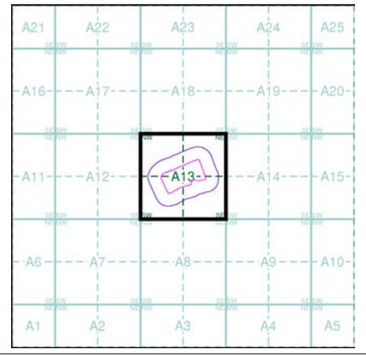

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Site Details

Marden, HEREFORD, HR1 3EH

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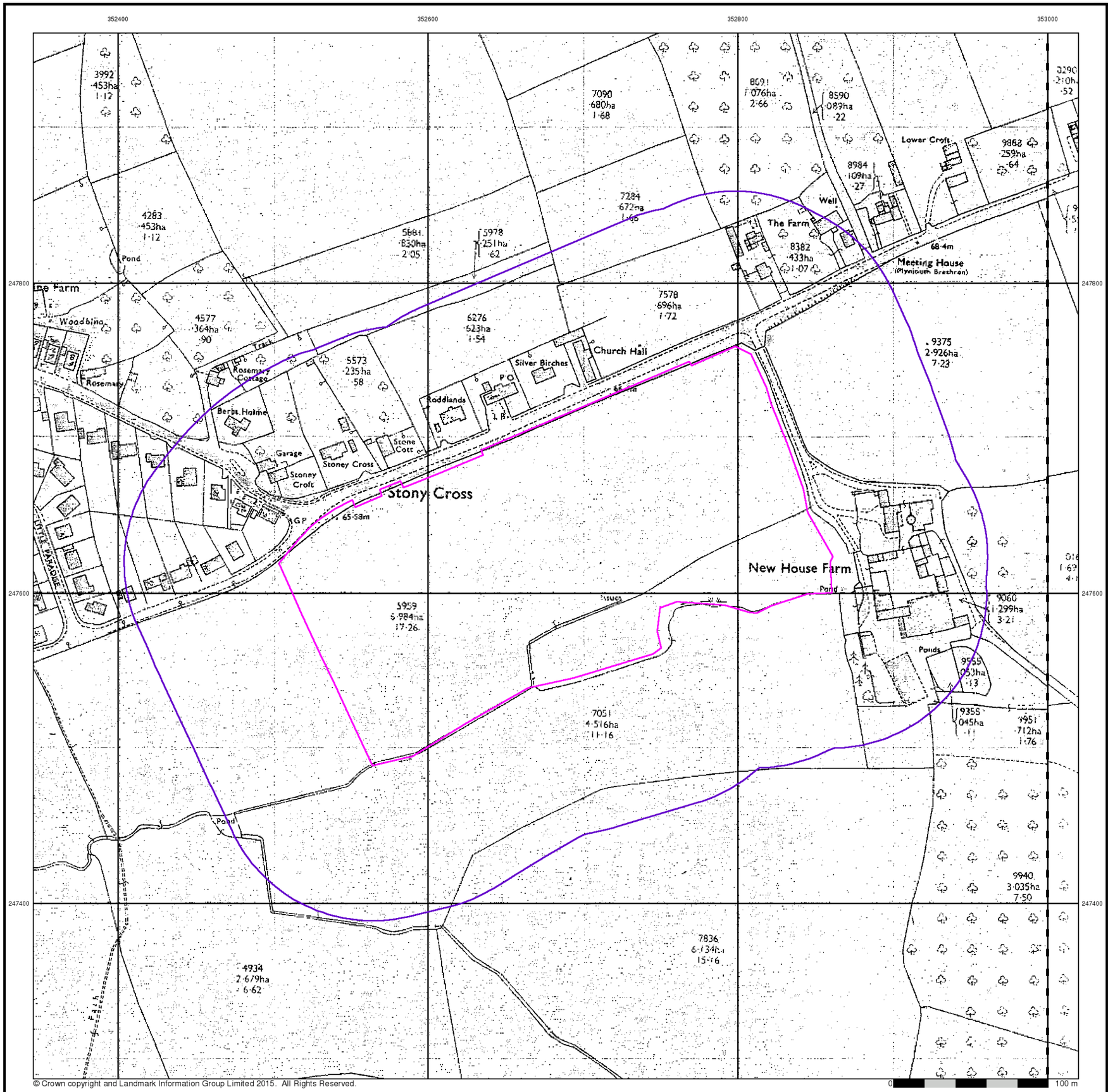

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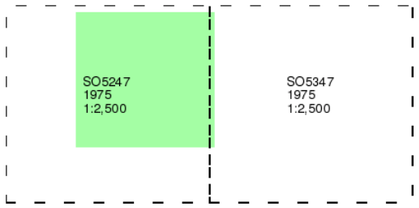
Supply of Unpublished Survey Information

Published 1975

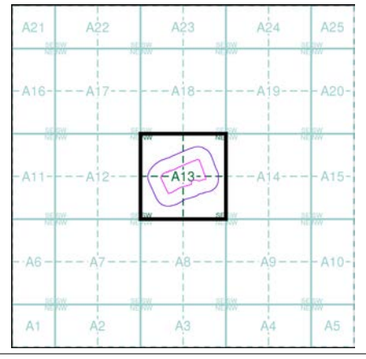
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



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Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	100

Site Details

Marden, HEREFORD, HR1 3EH

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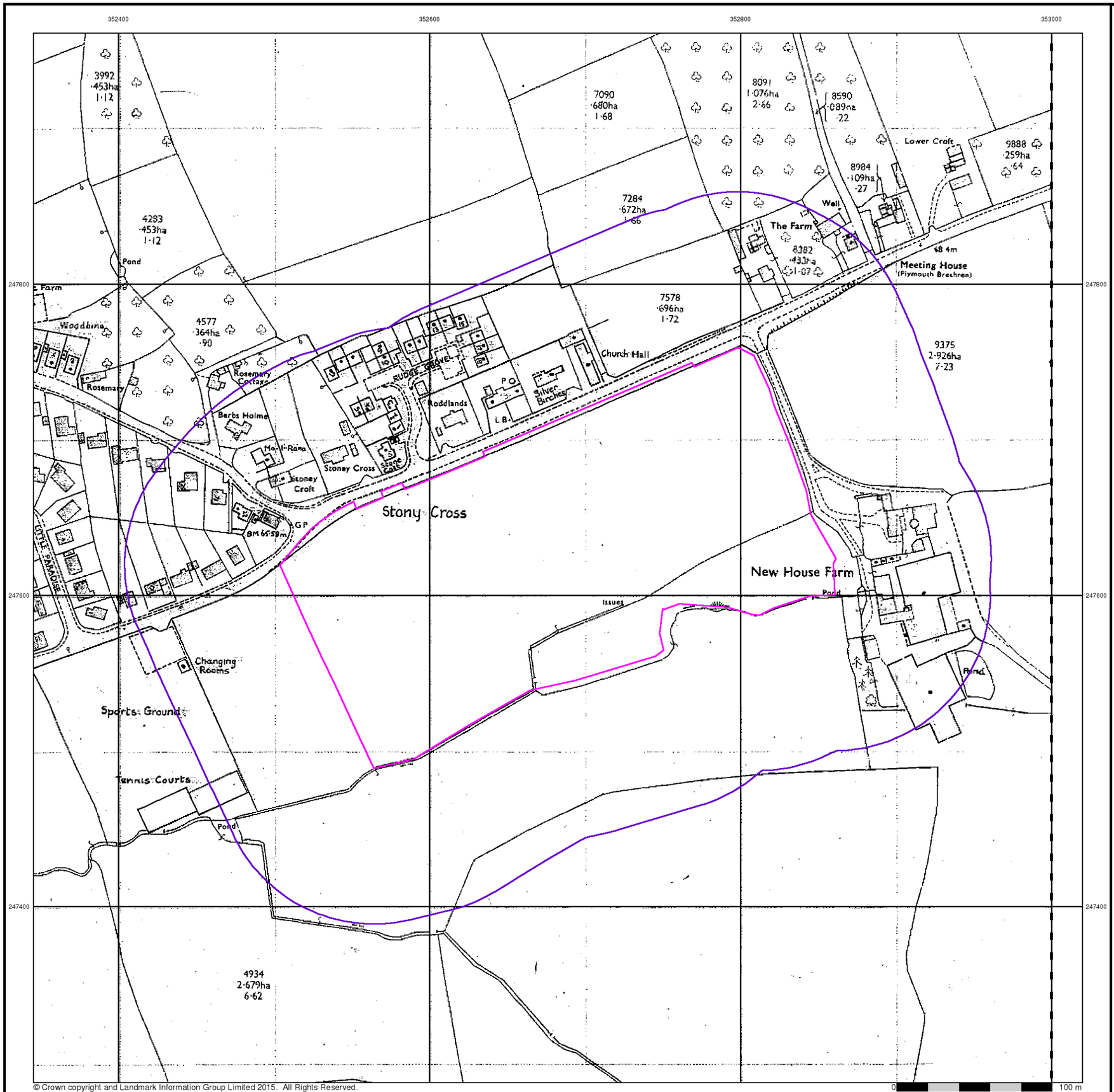

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LANDMARK INFORMATION GROUP®

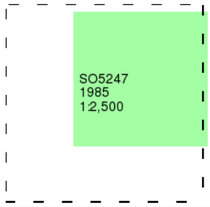
Additional SIMs

Published 1985

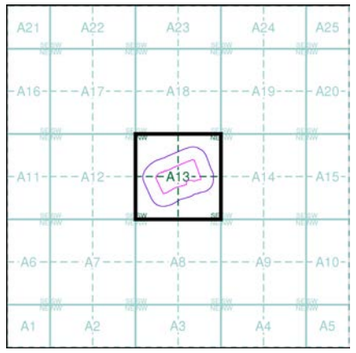
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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National Grid Reference:	352690, 247620
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Site Area (Ha):	5.18
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Site Details

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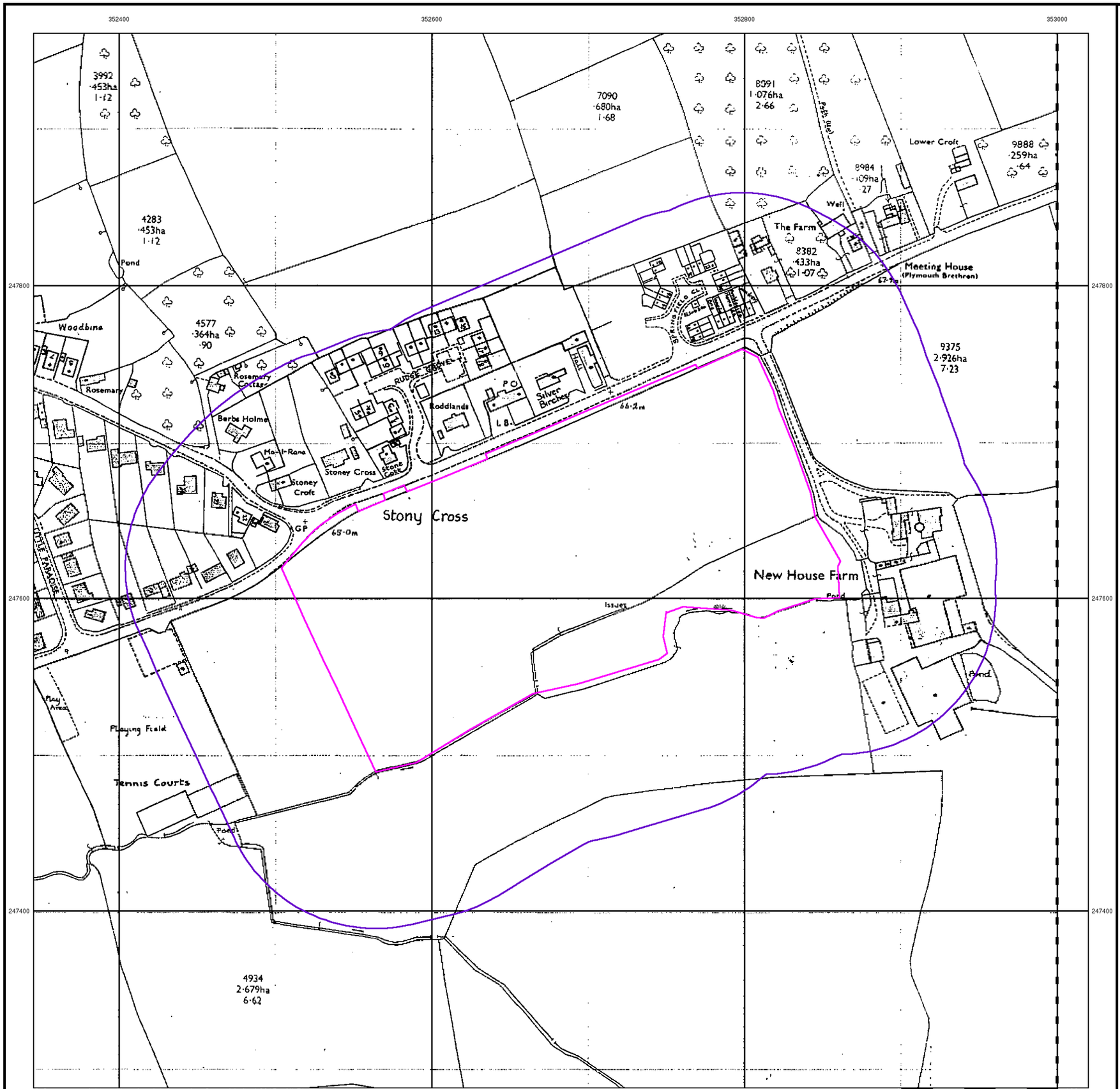

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Additional SIMs

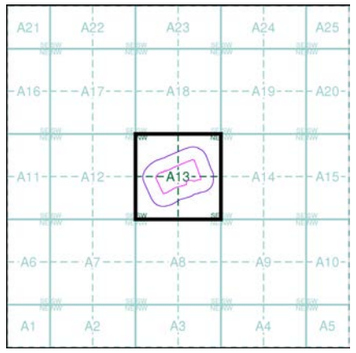
Published 1990

Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

Historical Map - Segment A13



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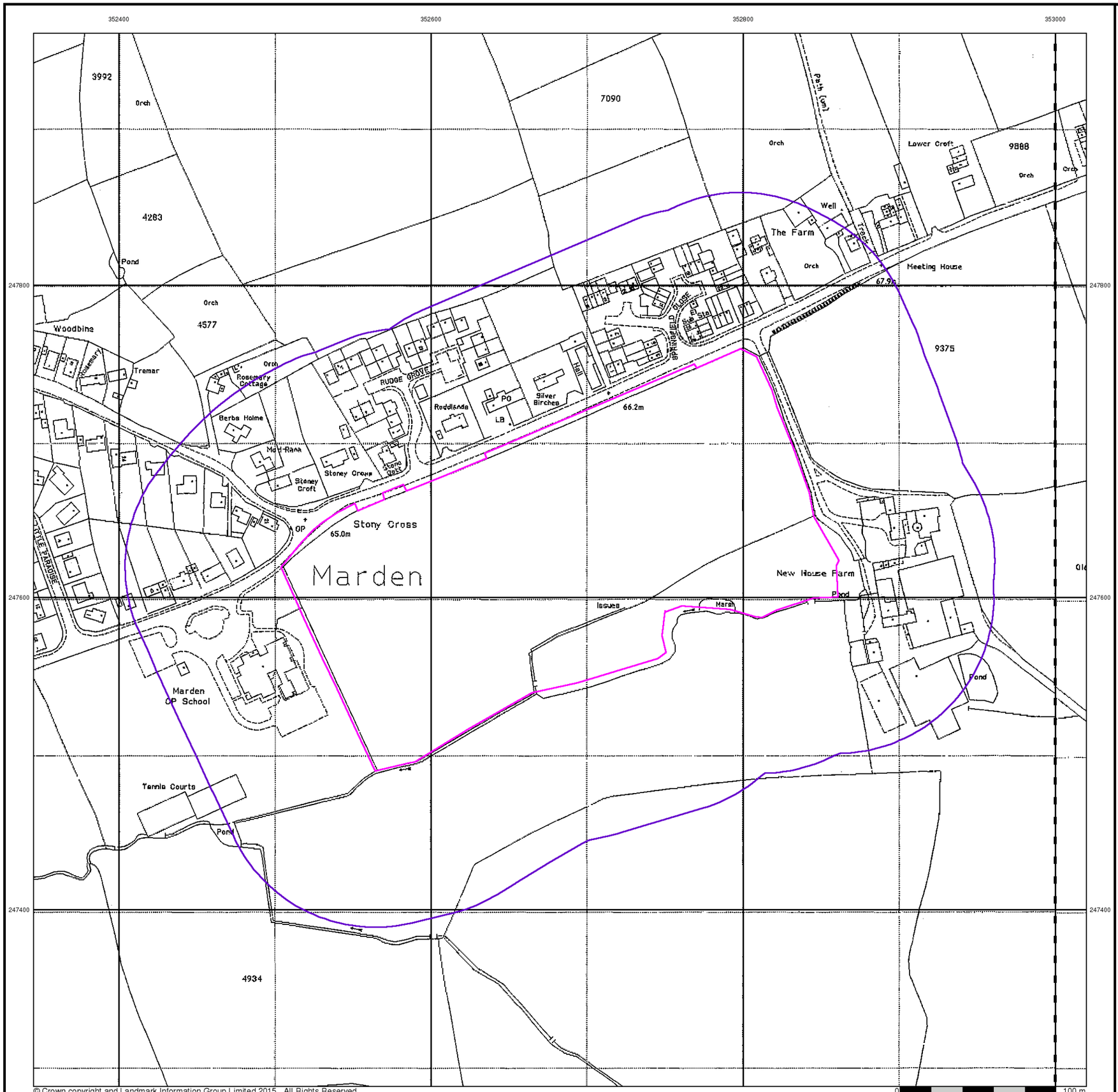


Envirocheck®

LANDMARK INFORMATION GROUP®

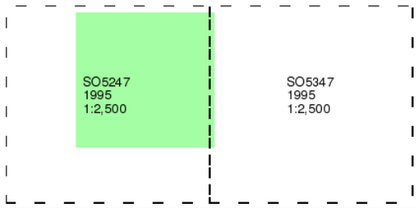
Large-Scale National Grid Data

Published 1995

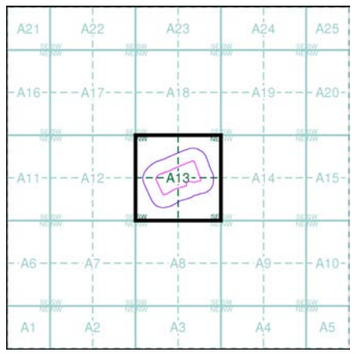
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	100

Site Details

Marden, HEREFORD, HR1 3EH

Landmark® INFORMATION GROUP

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

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

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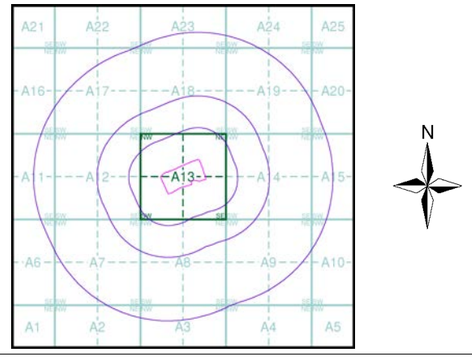
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Herefordshire	1:10,560	1886	2
Herefordshire	1:10,560	1904 - 1905	3
Herefordshire	1:10,560	1952 - 1953	4
Ordnance Survey Plan	1:10,000	1964	5
Ordnance Survey Plan	1:10,000	1976	6
10K Raster Mapping	1:10,000	2000	7
10K Raster Mapping	1:10,000	2006	8
VectorMap Local	1:10,000	2017	9

Historical Map - Slice A



Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	1000

Site Details

Marden, HEREFORD, HR1 3EH

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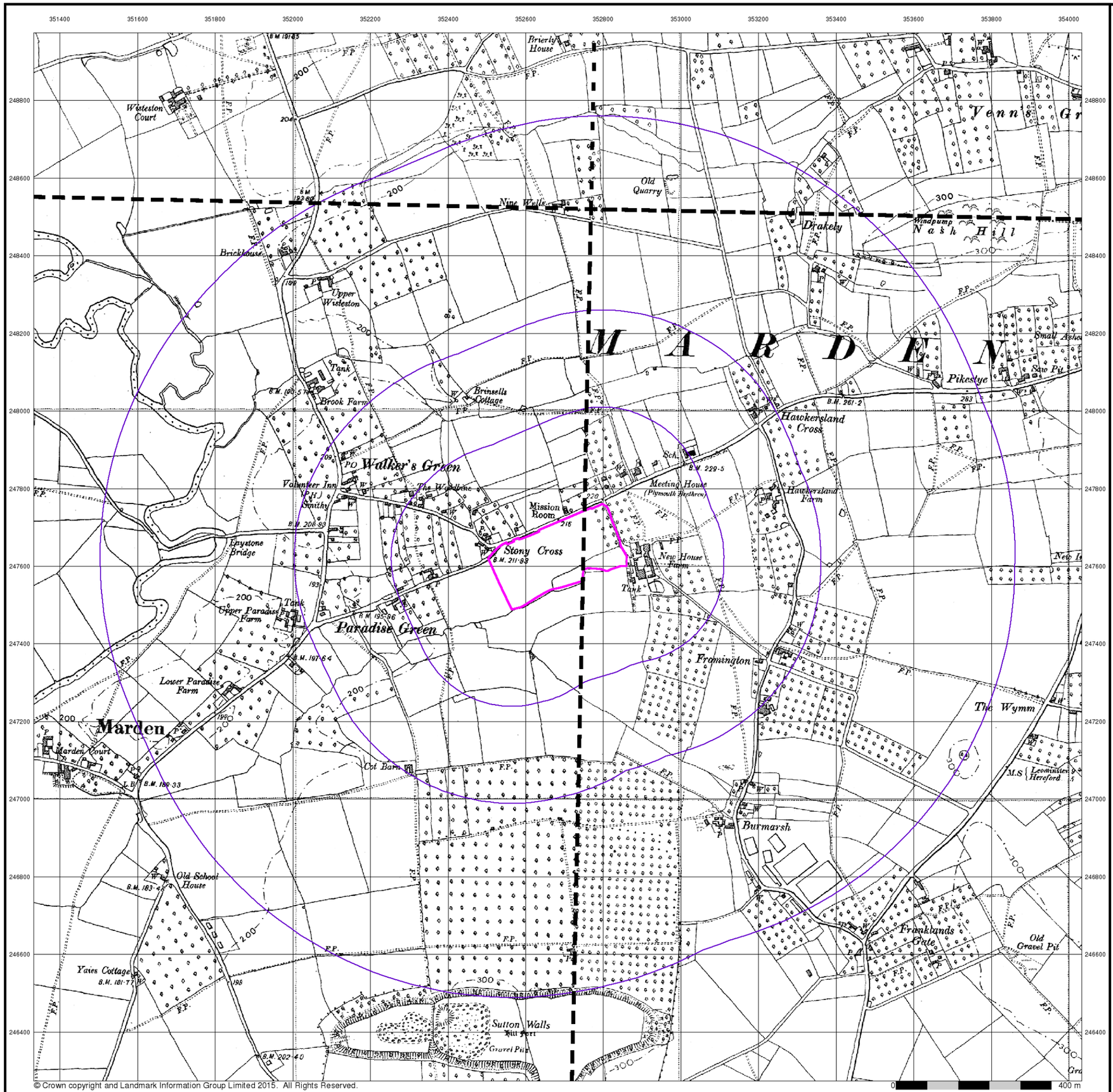

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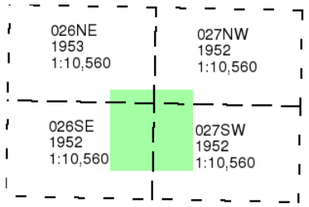
Herefordshire

Published 1952 - 1953

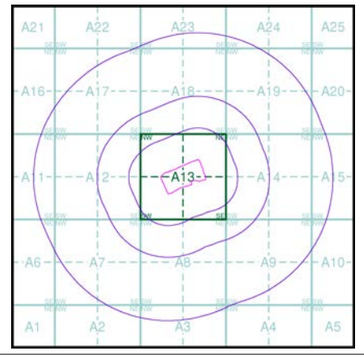
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	1000

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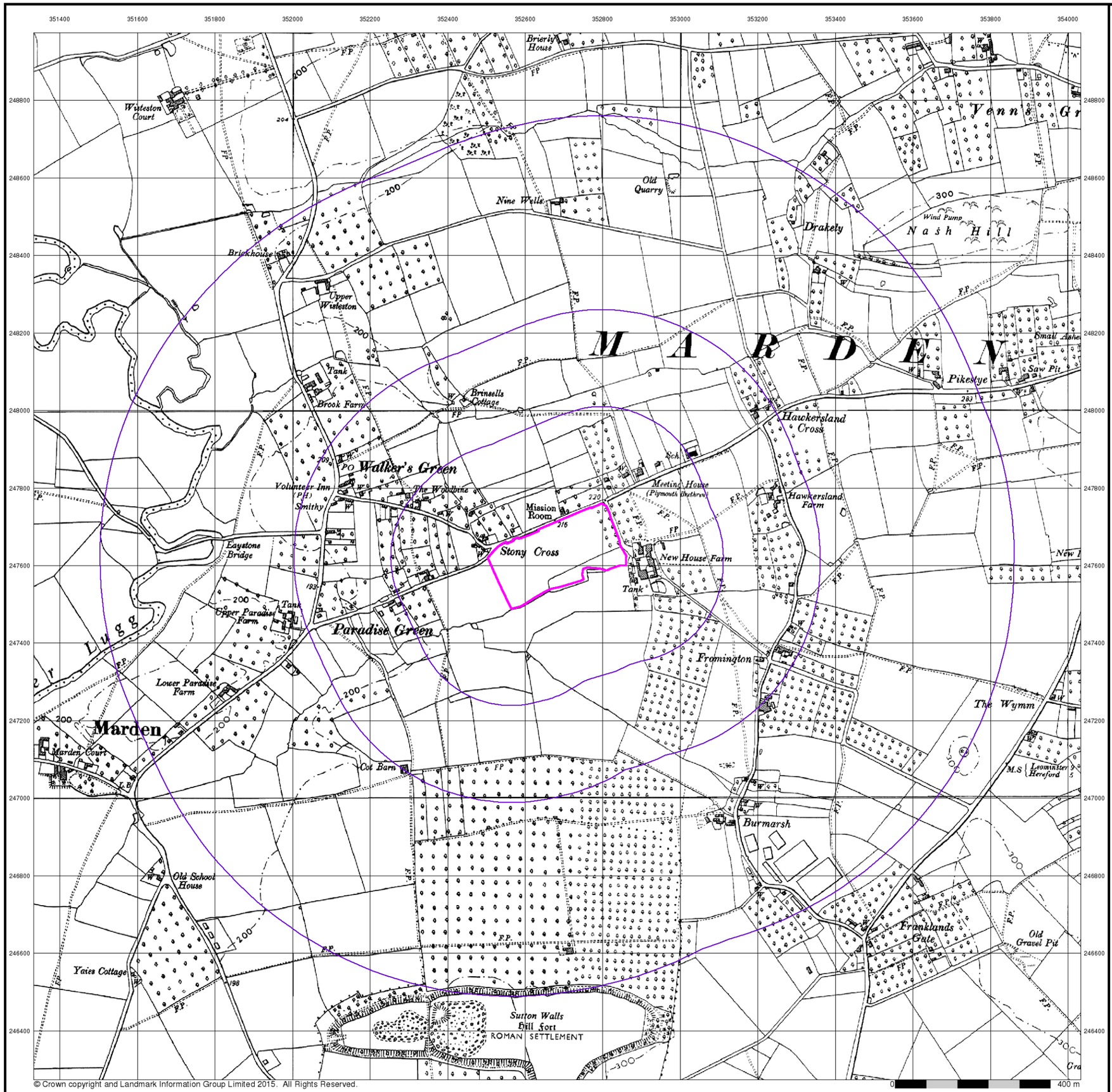

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Ordnance Survey Plan

Published 1964

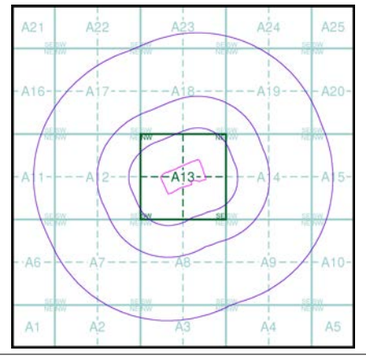
Source map scale - 1:10,000

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

Map Name(s) and Date(s)

SO54NW
1964
1:10,560

Historical Map - Slice A



Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	1000

Site Details

Marden, HEREFORD, HR1 3EH

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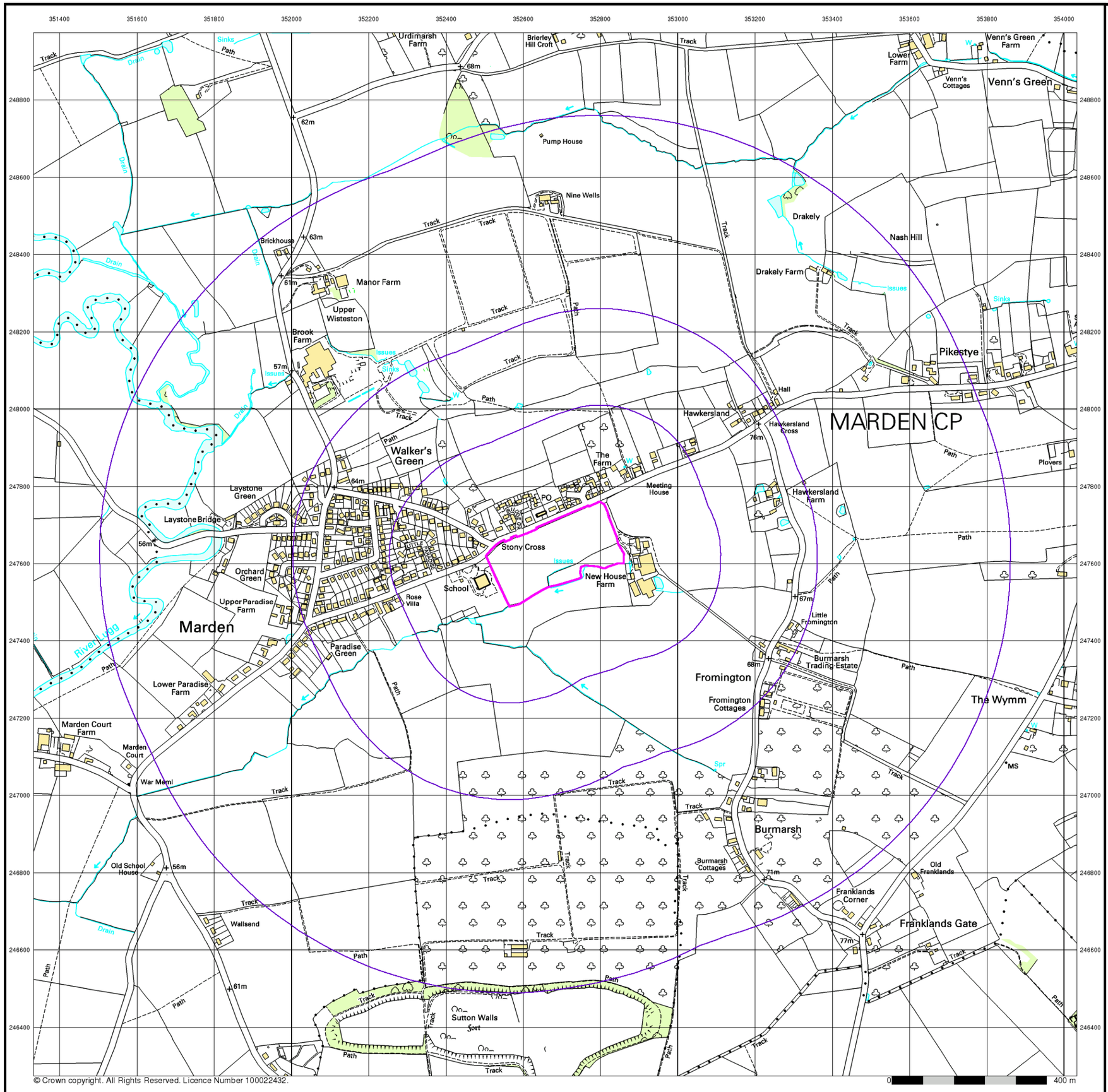

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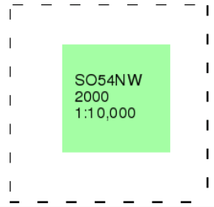
10k Raster Mapping

Published 2000

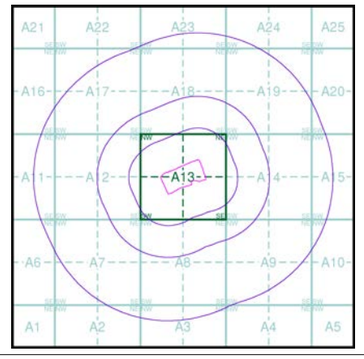
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	1000

Site Details

Marden, HEREFORD, HR1 3EH

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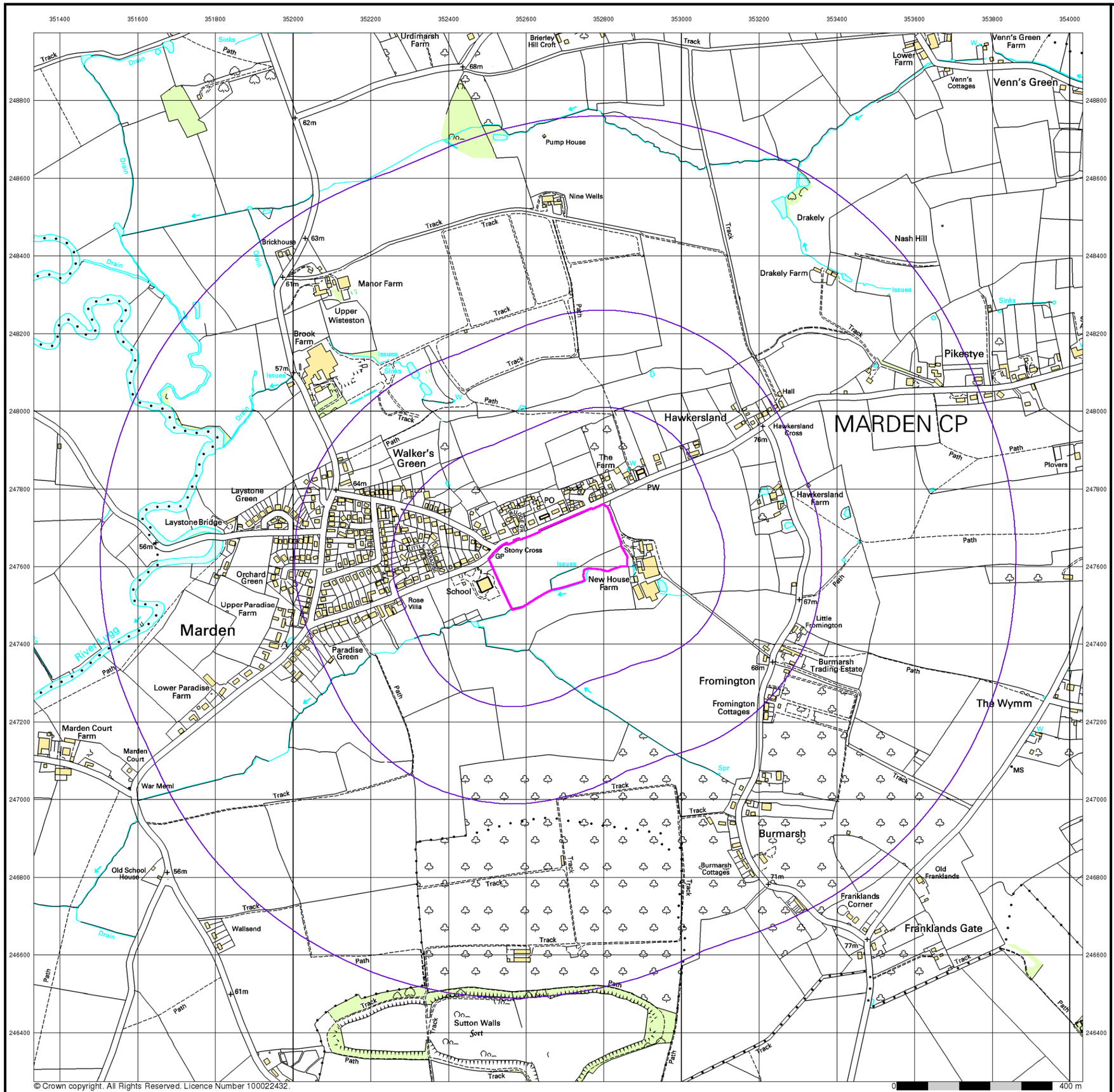

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10k Raster Mapping

Published 2006

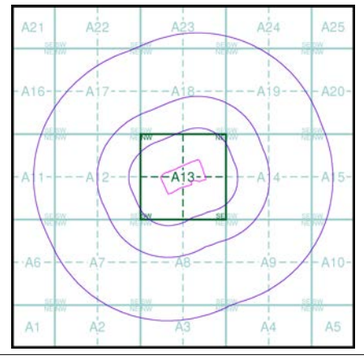
Source map scale - 1:10,000

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

Map Name(s) and Date(s)

SO54NW
2006
1:10,000

Historical Map - Slice A



N

Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	1000

Site Details

Marden, HEREFORD, HR1 3EH

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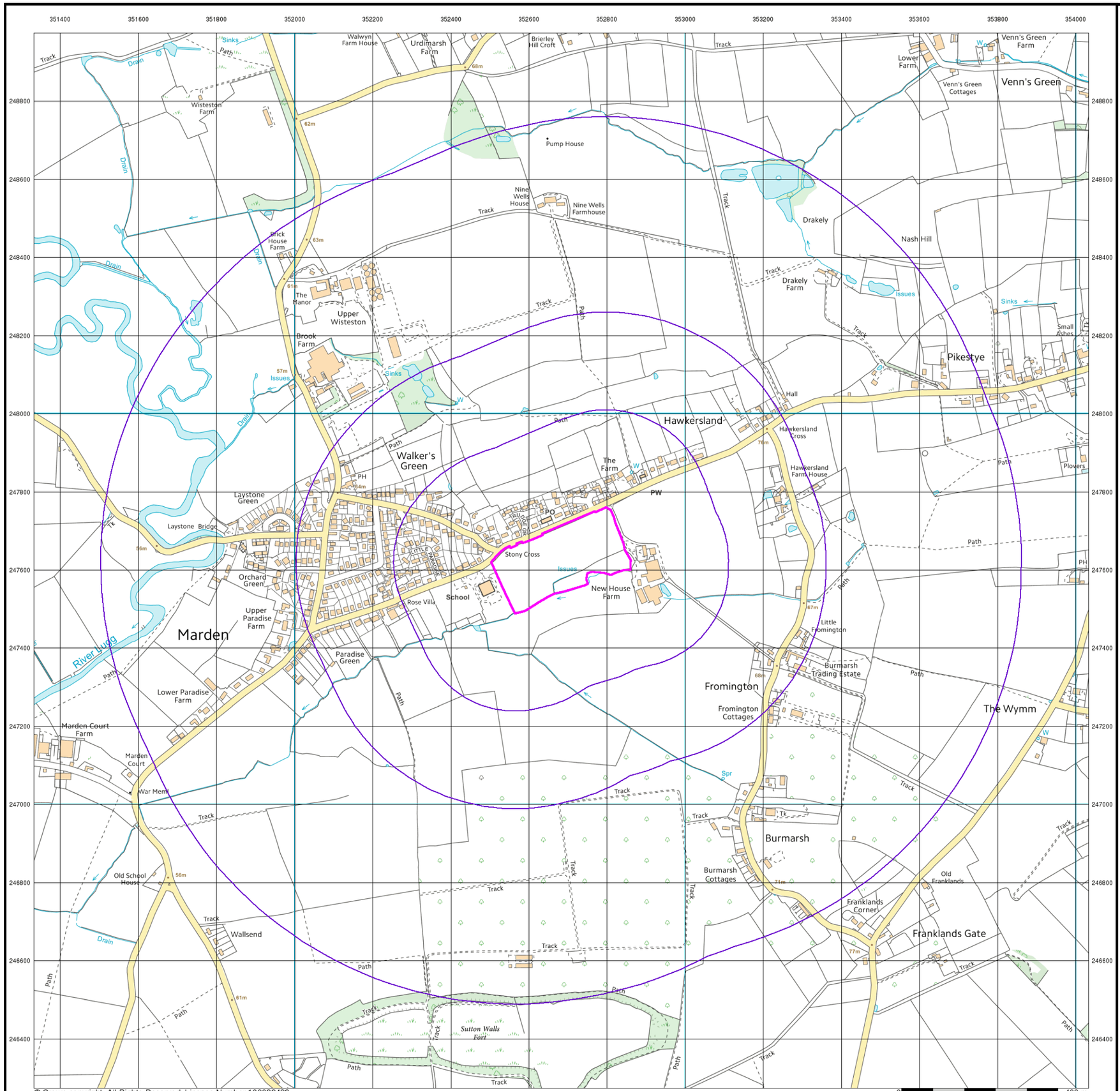

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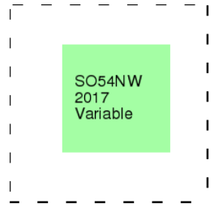
VectorMap Local

Published 2017

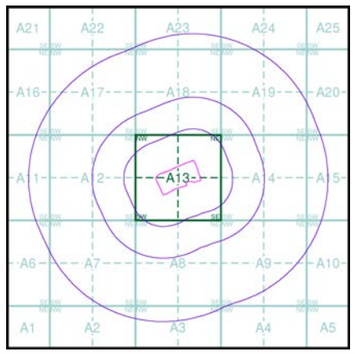
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	145727311_1_1
Customer Ref:	17331
National Grid Reference:	352690, 247620
Slice:	A
Site Area (Ha):	5.18
Search Buffer (m):	1000

Site Details

Marden, HEREFORD, HR1 3EH

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APPENDIX C
EXPLORATORY HOLE RECORDS

Georisk Management Ltd.
Tel: 0121 553 4044
email: enquiries@georisk-uk.com
www.georisk-uk.com

Borehole No. **BH01** Sheet 1 of 1

Project Name Land at Marden, Herefordshire	**Project No.** 17331	**Co-ords:** -	**Hole Type** WLS
Equipment: Dynamic Percussive Sampling Rig		**Level:** 64.15 m AOD	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement		**Dates:** 24-11-2017	**Logged By** LFQ

Well	Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
					0.25	63.90		Brown slightly gravelly clayey TOPSOIL. Gravel is quartzite and sandstone.
					0.50	63.65		Brown silty slightly gravelly fine SAND. Gravel is siltstone, sandstone and quartzite. (RIVER TERRACE DEPOSITS)
		1.00	CPT	N=24 (7,8/8,5,6,5)				Medium dense light brown clayey very gravelly SAND. Gravel is siltstone, sandstone and quartzite. (RIVER TERRACE DEPOSITS)
					1.40	62.75		Very dense brown very clayey very gravelly SAND. Gravel is fine to medium siltstone, sandstone and quartzite. (RIVER TERRACE DEPOSITS)
		1.80	D1					
		2.00	CPT	N=60 (11,12/15,14,15,16)	2.00	62.15		End of Borehole at 2.00 m
			Type	Results				

1
2
3
4

Remarks: Groundwater not encountered during drilling.

Gas and groundwater monitoring point installed upon completion.

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Borehole No. **BH02** Sheet 1 of 1

Project Name Land at Marden, Herefordshire	**Project No.** 17331	**Co-ords:** -	**Hole Type** WLS
Equipment: Dynamic Percussive Sampling Rig		**Level:** 64.90 m AOD	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement		**Dates:** 24-11-2017	**Logged By** LFQ

Well	Water Strikes	Samples & In Situ Testing: Depth (m)	Samples & In Situ Testing: Type	Samples & In Situ Testing: Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
					0.25	64.65		Brown sandy clayey TOPSOIL. Occasional gravel of quartzite and sandstone.
					0.70	64.20		Light brown silty fine SAND. Occasional gravel and cobble of quartzite and sandstone. (RIVER TERRACE DEPOSITS)
		1.00	CPT	N=61 (12,12/14,16,15,16)	1.00	63.90		Very dense reddish brown and brown clayey SAND and GRAVEL of fine to medium mudstone, sandstone, siltstone and quartzite. (RIVER TERRACE DEPOSITS) End of Borehole at 1.00 m
			Type	Results				

Remarks: Groundwater not encountered during drilling.

Backfilled with arisings upon completion.

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Borehole No. **BH03** Sheet 1 of 1

Project Name Land at Marden, Herefordshire	**Project No.** 17331	**Co-ords:** -	**Hole Type** WLS
Equipment: Dynamic Percussive Sampling Rig		**Level:** 65.00 m AOD	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement		**Dates:** 24-11-2017	**Logged By** LFQ

Well	Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
					0.30	64.70		Brown clayey sandy TOPSOIL. Occasional gravel is sandstone and quartzite.
								Brown silty gravelly SAND. Gravel is sandstone, siltstone and quartzite. (RIVER TERRACE DEPOSITS)
		1.00	CPT	N=19 (5,6/8,4,3,4)	0.90	64.10		Medium dense dark brown and reddish brown clayey SAND and GRAVEL of siltstone, sandstone and quartzite. (RIVER TERRACE DEPOSITS)
					1.50	63.50		Very dense brown gravelly SAND. Gravel is fine to medium subangular to subrounded quartzite, siltstone and sandstone. (RIVER TERRACE DEPOSITS)
		2.00	CPT	N=55 (12,11/12,13,15,15)	2.00	63.00		End of Borehole at 2.00 m
			Type	Results				

Remarks: Groundwater not encountered during drilling.

Backfilled with arisings upon completion.

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Borehole No. **BH04** Sheet 1 of 1

Project Name Land at Marden, Herefordshire	**Project No.** 17331	**Co-ords:** -	**Hole Type** WLS
Equipment: Dynamic Percussive Sampling Rig		**Level:** 65.05 m AOD	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement		**Dates:** 24-11-2017	**Logged By** LFQ

Well	Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
					0.00	65.05		Brown sandy clayey TOPSOIL. Gravel is sandstone, quartzite and siltstone.
					0.30	64.75		Brown very silty clayey SAND with occasional gravel of siltstone, sandstone and quartzite. (RIVER TERRACE DEPOSITS)
		0.80	D1					
		1.00	CPT	N=19 (4,5/6,5,4,4)	0.90	64.15		Medium dense yellowish brown very clayey SAND and GRAVEL of siltstone, sandstone, chert and quartzite. (RIVER TERRACE DEPOSITS)
		1.20	D2					
					1.60	63.45		Reddish brown and yellowish brown slightly clayey SAND and GRAVEL of siltstone, sandstone, chert and quartzite. (RIVER TERRACE DEPOSITS)
					1.90	63.15		Very dense reddish brown sandy GRAVEL of fine to medium quartzite, chert, sandstone and siltstone. (RIVER TERRACE DEPOSITS)
		2.00	CPT	N=55 (12,11/12,13,15,15)	2.00	63.05		End of Borehole at 2.00 m
			Type	Results				

Remarks: Groundwater not encountered during drilling.

Gas and groundwater monitoring point installed upon completion.

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Borehole No. **BH05** Sheet 1 of 1

Project Name Land at Marden, Herefordshire	**Project No.** 17331	**Co-ords:** -	**Hole Type** WLS
Equipment: Dynamic Percussive Sampling Rig		**Level:** 64.75 m AOD	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement		**Dates:** 24-11-2017	**Logged By** LFQ

Well	Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
					0.00	64.75		Brown sandy clayey TOPSOIL with occasional gravel of sandstone, siltstone and quartzite.
					0.20	64.55		Brown silty SAND. Occasional gravel of sandstone, siltstone and quartzite. (RIVER TERRACE DEPOSITS)
					0.50	64.25		Light brown silty SAND. Occasional gravel of sandstone, siltstone, slate and quartzite. (RIVER TERRACE DEPOSITS)
					0.75	64.00		Medium dense yellowish brown and light brown slightly clayey sandy GRAVEL of fine to medium quartzite, sandstone and siltstone. (RIVER TERRACE DEPOSITS)
		1.00	CPT	N=17 (5,6/5,4,4,4)				
		1.50	D1		1.40	63.35		Yellowish brown and brown clayey SAND and GRAVEL of siltstone, sandstone and quartzite. (RIVER TERRACE DEPOSITS)
					1.70	63.05		Dense reddish brown clayey sandy GRAVEL of fine to medium siltstone, sandstone, mudstone and quartzite. (RIVER TERRACE DEPOSITS)
		2.00	CPT	N=48 (13,11/12,11,13,12)	2.00	62.75		End of Borehole at 2.00 m
			Type	Results				

Remarks: Groundwater not encountered during drilling.

Backfilled with arisings upon completion.

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Borehole No. **BH06** Sheet 1 of 1

Project Name Land at Marden, Herefordshire	**Project No.** 17331	**Co-ords:** -	**Hole Type** WLS
Equipment: Dynamic Percussive Sampling Rig		**Level:** 66.95 m AOD	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement		**Dates:** 24-11-2017	**Logged By** LFQ

Well	Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
								Brown sandy clayey TOPSOIL with occasional gravel of sandstone, siltstone and quartzite.
					0.30	66.65		Brown silty slightly gravelly SAND. Gravel is sandstone and siltstone. (RIVER TERRACE DEPOSITS)
					0.60	66.35		Brown and yellowish brown slightly silty SAND. Occasional Gravel of sandstone and siltstone. (RIVER TERRACE DEPOSITS)
		1.00	CPT	N=21 (4,5/7,5,4,5)	1.00	65.95		Medium dense reddish brown and orangish brown silty slightly gravelly SAND. Gravel is sandstone, siltstone and quartzite. (RIVER TERRACE DEPOSITS)
					1.40	65.55		Firm brown and orangish brown very sandy SILT/CLAY. Occasional pockets of very silty fine sand. (RIVER TERRACE DEPOSITS)
		1.70	D1					
					1.80	65.15		Dense light brown and brown slightly clayey slightly gravelly SAND. Gravel is sandstone, quartzite and siltstone.
		2.00	CPT	N=49 (10,11/11,13,14,11)	2.00	64.95		(RIVER TERRACE DEPOSITS)
								End of Borehole at 2.00 m
			Type	Results				

1 2 3 4

Remarks: Groundwater not encountered during drilling.

Backfilled with arisings upon completion.

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Borehole No. **BH07** Sheet 1 of 1

Project Name Land at Marden, Herefordshire	**Project No.** 17331	**Co-ords:** -	**Hole Type** WLS
Equipment: Dynamic Percussive Sampling Rig		**Level:** 66.75 m AOD	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement		**Dates:** 24-11-2017	**Logged By** LFQ

Well	Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
					0.30	66.45		Brown sandy clayey TOPSOIL. Occasional gravel of sandstone, quartzite and siltstone.
					0.60	66.15		Light brown slightly silty slightly gravelly SAND. Gravel is sandstone, siltstone and quartzite. (RIVER TERRACE DEPOSITS)
		1.00	CPT	N=29 (5,5/4,7,9,9)	1.30	65.45		Medium dense brown and reddish brown clayey SAND. Occasional gravel of quartzite, siltstone and sandstone. (RIVER TERRACE DEPOSITS)
					1.70	65.05		Yellowish brown and light brown gravelly slightly cemented SAND. Gravel is fine to medium sandstone, siltstone and quartzite. (RIVER TERRACE DEPOSITS)
		2.00	CPT	N=45 (9,11/10,11,12,12)	2.00	64.75		Dense light brown slightly clayey cemented fine SAND. (RIVER TERRACE DEPOSITS) End of Borehole at 2.00 m

Type	Results

Remarks: Groundwater not encountered during drilling.

Gas and groundwater monitoring point installed upon completion.

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Trial Pit No. **TP01** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 66.55 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 4.00 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
							Crop onto light brown clayey slightly sandy TOPSOIL with many rootlets.
				0.40	66.15		Brown silty fine SAND. Occasional gravel of fine to medium subrounded to rounded quartzite and flint. Rare pockets of sandy silt. (RIVER TERRACE DEPOSITS)
				0.80	65.75		Light reddish brown silty fine SAND with pockets of soft very sandy clay. Rare gravel of fine to medium subrounded to rounded quartzite. (RIVER TERRACE DEPOSITS)
	1.10	D1					
				1.60	64.95		Light orangish brown slightly silty fine SAND. (RIVER TERRACE DEPOSITS)
				1.80	64.75		Brown sandy GRAVEL. Gravel is fine to medium subangular to subrounded quartzite and chert. Rare cobble of quartzite. (RIVER TERRACE DEPOSITS)
				3.10	63.45		Brown SAND and GRAVEL. Gravel is subangular to subrounded quartzite and chert. Rare cobble of quartzite. (RIVER TERRACE DEPOSITS)
				3.50	63.05		Dark brown sandy clayey GRAVEL. Gravel is fine to coarse quartzite and chert. Pockets of soft gravelly clay (Wet). (RIVER TERRACE DEPOSITS)
▼				3.80	62.75		Dark brown GRAVEL of fine to coarse subangular to subrounded chert and quartzite (Wet). (RIVER TERRACE DEPOSITS)
				4.00	62.55		End of Trial Pit at 4.00 m
		Type	Results				

Groundwater encountered at 3.80 m begl.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP02** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.40 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.70 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.10	D1					Crop onto light brown silty sandy TOPSOIL.
				0.30	65.10		Light orangish brown silty fine SAND. (RIVER TERRACE DEPOSITS)
				0.70	64.70		Light orangish brown slightly silty fine SAND. (RIVER TERRACE DEPOSITS)
							Becoming slightly clayey below 1.60 m begl.
▼				2.40	63.00		Dark brown sandy slightly silty GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite and chert. Occasional cobbles of flint. (Wet) (RIVER TERRACE DEPOSITS)
				2.70	62.70		End of Trial Pit at 2.70 m
		Type	Results				

Groundwater encountered at 2.40 m begl.

Remarks:

Backfilled with arisings upon completion.

Stability: Pit sides unstable below 2.0 m begl.

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Trial Pit No. **TP03** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 64.75 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.00 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
				0.00	64.75		Crop onto light brown slightly silty clayey TOPSOIL.
	0.30	D3		0.30	64.45		Light brown silty fine SAND.
	0.50	D1					(RIVER TERRACE DEPOSITS)
				0.70	64.05		Brown mottled yellow to light reddish brown clayey gravelly SAND. Gravel is fine to medium quartzite and chert. Pockets of soft clay.
							(RIVER TERRACE DEPOSITS)
				1.20	63.55		Light reddish brown SAND and GRAVEL. Gravel is fine to coarse subangular quartzite, chert, sandstone, siltstone and mudstone. Rare cobbles quartzite and mudstone.
	1.60	D2					(RIVER TERRACE DEPOSITS)
▼				1.80	62.95		Dark brown slightly sandy GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite and chert. Pockets of soft reddish brown clay (Wet).
				2.00	62.75		(RIVER TERRACE DEPOSITS)
							End of Trial Pit at 2.00 m
		Type	Results				

1
2
3
4

Groundwater encountered at 1.80 m begl.

Remarks:

Backfilled with arisings upon completion.

Stability: Pit sides unstable below 1.7 m begl.

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Trial Pit No. **TP04** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 64.85 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 3.30 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	D3		0.30	64.55		Crop onto light brown clayey sandy slightly gravelly TOPSOIL. Gravel is quartzite and chert.
	0.50	D1		0.80	64.05		Light brown slightly gravelly silty SAND. (RIVER TERRACE DEPOSITS)
				1.70	63.15		Light brown SAND and GRAVEL. Gravel is fine to medium quartzite, chert and mudstone. (RIVER TERRACE DEPOSITS)
	2.10	D2		3.30	61.55		Reddish brown slightly clayey fine to medium sandy GRAVEL of sandstone, siltstone and mudstone. (RIVER TERRACE DEPOSITS)
							End of Trial Pit at 3.30 m
		Type	Results				

Groundwater not encountered during excavation.

Remarks:

Backfilled with arisings upon completion.

Stability: Pit sides unstable between 1.7-2.0 m begl.

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Trial Pit No. **TP05** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 63.80 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 3.00 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.10	D3					Crop onto light brown slightly sandy clayey TOPSOIL. Occasional gravel of sandstone and siltstone.
				0.30	63.50		
	0.50	D1					Soft light brown slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded quartzite, chert, sandstone and siltstone. (RIVER TERRACE DEPOSITS)
				0.80	63.00		Soft reddish brown mottled yellow sandy gravelly CLAY. Gravel is fine to coarse quartzite, chert, sandstone, siltstone and mudstone. Rare cobbles of quartzite. (RIVER TERRACE DEPOSITS)
				1.20	62.60		Reddish brown clayey sandy GRAVEL. Gravel is fine to medium mudstone, siltstone and sandstone. (RIVER TERRACE DEPOSITS)
				2.10	61.70		Reddish brown clayey gravelly SAND. Gravel is fine to coarse subangular to subrounded chert, quartzite, siltstone, sandstone and mudstone. Pockets of soft clay. (RIVER TERRACE DEPOSITS)
	2.30	D2					
				3.00	60.80		End of Trial Pit at 3.00 m
		Type	Results				

1 2 3 4

Groundwater not encountered during excavation.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP06** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 64.65 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.50 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.20	D1		0.40	64.25		Crop onto light brown clayey sandy TOPSOIL.
							Light yellowish brown silty gravelly locally cemented SAND. Gravel is fine to coarse subangular to subrounded quartzite, chert, mudstone, sandstone and siltstone. (RIVER TERRACE DEPOSITS)
▼				1.40	63.25		Light brown sandy GRAVEL of fine to coarse subangular to subrounded chert, quartzite, sandstone, siltstone and mudstone. Rare cobbles of quartzite, chert, sandstone, siltstone and mudstone. (RIVER TERRACE DEPOSITS)
				2.50	62.15		End of Trial Pit at 2.50 m
		Type	Results				

Groundwater encountered at 2.2 m begl.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides unstable below 1.4 m begl.

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Trial Pit No. **TP07** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 63.40 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.90 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
							Crop onto light brown clayey TOPSOIL.
				0.30	63.10		Firm reddish brown mottled light grey sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded weathered mudstone, siltstone, sandstone and chert. (RIVER TERRACE DEPOSITS)
	1.00	D1					
							Becoming very gravelly below 2.0 m begl.
				2.90	60.50		End of Trial Pit at 2.90 m
		Type	Results				

1 2 3 4

Groundwater not encountered during excavation.

Remarks:

Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP08** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.40 m AOD	23-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.90 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.10	D2		0.15	65.25		Crop onto slightly silty clayey sandy TOPSOIL.
							Light orangish brown cemented silty fine SAND. (RIVER TERRACE DEPOSITS)
	0.70	D1					
				1.80	63.60		Firm orangish brown sandy SILT/CLAY. (RIVER TERRACE DEPOSITS)
				2.00	63.40		Dark brown clayey sandy GRAVEL of fine to coarse mudstone, siltstone, quartzite and chert. (RIVER TERRACE DEPOSITS)
▼							
				2.90	62.50		End of Trial Pit at 2.90 m
		Type	Results				

Groundwater encountered at 2.6 m begl.

Remarks:

Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP09** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.50 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** Depth: 2.10 m (1.70 m × 0.60 m)	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
							Grass onto light brown silty slightly clayey sandy TOPSOIL with many rootlets.
				0.15	65.35		Light brown silty gravelly fine SAND. Gravel is fine to coarse subangular to subrounded of mudstone, siltstone and sandstone. Rare cobbles of mudstone, siltstone and sandstone. (RIVER TERRACE DEPOSITS)
				0.80	64.70		Light brown slightly silty slightly gravelly fine SAND. Gravel is fine to coarse subangular to subrounded mudstone, sandstone, siltstone, chert and quartzite. (RIVER TERRACE DEPOSITS)
				1.80	63.70		Dark brown slightly clayey sandy GRAVEL of fine to medium subangular to subrounded quartzite, chert and mudstone. (RIVER TERRACE DEPOSITS)
				2.10	63.40		End of Trial Pit at 2.10 m
		Type	Results				

Remarks: Groundwater not encountered during excavation.
Infiltration test undertaken; see separate sheet for results.

Stability: Pit sides stable.

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Trial Pit No. **TP10** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.00 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** Depth: 2.00 m (1.60 m × 0.60 m)	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
				0.20	64.80		Grass onto brown slightly silty clayey TOPSOIL with many rootlets.
							Brown slightly silty slightly gravelly fine SAND. Gravel is fine to coarse subangular to subrounded mudstone, siltstone and sandstone. (RIVER TERRACE DEPOSITS)
				1.10	63.90		Brown mottled red grey sandy clayey GRAVEL of fine to coarse subangular to subrounded quartzite, chert, mudstone and siltstone. Rare cobbles of quartzite and chert. (RIVER TERRACE DEPOSITS) Becoming slightly clayey below 1.70 m begl.
▼				2.00	63.00		End of Trial Pit at 2.00 m
		Type	Results				

Remarks: Groundwater encountered at 2.0 m begl.
Infiltration test undertaken; see separate sheet for results.

Stability: Pit sides stable.

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Trial Pit No. **TP11** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 63.70 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.50 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
							Grass onto brown slightly silty clayey sandy TOPSOIL with many rootlets.
				0.15	63.55		Light brown silty fine SAND. Rare gravel of fine to medium subangular to subrounded chert, quartzite and mudstone.
				0.30	63.40		(RIVER TERRACE DEPOSITS)
				0.60	63.10		Light yellowish brown slightly gravelly silty fine SAND. Gravel is fine to coarse subangular to subrounded mudstone, siltstone, quartzite and chert. Pockets reddish brown mottled white of cemented clayey gravel.
							(RIVER TERRACE DEPOSITS)
▼							Light yellowish brown clayey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded mudstone, siltstone, quartzite and chert.
							(RIVER TERRACE DEPOSITS)
				1.80	61.90		Firm friable reddish brown gravelly CLAY. Gravel is fine to coarse subrounded to rounded mudstone, siltstone, chert and quartzite.
							(RIVER TERRACE DEPOSITS)
							Becoming stiff below 2.30 m begl.
				2.50	61.20		End of Trial Pit at 2.50 m
		Type	Results				

1 2 3 4

Groundwater seepage encountered at 1.70 m begl.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides unstable between 1.6-1.8 m begl.

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Trial Pit No. **TP12** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.50 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 3.00 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
							Crop onto brown clayey sandy TOPSOIL with many rootlets. Rare plastic sacks.
				0.70	64.80		Light brown silty fine SAND. Occasional gravel of fine to medium subrounded mudstone, siltstone and chert. (RIVER TERRACE DEPOSITS)
				1.40	64.10		Orangish brown silty gravelly SAND. Gravel is fine to coarse mudstone and siltstone. (RIVER TERRACE DEPOSITS)
				1.70	63.80		Brown SAND and GRAVEL. Gravel is fine to coarse subangular to subrounded quartzite, chert, mudstone, siltstone and sandstone. (RIVER TERRACE DEPOSITS)
				3.00	62.50		End of Trial Pit at 3.00 m
		Type	Results				

1 2 3 4

Groundwater not encountered during excavation.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP13** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.00 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 3.80 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** LFQ

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
							Brown sandy clayey TOPSOIL. Occasional gravel of sandstone and quartzite.
				0.30	64.70		Brown slightly gravelly silty SAND. Gravel is sandstone, siltstone and quartzite. (RIVER TERRACE DEPOSITS)
				0.50	64.50		Light brown slightly silty clayey gravelly fine SAND. Gravel is sandstone, quartzite and siltstone. (RIVER TERRACE DEPOSITS)
				1.10	63.90		Firm reddish brown and yellowish brown very gravelly sandy CLAY. Gravel is sandstone, siltstone, quartzite and mudstone. (RIVER TERRACE DEPOSITS)
				1.30	63.70		Reddish brown clayey very gravelly SAND. Gravel is quartzite and chert. Occasional pockets of firm gravelly sandy clay. (RIVER TERRACE DEPOSITS)
	1.60	D1		1.50	63.50		Reddish brown very gravelly SAND. Gravel is subangular to subrounded quartzite and chert. (RIVER TERRACE DEPOSITS)
				2.00	63.00		Firm reddish brown mottled light grey sandy gravelly CLAY. Gravel is mudstone and siltstone. (RIVER TERRACE DEPOSITS)
				2.20	62.80		Reddish brown very clayey slightly sandy GRAVEL of fine to medium subangular to subrounded mudstone, siltstone. (RIVER TERRACE DEPOSITS)
	2.50	D2					
				3.80	61.20		End of Trial Pit at 3.80 m
		Type	Results				

Groundwater not encountered during excavation.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP14** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 64.70 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 3.60 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** LFQ

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.20	D1		0.25	64.45		Brown sandy clayey TOPSOIL. Occasional gravel of siltstone.
				0.60	64.10		Light brown silty SAND. Occasional gravel of sandstone. Occasional pockets of firm sandy gravelly clay. (RIVER TERRACE DEPOSITS)
				1.00	63.70		Brown and reddish brown clayey very gravelly SAND. Gravel is sandstone, siltstone, quartzite and mudstone. (RIVER TERRACE DEPOSITS)
	1.60	D2		1.80	62.90		Brown and reddish brown slightly clayey SAND and GRAVEL of sandstone, siltstone, quartzite and mudstone. (RIVER TERRACE DEPOSITS)
▼	2.40	D3		2.30	62.40		Brown SAND and GRAVEL of sandstone, siltstone, mudstone and quartzite. Occasional cobble of quartzite and sandstone. (RIVER TERRACE DEPOSITS)
							Firm reddish brown sandy slightly gravelly CLAY. Gravel is sandstone, siltstone, mudstone and quartzite. (RIVER TERRACE DEPOSITS)
							Becoming gravelly below 3.3 m begl.
				3.60	61.10		End of Trial Pit at 3.60 m
		Type	Results				

Groundwater encountered at 2.2 m begl.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP15** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.10 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.40 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.10	D2					Crop onto slightly silty clayey sandy TOPSOIL with many rootlets.
				0.30	64.80		
	0.40	D3					Orangish brown silty gravelly fine SAND. Gravel is fine to coarse of subangular to subrounded quartzite, chert, mudstone and siltstone. (RIVER TERRACE DEPOSITS)
				0.60	64.50		
	0.70	D1					Brown SAND and GRAVEL of fine to coarse subangular to subrounded mudstone, siltstone, sandstone, chert and quartzite. Pockets of slightly clayey cemented gravel. Rare cobbles of quartzite and mudstone. (RIVER TERRACE DEPOSITS)
▼							
				2.40	62.70		End of Trial Pit at 2.40 m
		Type	Results				

1 2 3 4

Groundwater encountered at 2.0 m begl.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP16** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 65.50 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.60 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.20	D2		0.40	65.10		Crop onto brown slightly sandy gravelly clayey TOPSOIL.
	0.90	D1		1.50	64.00		Soft orangish brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded mudstone and siltstone. (RIVER TERRACE DEPOSITS)
▼				2.60	62.90		Brown sandy clayey GRAVEL of fine to coarse subangular to subrounded chert, quartzite, mudstone and siltstone (Wet). (RIVER TERRACE DEPOSITS) End of Trial Pit at 2.60 m
		Type	Results				

Groundwater encountered at 2.40 m begl.

Remarks:

Backfilled with arisings upon completion.

Stability: Pit sides stable.

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Trial Pit No. **TP17** Sheet 1 of 1

Project Name	**Project No.**	**Co-ords:** -	**Date**
Land at Marden, Herefordshire	17331	**Level:** 66.75 m AOD	24-11-2017
Equipment: JCB 3CX		**Dimensions:** - Depth: 2.90 m	**Scale** 1:25
Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement			**Logged By** MJL

Water Strikes	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m AOD)	Legend	Stratum Description
	0.10	D2					Crop onto brown gravelly clayey TOPSOIL with rootlets.
				0.40	66.35		Orangish brown slightly gravelly silty fine SAND. Gravel is fine to medium subrounded to rounded mudstone and siltstone. (RIVER TERRACE DEPOSITS)
				1.50	65.25		Brown slightly gravelly fine SAND. Gravel is fine to coarse subrounded quartzite, chert, mudstone and siltstone. (RIVER TERRACE DEPOSITS)
	1.80	D1					
				2.60	64.15		Brown sandy GRAVEL of fine to coarse subangular to subrounded mudstone, siltstone, chert and quartzite. (RIVER TERRACE DEPOSITS)
				2.90	63.85		End of Trial Pit at 2.90 m
		Type	Results				

Groundwater not encountered during excavation.

Remarks: Backfilled with arisings upon completion.

Stability: Pit sides stable.

APPENDIX D
INFILTRATION TEST RESULTS

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 2016

Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement
Job Name: Land at Marden, Hereford
Job No.: 17331

Trial Pit No.	TP09
Test No.	1

Date: 24/11/2017

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
	0	1.00	1000
	5	1.10	1100
	15	1.25	1250
	28	1.40	1400
	37	1.53	1530
	89	1.60	1600
	123	1.62	1620
	180	1.65	1650

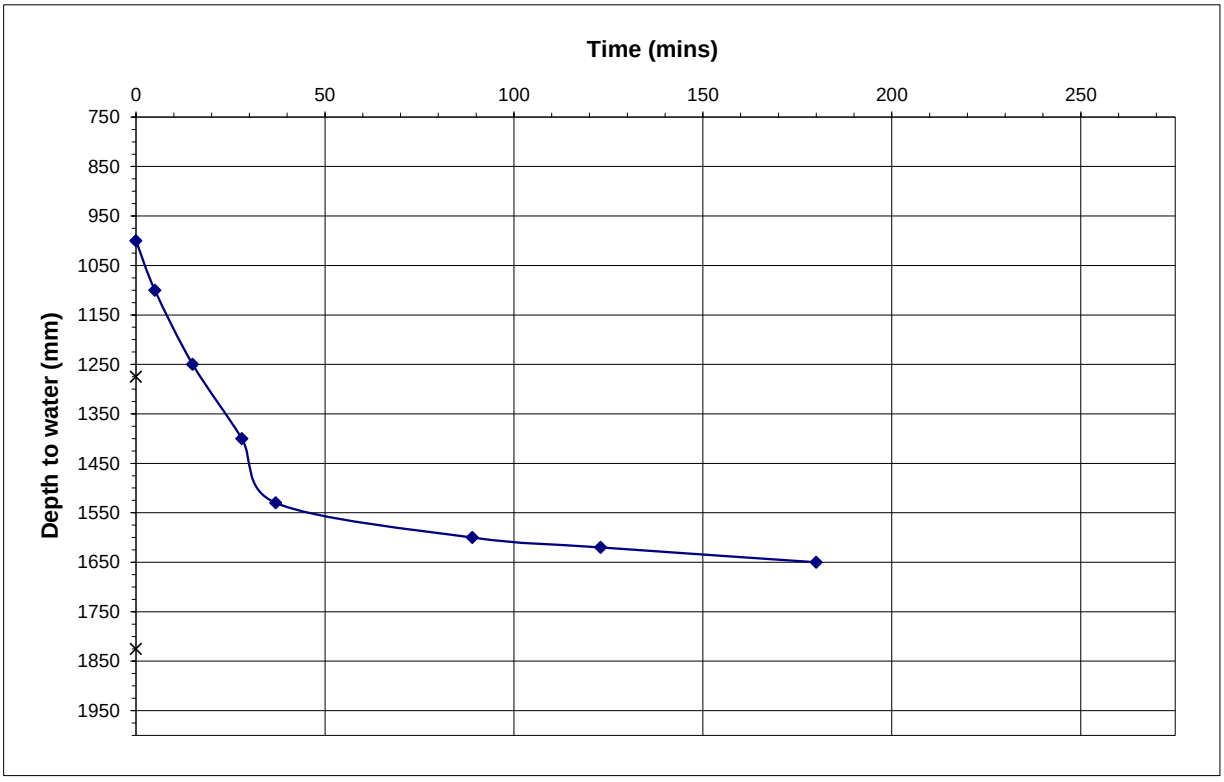
Soakaway Dimensions		(m)	(mm)
Length	=	1.70	1700
Width	=	0.60	600
Depth	=	2.10	2100

Effective depth (empty)		mm	m
75%	=	1825.0	1.83
50%	=	1550.0	1.55
25%	=	1275.0	1.28

Depth at start of test (mm)	=	1000
Depth at end of test (mm)	=	1650

Base area of pit	=	1.02
a_{p50} - 50% internal surface area inc. base	=	3.550
V_{p75-25} - Volume 75 - 25%	=	0.561

Read from the graph:		
$t_{p\,75}$ (min)	=	18
$t_{p\,25}$ (min)	=	400



Soil infiltration rate, f, (m/s) = 6.89E-06 (extrapolated)

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 2016

Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement
Job Name: Land at Marden, Hereford
Job No.: 17331

Trial Pit No.	TP09
Test No.	1

Date: 24/11/2017

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
	0	1.00	1000
	5	1.10	1100
	15	1.25	1250
	28	1.40	1400
	37	1.53	1530
	89	1.60	1600
	123	1.62	1620
	180	1.65	1650

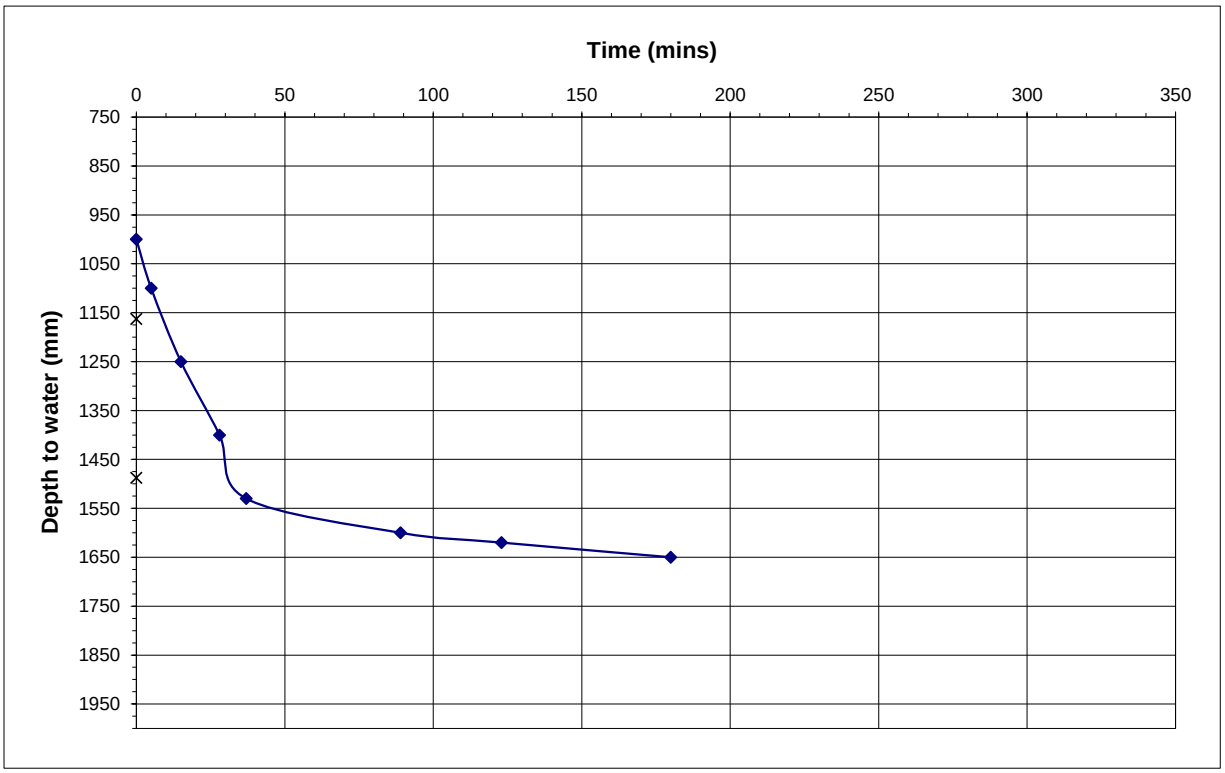
Soakaway Dimensions		(m)	(mm)
Length	=	1.70	1700
Width	=	0.60	600
Depth	=	1.65	1650

Effective depth (empty)		mm	m
75%	=	1487.5	1.49
50%	=	1325.0	1.33
25%	=	1162.5	1.16

Depth at start of test (mm)	=	1000
Depth at end of test (mm)	=	1650

Base area of pit	=	1.02
a_{p50} - 50% internal surface area inc. base	=	2.515
V_{p75-25} - Volume 75 - 25%	=	0.3315

Read from the graph:		
$t_{p\ 75}$ (min)	=	9
$t_{p\ 25}$ (min)	=	30



Soil infiltration rate, f, (m/s) = 1.05E-04

Using the guidance in BRE 365, the soil infiltration rate calculated above is based on the actual maximum water depth recorded. This applies for a depth range of 1.00 to 1.65 m bgl only.

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 2016

Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement
Job Name: Land at Marden, Hereford
Job No.: 17331

Trial Pit No.	TP09
Test No.	2

Date: 24/11/2017

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
	0	1.20	1200
	10	1.39	1390
	20	1.51	1510
	80	1.61	1610
	126	1.68	1680
	200	1.83	1830

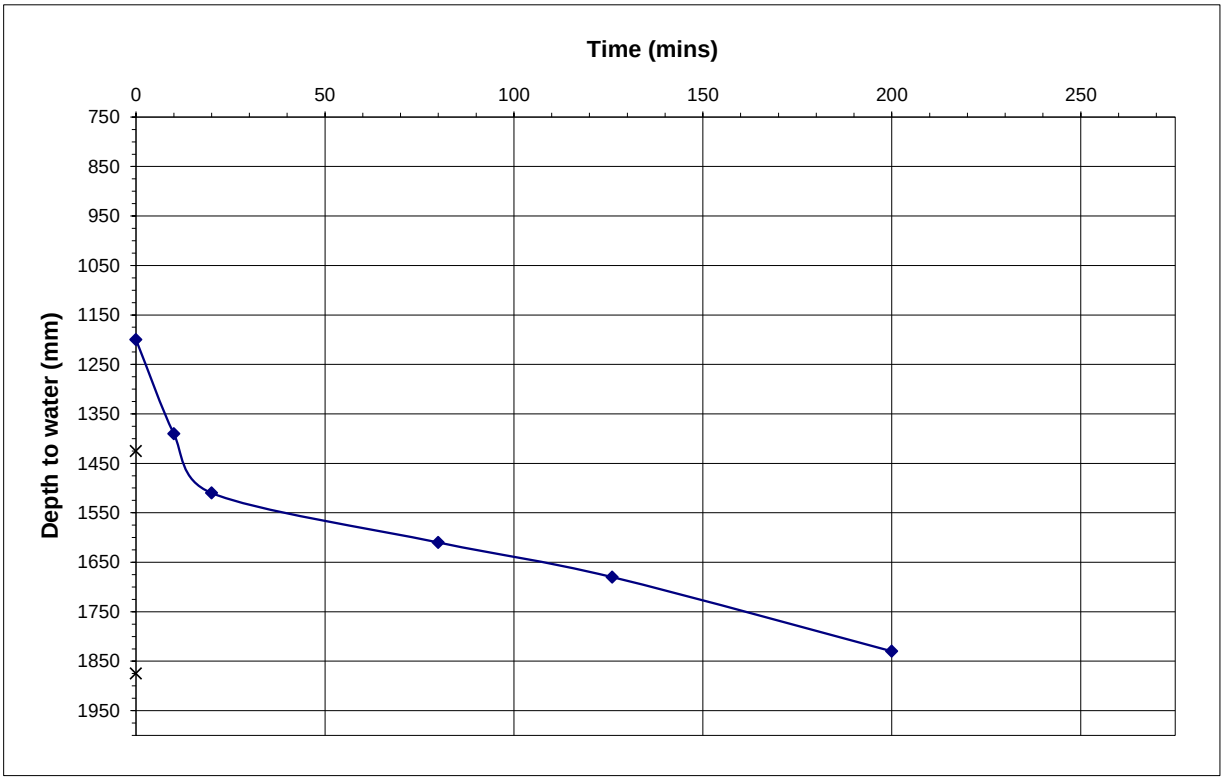
Soakaway Dimensions		(m)	(mm)
Length	=	1.70	1700
Width	=	0.60	600
Depth	=	2.10	2100

Effective depth (empty)		mm	m
75%	=	1875.0	1.88
50%	=	1650.0	1.65
25%	=	1425.0	1.43

Depth at start of test (mm)	=	1200
Depth at end of test (mm)	=	1830

Base area of pit	=	1.02
a_{p50} - 50% internal surface area inc. base	=	3.090
V_{p75-25} - Volume 75 - 25%	=	0.459

Read from the graph:		
$t_{p\,75}$ (min)	=	10
$t_{p\,25}$ (min)	=	267



Soil infiltration rate, f, (m/s) = 9.63E-06 (extrapolated)

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 2016

Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement
Job Name: Land at Marden, Hereford
Job No.: 17331

Trial Pit No.	TP09
Test No.	2

Date: 24/11/2017

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
	0	1.20	1200
	10	1.39	1390
	20	1.51	1510
	80	1.61	1610
	126	1.68	1680
	200	1.83	1825

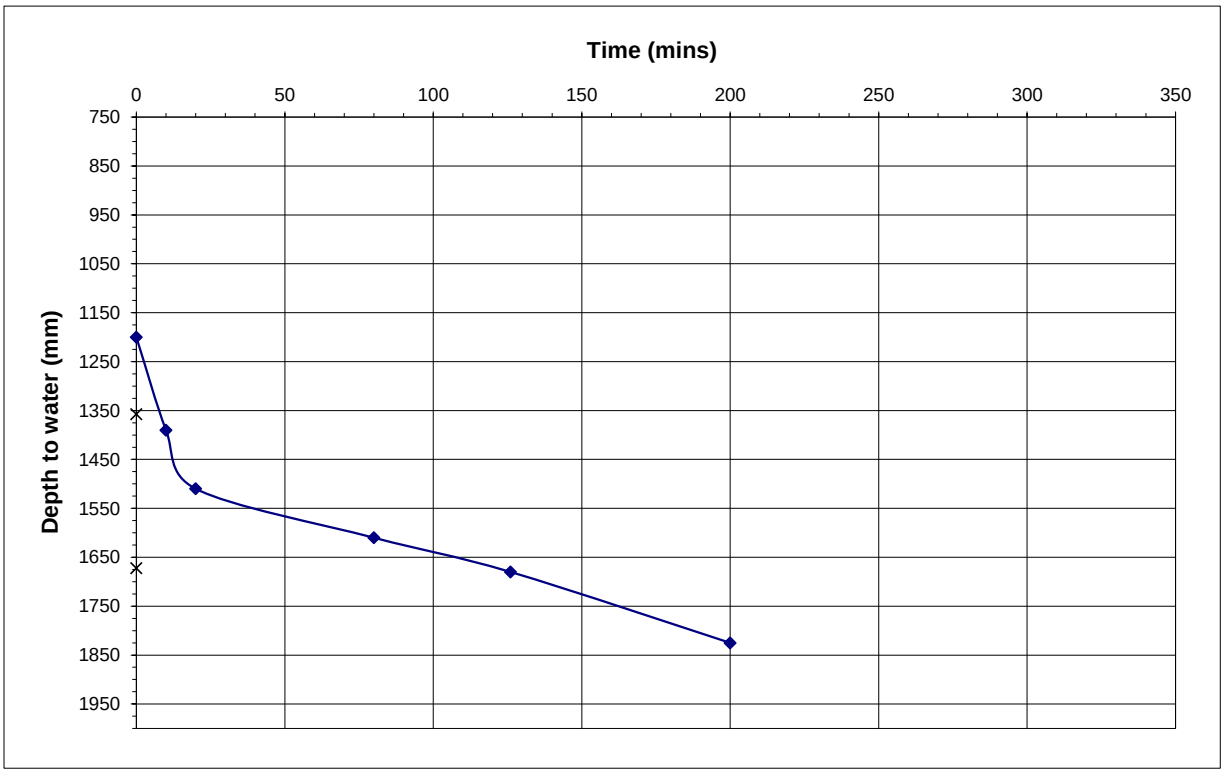
Soakaway Dimensions		(m)	(mm)
Length	=	1.70	1700
Width	=	0.60	600
Depth	=	1.83	1830

Effective depth (empty)		mm	m
75%	=	1672.5	1.67
50%	=	1515.0	1.52
25%	=	1357.5	1.36

Depth at start of test (mm)	=	1200
Depth at end of test (mm)	=	1825

Base area of pit	=	1.02
a_{p50} - 50% internal surface area inc. base	=	2.469
V_{p75-25} - Volume 75 - 25%	=	0.3213

Read from the graph:		
$t_{p\ 75}$ (min)	=	8
$t_{p\ 25}$ (min)	=	123



Soil infiltration rate, f, (m/s) = 1.89E-05

Using the guidance in BRE 365, the soil infiltration rate calculated above is based on the actual maximum water depth recorded. This applies for a depth range of 1.20 to 1.83 m bgl only.

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 2016

Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement
Job Name: Land at Marden, Hereford
Job No.: 17331

Trial Pit No.	TP10
Test No.	1

Date: 24/11/2017

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
	0	1.04	1040
	15	1.50	1500
	35	2.00	2000

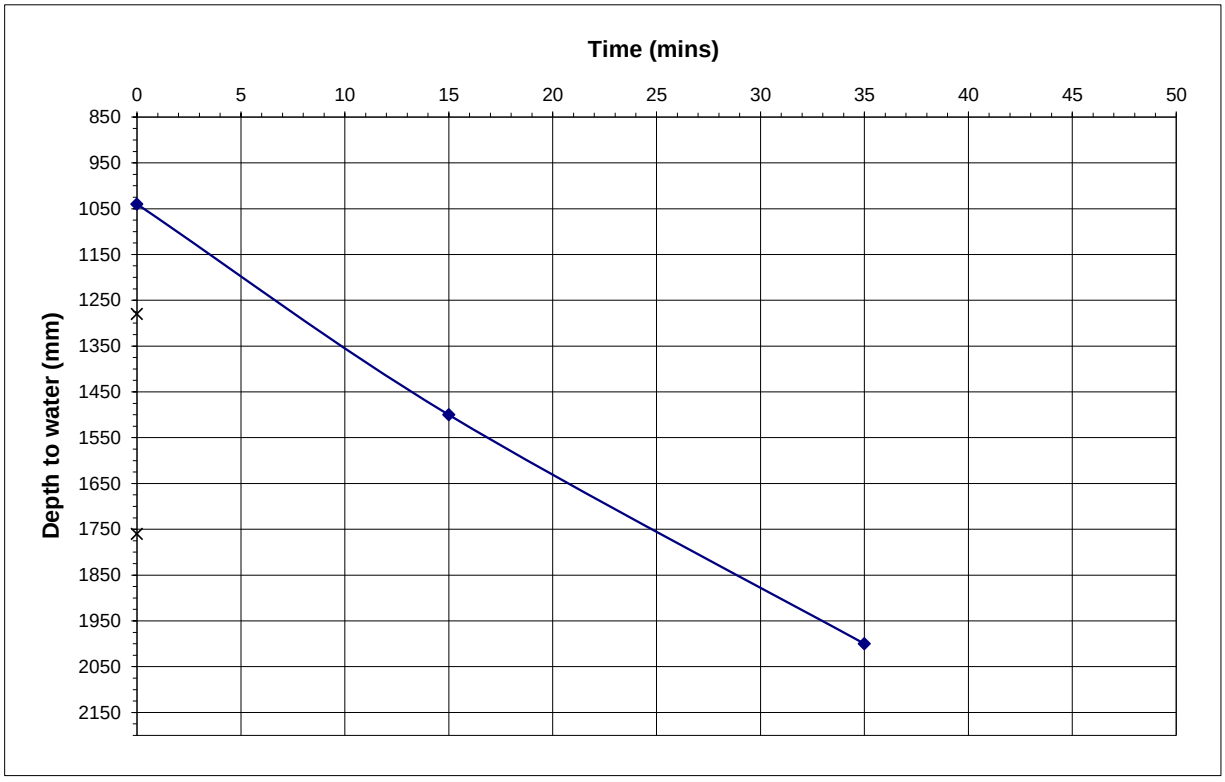
Soakaway Dimensions		(m)	(mm)
Length	=	1.60	1600
Width	=	0.60	600
Depth	=	2.00	2000

Effective depth (empty)		mm	m
75%	=	1760.0	1.76
50%	=	1520.0	1.52
25%	=	1280.0	1.28

Depth at start of test (mm)	=	1040
Depth at end of test (mm)	=	2000

Base area of pit	=	0.96
a_{p50} - 50% internal surface area inc. base	=	3.072
V_{p75-25} - Volume 75 - 25%	=	0.4608

Read from the graph:		
$t_{p\,75}$ (min)	=	7
$t_{p\,25}$ (min)	=	26



Soil infiltration rate, f, (m/s) = 1.32E-04

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 2016

Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement
Job Name: Land at Marden, Hereford
Job No.: 17331

Trial Pit No.	TP10
Test No.	2

Date: 24/11/2017

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
	0	1.00	1000
	5	1.39	1390
	10	1.57	1570
	22	1.78	1780
	25	2.00	2000

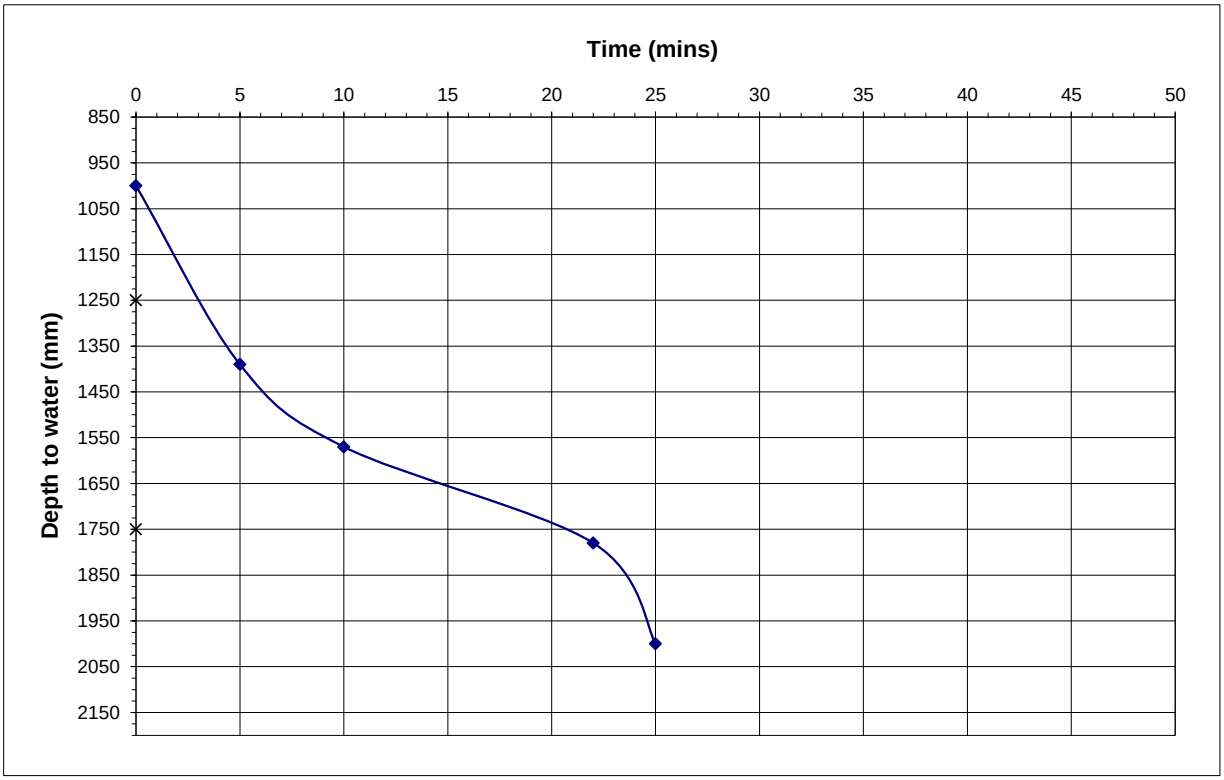
Soakaway Dimensions		(m)	(mm)
Length	=	1.60	1600
Width	=	0.60	600
Depth	=	2.00	2000

Effective depth (empty)		mm	m
75%	=	1750.0	1.75
50%	=	1500.0	1.50
25%	=	1250.0	1.25

Depth at start of test (mm)	=	1000
Depth at end of test (mm)	=	2000

Base area of pit	=	0.96
a_{p50} - 50% internal surface area inc. base	=	3.160
V_{p75-25} - Volume 75 - 25%	=	0.48

Read from the graph:		
$t_{p\,75}$ (min)	=	3
$t_{p\,25}$ (min)	=	21



Soil infiltration rate, f, (m/s) = 1.41E-04

SOIL INFILTRATION RATE IN ACCORDANCE WITH BRE DIGEST 365: 2016

Client: Signature New Homes and the Trustees of the Dudley Price Discretionary Settlement
Job Name: Land at Marden, Hereford
Job No.: 17331

Trial Pit No.	TP10
Test No.	3

Date: 24/11/2017

Time	Elapsed Time	Depth to water from ground level	
	(min)	(m)	(mm)
	0	1.00	1000
	7	1.33	1330
	20	1.61	1610
	24	2.00	2000

Soakaway Dimensions		(m)	(mm)
Length	=	1.60	1600
Width	=	0.60	600
Depth	=	2.00	2000

Effective depth (empty)		mm	m
75%	=	1750.0	1.75
50%	=	1500.0	1.50
25%	=	1250.0	1.25

Depth at start of test (mm)	=	1000
Depth at end of test (mm)	=	2000

Base area of pit	=	0.96
a_{p50} - 50% internal surface area inc. base	=	3.160
V_{p75-25} - Volume 75 - 25%	=	0.48

Read from the graph:		
$t_{p\ 75}$ (min)	=	5
$t_{p\ 25}$ (min)	=	22

Soil infiltration rate, f, (m/s) = 1.49E-04

APPENDIX E
SOIL-GAS AND GROUNDWATER MONITORING RESULTS

Soil-Gas and Groundwater Monitoring Results

Monitoring Visit No.	**1**	Date	01/12/2017			Barometric Pressure (mb) -					1017		
Weather Conditions:	Sunny, cold and clear 3.0°C												
Surface Ground Conditions:	Damp and muddy												
Ambient Concentration (% Volume):	78.4	**CH_4:**	0.0	**CO_2:**	0.1	**O_2:**	21.5						
Monitoring Point		Gas Concentration										Gas Flow	
		Highest					Steady					(Lowest)	**Gas Flow Rate**	**Relative Pressure**
Ref:	**GWL**	**CH_4**		**CO_2**	**CO**	**H_2S**	**CH_4**		**CO_2**	**CO**	**H_2S**	**O_2**		
	(m) bgl	**% lel**	**% v/v**	**(%)**	**ppm**	**ppm**	**% lel**	**% v/v**	**(%)**	**ppm**	**ppm**	**(%)**	**litre/hr**	**mb**
BH01	Dry (1.79)	0.0	0.0	1.5	0	0	0.0	0.0	1.5	0	0	19.8	0.1	0.07
BH04	Dry (2.00)	0.0	0.0	1.9	0	0	0.0	0.0	1.9	0	0	20.1	0.2	-0.02
BH07	Dry (1.67)	0.0	0.0	2.4	0	0	0.0	0.0	2.2	0	0	19.4	0.1	-0.02

Monitoring Visit No.	**2**	Date	15/12/2017			Barometric Pressure (mb) -					998		
Weather Conditions:	Sunny, cold and clear 4.0°C												
Surface Ground Conditions:	Muddy and wet												
Ambient Concentration (% Volume):	78.7	**CH_4:**	0.0	**CO_2:**	0.1	**O_2:**	21.2						
Monitoring Point		Gas Concentration										Gas Flow	
		Highest					Steady					(Lowest)	**Gas Flow Rate**	**Relative Pressure**
Ref:	**GWL**	**CH_4**		**CO_2**	**CO**	**H_2S**	**CH_4**		**CO_2**	**CO**	**H_2S**	**O_2**		
	(m) bgl	**% lel**	**% v/v**	**(%)**	**ppm**	**ppm**	**% lel**	**% v/v**	**(%)**	**ppm**	**ppm**	**(%)**	**litre/hr**	**mb**
BH01	Dry	0.0	0.0	1.5	0.0	0.0	0.0	0.0	1.2	0.0	0.0	20.7	-0.3	0.0
BH04	Dry	0.0	0.0	2.2	0.0	0.0	0.0	0.0	1.9	0.0	0.0	19.5	0.1	-0.05
BH07	Dry	0.0	0.0	1.6	0.0	0.0	0.0	0.0	1.6	0.0	0.0	20.6	0.2	0.01

Monitoring Visit No.	**3**	Date	03/01/2018			Barometric Pressure (mb) -					996		
Weather Conditions:	Sunny, windy 9.5°C												
Surface Ground Conditions:	Muddy and wet												
Ambient Concentration (% Volume):	78.8	**CH_4:**	0.0	**CO_2:**	0.0	**O_2:**	21.2						
Monitoring Point		Gas Concentration										Gas Flow	
		Highest					Steady					(Lowest)	**Gas Flow Rate**	**Relative Pressure**
Ref:	**GWL**	**CH_4**		**CO_2**	**CO**	**H_2S**	**CH_4**		**CO_2**	**CO**	**H_2S**	**O_2**		
	(m) bgl	**% lel**	**% v/v**	**(%)**	**ppm**	**ppm**	**% lel**	**% v/v**	**(%)**	**ppm**	**ppm**	**(%)**	**litre/hr**	**mb**
BH01	0.54	0.0	0.0	1.1	0.0	0.0	0.0	0.0	1.1	0.0	0.0	19.7	0.0	0.0
BH04	1.93	0.0	0.0	1.4	0.0	0.0	0.0	0.0	1.4	0.0	0.0	19.8	-0.1	-0.01
BH07	0.30	0.0	0.0	1.7	0.0	0.0	0.0	0.0	1.5	0.0	0.0	19.4	0.2	0.07

Equipment Used: Geotechnical Instruments (GI) and Solinst	**Notes**
GI - GA5000 Gas Concentration/Atmospheric Pressure GI - GA5000 Borehole Gas Flow Rate/Borehole Pressure Solinst combined dip meter and interface meter - Groundwater Level (GWL)	(m) bgl - metres below ground level

	Job Title:	**Job No:**
georisk MANAGEMENT	Land at Marden, Herefordshire	17331
	Client:	**Table Number:**
	Signature New Homes & The Trustees of the Dudley Price Discretionary Settlement	1

APPENDIX F
CHEMICAL TEST RESULTS

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.:	17-32472-1
Initial Date of Issue:	11-Dec-2017
Client	Georisk Management Limited
Client Address:	Summit Point Summit Crescent Industrial Est Smethwick Birmingham B66 1BT
Contact(s):	Matthew Larter
Project	17331 - Marden, Hereford

Quotation No.:		**Date Received:**	05-Dec-2017
Order No.:	17331	**Date Instructed:**	05-Dec-2017
No. of Samples:	13		
Turnaround (Wkdays):	5	**Results Due:**	11-Dec-2017
Date Approved:	11-Dec-2017		

Approved By:

Details: Robert Monk, Technical Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 17331 - Marden, Hereford

Client: Georisk Management Limited			**Chemtest Job No.:**		17-32472	17-32472	17-32472	17-32472	17-32472	17-32472	17-32472	17-32472
Quotation No.:			**Chemtest Sample ID.:**		550116	550117	550118	550119	550120	550121	550122	550123
Order No.: 17331			Client Sample Ref.:		TP02	TP03	TP04	TP05	TP06	TP08	TP14	TP15
			Client Sample ID.:		1	2	3	4	5	6	7	8
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	0.30	0.20	0.10	0.20	0.10	0.20	0.10
			Date Sampled:		23-Nov-2017	23-Nov-2017	23-Nov-2017	23-Nov-2017	23-Nov-2017	23-Nov-2017	24-Nov-2017	24-Nov-2017
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Moisture	N	2030	%	0.020	17	16	11	15	14	12	11	13
Stones and Removed Materials	N	2030	%	0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
pH	U	2010		N/A	7.6	7.5	7.3	7.2	7.0	7.0	7.6	7.9
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.67	0.92	0.74	0.78	0.65	0.48	0.51	0.78
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Arsenic	U	2450	mg/kg	1.0	6.4	6.4	7.1	7.2	7.1	8.3	9.1	7.2
Cadmium	U	2450	mg/kg	0.10	0.25	0.31	0.26	0.26	0.24	0.22	0.26	0.24
Chromium	U	2450	mg/kg	1.0	27	31	29	30	29	26	30	26
Copper	U	2450	mg/kg	0.50	20	18	21	18	18	22	22	18
Mercury	U	2450	mg/kg	0.10	0.14	0.13	0.14	0.14	0.12	0.17	0.19	0.15
Nickel	U	2450	mg/kg	0.50	29	30	32	30	30	28	32	28
Lead	U	2450	mg/kg	0.50	36	32	36	31	33	32	38	31
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	76	64	68	61	64	61	69	58
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 17331 - Marden, Hereford

Client: Georisk Management Limited			**Chemtest Job No.:**		17-32472	17-32472	17-32472	17-32472	17-32472
Quotation No.:			**Chemtest Sample ID.:**		550124	550125	550126	550127	550128
Order No.: 17331			Client Sample Ref.:		TP16	TP17	TP03	TP08	TP15
			Client Sample ID.:		9	10	11	12	13
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.20	0.10	1.60	0.70	0.70
			Date Sampled:		24-Nov-2017	24-Nov-2017	23-Nov-2017	23-Nov-2017	24-Nov-2017
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Moisture	N	2030	%	0.020	15	17	5.8	9.2	5.3
Stones and Removed Materials	N	2030	%	0.020	< 0.020	< 0.020			
pH	U	2010		N/A	7.6	6.5	8.4	7.9	8.0
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.61	0.72			
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50			
Arsenic	U	2450	mg/kg	1.0	9.4	8.2			
Cadmium	U	2450	mg/kg	0.10	0.27	0.22			
Chromium	U	2450	mg/kg	1.0	27	22			
Copper	U	2450	mg/kg	0.50	24	21			
Mercury	U	2450	mg/kg	0.10	0.23	0.21			
Nickel	U	2450	mg/kg	0.50	28	29			
Lead	U	2450	mg/kg	0.50	35	35			
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20			
Zinc	U	2450	mg/kg	0.50	66	60			
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10			
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0			
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30			

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Chemtest
The right chemistry to deliver results

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

APPENDIX G
GEOTECHNICAL TEST RESULTS

SOCOTEC UK Limited
2 Newton Close
Drayton Fields Industrial Estate
Daventry
Northants NN11 8RR
Telephone: +44 (0) 1327 703828
Facsimile: +44 (0) 1327 300154

SOCOTEC

UKAS TESTING
0001

TEST REPORT

Determination of Moisture Content and Atterberg Limits

Client:	Georisk Management	Report No:	51038676/17/01
Client Address:	Suit F3, Summit Point Summit Crescent Ind Estate Smethwick, West Midlands	Batch Number:	DAM0071154
Postcode:	B66 1BT	Sampled by:	Client
Contact:	Matthew Larter	Date Sampled:	Not Advised
		Date Received:	07.12.2017
Site:	17331 - Marden, Hereford	Tested From:	11.12.17 - 12.12.17
		Sample Type:	Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	% Passing 425µm (Estimated)
45334625	TP07	1.10	Reddish brown sandy silty CLAY	11	25	19	6	100
45334626	TP14	2.50	Reddish brown slightly gravelly sandy silty CLAY	15	31	20	11	80

Sample Preparation: As Received

* Washed over 425µm BS Test Sieve

** Actual % passing 425µm BS Test Sieve from separate grading analysis

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2, 4.4 and 5

Page: 1 of 1

Date Reported: 14.12.2017

Signed

[✓] S.Robinson - Deputy Section Manager

[ ] S. Bourton - Laboratory Manager

For and on behalf of SOCOTEC UK Limited

APPENDIX H
ENVIROCHECK SUPPORTING INFORMATION

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
145727311_1_1

Customer Reference:
17331

National Grid Reference:
352690, 247620

Slice:
A

Site Area (Ha):
5.18

Search Buffer (m):
1000

Site Details:

Marden
HEREFORD
HR1 3EH

Client Details:

Mr M Gill
Georisk Management Limited
Summit Point
Summit Crescent Industrial Estate
Smethwick
Birmingham
B66 1BT

Envirocheck®
LANDMARK INFORMATION GROUP®

Contents

Introduction

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

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

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Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 2		6	2	16
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 7	Yes			
Pollution Incidents to Controlled Waters	pg 8				4
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 8				1
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 8	1	4	3	10 (*65)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 29	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 29	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 29	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 29	2	8	4	43

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites	pg 37				1
Historical Landfill Sites	pg 37				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 37	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 37				1
Potentially Infilled Land (Water)	pg 37		1	1	3
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 38	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 38	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 39				1
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 40	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 40	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 40	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 40	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 40	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 40	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 41				1
Fuel Station Entries	pg 41			1	
Points of Interest - Commercial Services					
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 41			1	1
Points of Interest - Public Infrastructure					
Points of Interest - Recreational and Environmental					
Gas Pipelines					
Underground Electrical Cables					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 42				1
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 42	2			
Ramsar Sites					
Sites of Special Scientific Interest	pg 42				1
Special Areas of Conservation	pg 42				2
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SW (SW)	0	1	352600 247500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	0	1	352650 247650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (NE)	0	1	352686 247622
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	36	1	352850 247750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (S)	70	1	352686 247450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	85	1	352550 247750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SW (W)	169	1	352350 247550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	221	1	352450 247300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	271	1	352350 247850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SW (N)	277	1	352650 248000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SW (SW)	286	1	352350 247300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (NE)	356	1	352900 248100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (W)	363	1	352150 247700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	404	1	352900 248150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A17SE (NW)	421	1	352300 248000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A7NE (SW)	427	1	352250 247200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (S)	439	1	352600 247050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14SW (E)	490	1	353350 247600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: C D Developments Limited Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: 5 Properties At The Rood The Rood, Marden, Hereford, Herefordshire, Hr1 3ew Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: Npswqd000363 Permit Version: 1 Effective Date: 20th March 2008 Issued Date: 20th March 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Lugg **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	38	2	352837 247779
1	**Discharge Consents** Operator: C D Developments Limited Property Type: Domestic Property (Multiple) Location: Stp Serving 5 Domestic Properties, The Rood, Marden, Hereford, Herefordshire, Hr1 3ew Authority: Environment Agency, Welsh Region Catchment Area: Lugg Reference: Npswqd000363 Permit Version: 1 Effective Date: 20th March 2008 Issued Date: 20th March 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Lugg **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	38	2	352837 247779
2	**Discharge Consents** Operator: Mr R A Taylor Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: The Old Granary (Hawkersland Cross) The Old Granary, Hawkersland Cross, Marden, Hereford, Hr1 3er Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: An027800101 Permit Version: 1 Effective Date: 13th January 1998 Issued Date: 13th January 1998 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unnamed Trib Of River Lugg **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	38	2	352870 247700
2	**Discharge Consents** Operator: Mr R A Taylor Property Type: Domestic Property (Single) Location: The Old Granary (Hawkersland Cross), Hawkersland Cross, Marden, Hereford, Hr1 3er Authority: Environment Agency, Welsh Region Catchment Area: River Wye Reference: AN027800101 Permit Version: 1 Effective Date: 13th January 1998 Issued Date: 13th January 1998 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unnamed Trib Of River Lugg **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	38	2	352870 247700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Price O H Property Type: Livestock Production, Food Production Location: Marden-New House Farm Authority: Environment Agency, Welsh Region Catchment Area: River Wye Reference: Ah3009401 Permit Version: 1 Effective Date: 12th July 1977 Issued Date: 12th July 1977 Revocation Date: 29th April 1993 Discharge Type: Unspecified Discharge Environment: Into And/Or Watercourse Receiving Water: Lugg Trib **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	80	2	352490 247460
3	**Discharge Consents** Operator: Price O H Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Marden-New House Farm, Unknown, Unknown, Unknown Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: Ah3009401 Permit Version: 1 Effective Date: 12th July 1977 Issued Date: 12th July 1977 Revocation Date: 29th April 1993 Discharge Type: Unknown Discharge Environment: Freshwater Stream/River Receiving Water: Lugg Trib **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	80	2	352490 247460
4	**Discharge Consents** Operator: Mr Rod Jackman Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Hawkersland Farm, Marden, Hereford, Herefordshire, Hr1 3er Authority: Environment Agency, Midlands Region Catchment Area: Not Supplied Reference: Npswqd007870 Permit Version: 1 Effective Date: 18th June 2009 Issued Date: 18th June 2009 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Marden Brook **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A14NW (E)	433	2	353275 247748
4	**Discharge Consents** Operator: Mr Rod Jackman Property Type: Domestic Property (Single) Location: Stp Serving Hawkersland Farm, Marden, Hereford, Herefordshire, Hr1 3er Authority: Environment Agency, Welsh Region Catchment Area: Lugg Reference: Npswqd007870 Permit Version: 1 Effective Date: 18th June 2009 Issued Date: 18th June 2009 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of Marden Brook **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A14NW (E)	433	2	353275 247748

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Cws Ltd Property Type: Undefined Or Other Location: Hereford Marden Estate Authority: Environment Agency, Welsh Region Catchment Area: River Wye Reference: Ah5000301 Permit Version: 1 Effective Date: 28th March 1956 Issued Date: 28th March 1956 Revocation Date: 2nd May 1995 Discharge Type: Unspecified Discharge Environment: Freshwater Stream/River Receiving Water: Cogwell Brook **Status: Consent expired** Positional Accuracy: Manually corrected supplier location	A12NW (W)	536	2	352000 247800
6	**Discharge Consents** Operator: Co-Operative Farms(Part Of Co-Operative Group) Property Type: Domestic Property (Single) Location: Fromington Nursery, ., Sutton St Nicholas, Hereford, Herefordshire, Hr1 3bp Authority: Environment Agency, Welsh Region Catchment Area: Not Supplied Reference: An0408101 Permit Version: 2 Effective Date: 19th December 2012 Issued Date: 19th December 2012 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Groundwater Via Soakaway **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	543	2	353244 247217
6	**Discharge Consents** Operator: Farmcare Trading Limited Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Fromington Nursery, Sutton St Nicholas, Hereford, Herefordshire, Hr1 3bp Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: An0408101 Permit Version: 2 Effective Date: 19th December 2012 Issued Date: 19th December 2012 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Groundwater Via Soakaway **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	543	2	353244 247217
6	**Discharge Consents** Operator: Co-Operative Farms(Part Of Co-Operative Group) Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Fromington Nursery, Sutton St Nicholas, Hereford, Herefordshire, Hr1 3bp Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: An0408101 Permit Version: 1 Effective Date: 15th March 2007 Issued Date: 15th March 2007 Revocation Date: 18th December 2012 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Groundwater Via Soakaway **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	548	2	353231 247197

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Discharge Consents** Operator: Co-Operative Farms(Part Of Co-Operative Group) Property Type: Domestic Property (Single) Location: Fromington Nursery, ., Sutton St Nicholas, Hereford, Herefordshire, Hr1 3bp Authority: Environment Agency, Welsh Region Catchment Area: Not Supplied Reference: An0408101 Permit Version: 1 Effective Date: 15th March 2007 Issued Date: 15th March 2007 Revocation Date: 18th December 2012 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Groundwater Via Soakaway **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	548	2	353231 247197
7	**Discharge Consents** Operator: Bishop & Son Property Type: Sewage Disposal Works - Water Company Location: Marden Stw Authority: Environment Agency, Welsh Region Catchment Area: River Wye Reference: Ah5001201 Permit Version: 1 Effective Date: 15th May 1967 Issued Date: 15th May 1967 Revocation Date: 21st January 1994 Discharge Type: Unspecified Discharge Environment: Freshwater Stream/River Receiving Water: Lugg River **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A12SW (W)	704	2	351801 247601
7	**Discharge Consents** Operator: Bishop & Son Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Marden Stw, Unknown, Unknown, Unknown Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: Ah5001201 Permit Version: 1 Effective Date: 15th May 1967 Issued Date: 15th May 1967 Revocation Date: 21st January 1994 Discharge Type: Unknown Discharge Environment: Freshwater Stream/River Receiving Water: Lugg River **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A12SW (W)	704	2	351801 247601
8	**Discharge Consents** Operator: Joshua Klein Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: Co-Operative Group Ltd, 14-19 Burmarsh Cottages, Sutton-St-Nicholas, Herefordshire, Hr1 3bw Authority: Environment Agency, Midlands Region Catchment Area: Not Supplied Reference: Eprup3328xp Permit Version: 1 Effective Date: 24th May 2012 Issued Date: 24th May 2012 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Groundwater **Status: New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	780	2	353126 246867

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Discharge Consents** Operator: Mr & Mrs G Preece Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Drakeley Farm Marden Hereford Drakeley Farm, Marden, Hereford, Herefordshire, Hr1 3es Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: An0392701 Permit Version: 1 Effective Date: 1st December 2005 Issued Date: 30th November 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of River Lugg **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	829	2	353345 248386
9	**Discharge Consents** Operator: Mr & Mrs G Preece Property Type: Domestic Property (Single) Location: Drakeley Farm Marden Hereford, Marden, Herefordshire, Hr1 3es Authority: Environment Agency, Welsh Region Catchment Area: Not Supplied Reference: An0392701 Permit Version: 1 Effective Date: 1st December 2005 Issued Date: 30th November 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of River Lugg **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	829	2	353345 248386
10	**Discharge Consents** Operator: Morris R V Property Type: Domestic Property (Single) Location: Hereford Marden - Adj Longroad (S, Marden - Adj Longroad (Septi Authority: Environment Agency, Welsh Region Catchment Area: River Wye Reference: An0073901 Permit Version: 1 Effective Date: 1st July 1988 Issued Date: 1st July 1988 Revocation Date: 9th February 1994 Discharge Type: Unspecified Discharge Environment: Land/Soakaway Receiving Water: Soakaway **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A20SW (E)	936	2	353710 248020
10	**Discharge Consents** Operator: Morris R V Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Hereford Marden - Adj Longroad, Marden - Adj Longroad (Septi, Unknown, Unknown Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: An0073901 Permit Version: 1 Effective Date: 1st July 1988 Issued Date: 1st July 1988 Revocation Date: 9th February 1994 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Soakaway **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A20SW (E)	936	2	353710 248020

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Discharge Consents** Operator: Barrett I Property Type: Domestic Property (Single) Location: Bungalow Adj To Ivydene, Marden, Hereford Authority: Environment Agency, Welsh Region Catchment Area: River Wye Reference: An0140801 Permit Version: 2 Effective Date: 8th May 1989 Issued Date: 8th May 1989 Revocation Date: 19th October 1992 Discharge Type: Unspecified Discharge Environment: Land/Soakaway Receiving Water: Soakaway **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A20SW (NE)	956	2	353700 248100
11	**Discharge Consents** Operator: Barrett I Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Bungalow Adj To Ivydene, Marden, Hereford, , Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: An0140801 Permit Version: 2 Effective Date: 8th May 1989 Issued Date: 8th May 1989 Revocation Date: 19th October 1992 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Soakaway **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A20SW (NE)	956	2	353700 248100
11	**Discharge Consents** Operator: Barrett I Property Type: Domestic Property (Single) Location: Bungalow Adj To Ivydene, Marden, Hereford Authority: Environment Agency, Welsh Region Catchment Area: River Wye Reference: An0140801 Permit Version: 1 Effective Date: 1st January 1901 Issued Date: 1st January 1901 Revocation Date: 7th May 1989 Discharge Type: Unspecified Discharge Environment: Land/Soakaway Receiving Water: Soakaway **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A20SW (NE)	956	2	353700 248100
11	**Discharge Consents** Operator: Barrett I Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Bungalow Adj To Ivydene, Marden, Hereford, , Authority: Environment Agency, Midlands Region Catchment Area: River Lugg Reference: An0140801 Permit Version: 1 Effective Date: 1st January 1901 Issued Date: 1st January 1901 Revocation Date: 7th May 1989 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Soakaway **Status: Authorisation revokedRevoked** Positional Accuracy: Located by supplier to within 100m	A20SW (NE)	956	2	353700 248100
	Nearest Surface Water Feature	A13SW (S)	0	-	352663 247565

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: MARDEN Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Not Supplied Incident Date: 5th July 1991 Incident Reference: 718 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	705	2	351800 247650
12	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Leystone Bridge, MARDEN Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 9th July 1991 Incident Reference: 1216 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	709	2	351800 247700
13	**Pollution Incidents to Controlled Waters** Property Type: Farm Premises: Vegetable Washing Location: MARDEN Authority: Environment Agency, Welsh Region Pollutant: Farm Effluent/Slurry Note: Deliberate Act Incident Date: 8th April 1992 Incident Reference: 3582 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	733	2	351950 248100
14	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: So 517477 Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: Not Supplied Incident Date: 13th November 1995 Incident Reference: 26694 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	808	2	351700 247700
	River Quality Name: Lugg GQA Grade: River Quality A Reach: Conf.Moreton Bk.-Conf.Humber Bk. Estimated Distance (km): 19.5 Flow Rate: Flow less than 20 cumecs Flow Type: River Year: 2000	A12NW (W)	774	2	351733 247689
15	**Water Abstractions** Operator: Messrs O H Price And Son Licence Number: 19/55/12/0068 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Two Wells; Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	0	2	352800 247700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Water Abstractions** Operator: O H Price & Son Licence Number: 19/55/12/0068 Permit Version: 100 Location: Well At New House Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Area Of Land At New House Farm Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13SE (E)	39	2	352900 247620
17	**Water Abstractions** Operator: Mr Percival James Millichip Licence Number: 19/55/12/0353 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	103	2	352900 247800
18	**Water Abstractions** Operator: Mrs A Brennand Licence Number: 19/55/12/0124 Permit Version: 100 Location: Well Near Stoney Cross Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	146	2	352450 247770
19	**Water Abstractions** Operator: Mr F Luntley Licence Number: 19/55/12/0031 Permit Version: 100 Location: Well Near School Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 7th October 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	163	2	352940 247850

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Water Abstractions** Operator: Mr R H Jaine Licence Number: 19/55/12/0716 Permit Version: 101 Location: Borehole At Rose Villa Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 1970 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SE (W)	298	2	352240 247480
21	**Water Abstractions** Operator: Mr J Colebatch Licence Number: 19/55/12/0554 Permit Version: 100 Location: Well At Hawkersland Cross Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	432	2	353170 247990
22	**Water Abstractions** Operator: Messrs O H Price And Son Licence Number: 19/55/12/0068 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14SW (E)	483	2	353300 247400
23	**Water Abstractions** Operator: Mr P Thomson Licence Number: 19/55/12/0167 Permit Version: 101 Location: Well At Paradise Green Authority: Environment Agency, Welsh Region Abstraction: Household Water Supply: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Hall Pool Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2002 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SE (W)	526	2	352040 247370

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	**Water Abstractions** Operator: Mrs R Edwards Licence Number: 19/55/12/0167 Permit Version: 100 Location: Well At Paradise Green Authority: Environment Agency, Welsh Region Abstraction: Household Water Supply: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 6th September 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A12SE (W)	526	2	352040 247370
24	**Water Abstractions** Operator: Mr V Vaughan Licence Number: 19/55/12/0438 Permit Version: 100 Location: Well At Paradise Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A12SW (W)	565	2	351960 247470
25	**Water Abstractions** Operator: O H Price & Son Licence Number: 19/55/12/0832 Permit Version: Not Supplied Location: Borehole At, Freen's Court Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 4 Yearly Rate (m3): 1663.84 Details: Licenced from 01-Jan to 31-Dec Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14SE (E)	576	2	353400 247400
26	**Water Abstractions** Operator: Wisteston Farms Licence Number: 19/55/12/0583 Permit Version: 100 Location: Borehole At Brook Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st May 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	617	2	352110 248100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	**Water Abstractions** Operator: Dr C.J. Thomas Licence Number: 19/55/12/0240 Permit Version: 100 Location: Well At Paradise House Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st June 1990 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7NW (W)	754	2	351830 247280
28	**Water Abstractions** Operator: Wisteston Farms Licence Number: 19/55/12/0766 Permit Version: Not Supplied Location: River Lugg Near, UPPER WISTESTON Authority: Environment Agency, Welsh Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 708 Yearly Rate (m3): 18181.8 Details: Licenced from 01-Apr to 30-Sep Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NW (W)	776	2	351750 247800
29	**Water Abstractions** Operator: Farmcare Ltd Licence Number: 19/55/12/0104 Permit Version: 101 Location: Borehole Near Burnmarsh Cottages Authority: Environment Agency, Welsh Region Abstraction: Dairies: Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Burmarsh Estate Authorised Start: 01 September Authorised End: 31 December Permit Start Date: 1st April 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	779	2	353240 246920
30	**Water Abstractions** Operator: Co-operative Wholesale Society Ltd Licence Number: 19/55/12/0104 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Private Water Supplies (Domestic) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	966	2	353400 246800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	**Water Abstractions** Operator: Farmcare Ltd Licence Number: 19/55/12/0104 Permit Version: 101 Location: Borehole In Burnmarsh Authority: Environment Agency, Welsh Region Abstraction: Household Water Supply: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Burmarsh Estate Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	978	2	353450 246820
	Water Abstractions Operator: Mr Percival James Millichip Licence Number: 19/55/12/0353 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A11SE (W)	1011	2	351500 247500
	Water Abstractions Operator: Mr J Jones Licence Number: 19/55/12/0279 Permit Version: 100 Location: Borehole Near Ordis Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 22nd November 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3NE (S)	1158	2	352770 246350
	Water Abstractions Operator: Mr A Lloyd Licence Number: 19/55/12/0186 Permit Version: 100 Location: Well At Brierley House Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A23SW (N)	1178	2	352670 248930

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr H Constant Licence Number: 19/55/12/0543 Permit Version: 100 Location: Well At Marden Court (Point B) Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A6NE (SW)	1200	2	351440 247060
	Water Abstractions Operator: Mr James William Jones Licence Number: 19/55/12/0279 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 1000 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3NE (S)	1213	2	352800 246300
	Water Abstractions Operator: Mr J Mullen Licence Number: 19/55/12/0435 Permit Version: 100 Location: Borehole At Sunnybank Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A24SE (NE)	1214	2	353440 248790
	Water Abstractions Operator: Mr William Sydney Christopher Price Licence Number: 19/55/12/0279 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 1000 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3NE (S)	1217	2	352800 246295

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr H Constant Licence Number: 19/55/12/0543 Permit Version: 100 Location: Well At Marden Court (Point C) Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A6NW (W)	1272	2	351330 247130
	Water Abstractions Operator: Mrs G Davies Licence Number: 19/55/12/0605 Permit Version: 100 Location: Well At Small Ashes (Point B) Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A20SE (E)	1313	2	354060 248160
	Water Abstractions Operator: Mr H Constant Licence Number: 19/55/12/0543 Permit Version: 100 Location: Well At Marden Court (Point A) Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A1NE (SW)	1348	2	351560 246590
	Water Abstractions Operator: O H Price & Son Licence Number: 19/55/12/0832 Permit Version: 100 Location: Borehole At Downfield Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Area Of Land At Downfield Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th February 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SW (S)	1382	2	352380 246120

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr L Skyrme Licence Number: 19/55/12/0120 Permit Version: 100 Location: Borehole At Lower Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A24SE (NE)	1399	2	353550 248940
	Water Abstractions Operator: Mr R Sennett Licence Number: 19/55/12/0296 Permit Version: 100 Location: Well At Sunnybank Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th March 1970 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A23NW (N)	1428	2	352520 249160
	Water Abstractions Operator: Mr B Jones Licence Number: 19/55/12/0229 Permit Version: 100 Location: Well Near Sutton Lakes Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A10SE (SE)	1432	2	354080 246850
	Water Abstractions Operator: Mr G Williams Licence Number: 19/55/12/0538 Permit Version: 100 Location: Well At Soaklands Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A10SE (SE)	1449	2	354150 246940

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr B Jones Licence Number: 19/55/12/0229 Permit Version: 100 Location: Well At Sutton Lakes Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A10NE (E)	1530	2	354280 247030
	Water Abstractions Operator: Wisteston Farms Licence Number: 19/55/12/0766 Permit Version: 100 Location: River Lugg Near Upper Wisteston Authority: Environment Agency, Welsh Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: R.Lugg; Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 April Authorised End: 30 September Permit Start Date: 11th March 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A16NW (NW)	1566	2	351260 248570
	Water Abstractions Operator: Mr R Smith Licence Number: 19/55/12/0530 Permit Version: 100 Location: Well At Five Friars Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 1968 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4SW (S)	1568	2	353220 246060
	Water Abstractions Operator: Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 4 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th October 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 4 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th October 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790
	Water Abstractions Operator: Lafarge Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 2 Location: Freshwater Lagoon At Wellington Quarry Authority: Natural Resources Wales Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	3	350940 247790
	Water Abstractions Operator: Lafarge Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 2 Location: Freshwater Lagoon At Wellington Quarry Authority: Natural Resources Wales Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	3	350940 247790
	Water Abstractions Operator: Lafarge Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 2 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Lafarge Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 2 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790
	Water Abstractions Operator: Lafarge Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 3 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790
	Water Abstractions Operator: Lafarge Tarmac Trading Limited Licence Number: Wa/055/0012/001 Permit Version: 3 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790
	Water Abstractions Operator: Tarmac Limited Licence Number: Wa/55/12/0001 Permit Version: 1 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Tarmac Limited Licence Number: Wa/55/12/0001 Permit Version: 1 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790
	Water Abstractions Operator: Tarmac Limited Licence Number: Wa/055/0012/001 Permit Version: 1 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790
	Water Abstractions Operator: Tarmac Limited Licence Number: Wa/055/0012/001 Permit Version: 1 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1574	2	350940 247790
	Water Abstractions Operator: Mr M R Dawes Licence Number: 19/55/12/0787 Permit Version: 104 Location: River Lugg At Wellington Authority: Environment Agency, Welsh Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 30 September Permit Start Date: 31st March 2016 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A6SW (SW)	1578	2	351160 246770

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Lafarge Redland Aggregates Licence Number: 19/55/12/0853 Permit Version: 1 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1620	2	350930 248000
	Water Abstractions Operator: Lafarge Redland Aggregates Licence Number: 19/55/12/0853 Permit Version: 1 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1620	2	350930 248000
	Water Abstractions Operator: Tarmac Limited Licence Number: 19/55/12/0853 Permit Version: 2 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Mineral Washing Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 4th May 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1620	2	350930 248000
	Water Abstractions Operator: Tarmac Limited Licence Number: 19/55/12/0853 Permit Version: 2 Location: Freshwater Lagoon At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Mineral Products: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Quarry Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 4th May 2005 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1620	2	350930 248000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mrs M Williams Licence Number: 19/55/12/0499 Permit Version: 100 Location: Well At Vine Villa Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A24NW (N)	1624	2	353340 249290
	Water Abstractions Operator: Mr H Lane Licence Number: 19/55/12/0322 Permit Version: 100 Location: Well At Venns Green Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A25SE (NE)	1630	2	354050 248810
	Water Abstractions Operator: E J Rees Licence Number: 19/55/12/0787 Permit Version: Not Supplied Location: River Lugg At Authority: Environment Agency, Welsh Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 454 Yearly Rate (m3): 27276 Details: Licenced from 01-Apr to 30-Sep Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Approximate location provided by supplier	A16NW (NW)	1654	2	351130 248540
	Water Abstractions Operator: Mr John Bernard Rees Licence Number: 19/55/12/0091 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: River Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Wellington Brook; Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1658	2	350900 247200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr J Jones Licence Number: 19/55/12/0279 Permit Version: 100 Location: Well At Ordis Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 22nd November 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(S)	1662	2	352890 245860
	Water Abstractions Operator: Mr F Powell Licence Number: 19/55/12/0393 Permit Version: 100 Location: Borehole At Amberley Court Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 1984 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(E)	1687	2	354520 247930
	Water Abstractions Operator: Mr P Jones Licence Number: 19/55/12/0625 Permit Version: 100 Location: Borehole At Greenfields Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(NE)	1782	2	353620 249340
	Water Abstractions Operator: Mr S C Andrews Licence Number: 19/55/12/0501 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: River Daily Rate (m3): 0 Yearly Rate (m3): 2000 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(S)	1784	2	353400 245900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Breedon Southern Limited Licence Number: 19/55/12/0859/R01 Permit Version: 3 Location: Raglan Marl Formation, At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Construction: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 15th August 2017 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1785	2	350761 248002
	Water Abstractions Operator: Hope Construction Materials Limited Licence Number: 19/55/12/0859/R01 Permit Version: 2 Location: Raglan Marl Formation, At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Construction: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 29th May 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1785	2	350761 248002
	Water Abstractions Operator: Lafarge Tarmac Trading Limited Licence Number: 19/55/12/0859 Permit Version: 3 Location: Raglan Marl Formation, At Wellington Quarry Authority: Natural Resources Wales Abstraction: Construction: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th September 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1785	3	350760 248000
	Water Abstractions Operator: Hope Ready Mixed Concrete Limited Licence Number: 19/55/12/0859 Permit Version: 2 Location: Raglan Marl Formation, At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Construction: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th January 2013 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1785	2	350760 248000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Tarmac Limited Licence Number: 19/55/12/0859 Permit Version: 1 Location: Raglan Marl Formation, At Wellington Quarry Authority: Environment Agency, Welsh Region Abstraction: Construction: Process Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1785	2	350760 248000
	Water Abstractions Operator: P H Wainwright Licence Number: 19/55/12/0584 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 7 Yearly Rate (m3): 2662.14 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1787	2	353200 249500
	Water Abstractions Operator: Mr S C Andrews Licence Number: 19/55/12/0501 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 2000 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(S)	1789	2	353400 245895
	Water Abstractions Operator: Mr S C Andrews Licence Number: 19/55/12/0501 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: River Daily Rate (m3): 0 Yearly Rate (m3): 7000 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(S)	1802	2	353200 245800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr & Mrs G Blackmore Licence Number: 19/55/12/0150 Permit Version: 100 Location: Borehole In Sutton Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th October 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(S)	1827	2	352820 245680
	Water Abstractions Operator: Mr & Mrs Anthony Leigh & Mildred Anne Leach Licence Number: 19/55/12/107A Permit Version: Not Supplied Location: Monmarsh Farm, Marden, HEREFORD, Herefordshire, HR1 3EZ Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Borehole Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1839	2	352700 249595
	Water Abstractions Operator: Mr & Mrs A Leach Licence Number: 19/55/12/0107 Permit Version: 100 Location: Well At Monmarsh Farm (Point A) Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 10th October 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1844	2	352700 249600
	Water Abstractions Operator: Mr & Mrs Anthony Leigh & Mildred Anne Leach Licence Number: 19/55/12/107A Permit Version: Not Supplied Location: Monmarsh Farm, Marden, HEREFORD, Herefordshire, HR1 3EZ Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Borehole Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1847	2	352600 249595

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr S C Farrell Licence Number: 19/55/12/0222 Permit Version: 101 Location: Well Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 9th March 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SE)	1850	2	354390 246560
	Water Abstractions Operator: Mr & Mrs A Leach Licence Number: 19/55/12/0107 Permit Version: 100 Location: Well At Monmarsh Farm (Point B) Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 10th October 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1852	2	352600 249600
	Water Abstractions Operator: Hugh Robertson Lyke Licence Number: 19/55/9/0300 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 3 Yearly Rate (m3): 1247.9 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1884	2	353200 249600
	Water Abstractions Operator: Mr K Rushbrooke Licence Number: 19/55/12/0524 Permit Version: 100 Location: Well At Sunnyside Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th September 1973 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(SE)	1888	2	354380 246480

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr C Manning Licence Number: 19/55/12/0062 Permit Version: 100 Location: Well At Holbatch Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 7th October 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(NE)	1889	2	354570 248440
	Water Abstractions Operator: Mr J Badham Licence Number: 19/55/12/0416 Permit Version: 100 Location: Borehole At Lower Venn Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A25NE (NE)	1930	2	354130 249160
	Water Abstractions Operator: Mr D Boulcott Licence Number: 19/55/12/0080 Permit Version: 100 Location: Well At Hill Farm Authority: Environment Agency, Welsh Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th August 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A5NE (SE)	1953	2	354360 246350
	Water Abstractions Operator: Charles Michael Mercer Licence Number: 19/55/12/0822 Permit Version: Not Supplied Location: River Lugg At, SUTTON ST NICHOLAS Authority: Environment Agency, Welsh Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 545 Yearly Rate (m3): 21593 Details: Licenced from 01-May to 31-Aug Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Approximate location provided by supplier	(SW)	1990	2	351780 245660

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr S C Andrews Licence Number: 19/55/12/0501 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: River Daily Rate (m3): 0 Yearly Rate (m3): 1000 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(SE)	1993	2	353900 245900
	Water Abstractions Operator: Mr S C Andrews Licence Number: 19/55/12/0501 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 0 Yearly Rate (m3): 1000 Details: Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(SE)	1998	2	353900 245895
	Groundwater Vulnerability Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 29 Worcestershire Scale: 1:100,000	A13SE (NE)	0	2	352686 247622
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (NE)	0	1	352686 247622
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13NE (NE)	0	1	352756 247670
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (NE)	0	1	352686 247622
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (SE)	0	1	352707 247585
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 224.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SE (S)	0	4	352709 247547

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 93.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SE (S)	0	4	352700 247584
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 214.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SW (S)	1	4	352666 247539
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SE (E)	3	4	352863 247599
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 766.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SW (S)	87	4	352607 247384
37	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 8.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SW (SW)	97	4	352473 247456
38	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 10.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SW (SW)	99	4	352477 247444
39	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 12.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SW (SW)	104	4	352468 247449
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 582.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SE (E)	111	4	352945 247528
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1144.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A13SW (SW)	112	4	352456 247457

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 100.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A18SW (NW)	387	4	352412 248022
43	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 29.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	436	4	352341 248042
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	465	4	352333 248070
45	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 57.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	484	4	352321 248086
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	533	4	352277 248118
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	545	4	352254 248118
48	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 11.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A12SW (W)	548	4	351999 247406
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	549	4	352241 248114
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A12SW (W)	556	4	351996 247395

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 164.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	564	4	352224 248122
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 120.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	690	4	351997 248088
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 141.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SE (NW)	690	4	352084 248182
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 974.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Lugg Catchment Name: Wye Primacy: 1	A12NW (W)	700	4	351806 247663
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 144.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	719	4	351892 247999
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	736	4	351890 248025
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A12NW (W)	741	4	351821 247907
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	741	4	351893 248039
59	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 7.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	745	4	351898 248051

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	750	4	351896 248058
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 199.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Lugg Catchment Name: Wye Primacy: 1	A12NW (W)	753	4	351810 247910
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 309.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Lugg Catchment Name: Wye Primacy: 1	A12NW (W)	753	4	351810 247910
63	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 6.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	768	4	351902 248096
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 220.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (NE)	824	4	353314 248404
65	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 30.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NE (NE)	849	4	353412 248351
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NE (NE)	856	4	353437 248334
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 564.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17SW (NW)	861	4	351780 248088
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NE (NE)	863	4	353451 248330

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
69	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 67.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NE (NE)	875	4	353469 248327
70	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 48.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (NE)	879	4	353273 248500
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 204.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17NW (NW)	891	4	351950 248323
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 794.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (N)	894	4	353046 248618
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A11NE (W)	903	4	351609 247733
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.7 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A11NE (W)	912	4	351600 247737
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (N)	915	4	353077 248631
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (NE)	917	4	353266 248549
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 235.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (N)	917	4	353081 248631

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NE (NE)	918	4	353536 248314
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 301.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NE (NE)	922	4	353541 248314
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1145.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Lugg Catchment Name: Wye Primacy: 1	A16SE (W)	928	4	351660 248005
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 2	A19NW (NE)	955	4	353298 248573
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (NE)	955	4	353298 248573
83	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 31.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 2	A19NW (NE)	963	4	353305 248579
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A11NE (W)	984	4	351530 247757
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 2	A19NW (NE)	987	4	353299 248610
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A19NW (NE)	987	4	353299 248610

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A23SW (N)	988	4	352422 248675
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 542.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Wye Primacy: 1	A17NE (NW)	999	4	352190 248591

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
89	**BGS Recorded Landfill Sites** Site Name: Sutton Walls Location: HEREFORD, Hereford & Worcester Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate	A3NE (S)	981	-	352766 246519
90	**Historical Landfill Sites** Licence Holder: Cleanaway Limited Location: Hereford, Herefordshire Name: Sutton Walls Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD31210 First Input Date: 31st December 1964 Last Input Date: 31st July 1981 Specified Waste Type: Deposited Waste included Inert, Industrial, Commercial, Household and Special Waste, and Liquid Sludge EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 1800/0182 BGS Ref: 2394 Other Ref: 1.056.03	A3NE (S)	981	2	352766 246519
	Local Authority Landfill Coverage Name: Herefordshire Council - Has not been able to supply Landfill data		0	5	352686 247622
91	**Potentially Infilled Land (Non-Water)** Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1976	A18NE (N)	823	-	352970 248564
92	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A13NE (NE)	140	-	352895 247864
93	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NE (W)	417	-	352123 247788
94	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A9NW (SE)	520	-	353211 247217
95	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A9NW (SE)	538	-	353212 247193
96	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1905	A17SE (NW)	671	-	352034 248101

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pridoli Rocks (Undifferentiated)	A13SE (NE)	0	1	352686 247622
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	0	1	352756 247670
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (NE)	0	1	352686 247622
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (S)	21	1	352715 247529
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (SW)	41	1	352563 247448
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SW (NW)	412	1	352487 248079
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SE (W)	438	1	352068 247588

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NE (SW)	512	1	352236 247097
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19SW (NE)	548	1	353075 248233
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SW (N)	606	1	352444 248270
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NW (SW)	747	1	352000 247000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SW (SW)	868	1	351915 246914
97	**BGS Recorded Mineral Sites** Site Name: Venn'S Green Location: Bodenham, Hereford, Herefordshire Source: British Geological Survey, National Geoscience Information Service Reference: 45122 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Silurian Geology: Raglan Mudstone Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A18NE (N)	842	1	352968 248584
	BGS Measured Urban Soil Chemistry No data available				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	352707 247585
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	352707 247585
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	352691 247615
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	1	352707 247585
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	21	1	352715 247529
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	41	1	352563 247448
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	73	1	352694 247461
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	352686 247651
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	352686 247622
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	0	1	352686 247651

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
98	**Contemporary Trade Directory Entries** Name: Gough Wooden Products Location: Nine Wells, Marden, HEREFORD, HR1 3EP Classification: Sports Equipment Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NW (N)	785	-	352673 248534
99	**Fuel Station Entries** Name: Marden Service Station Location: Marden, Marden, Hereford, Herefordshire, HR1 3EW Brand: Unbranded Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	303	-	352230 247490
100	**Points of Interest - Manufacturing and Production** Name: Tank Location: HR1 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A14NW (NE)	276	6	353041 247903
101	**Points of Interest - Manufacturing and Production** Name: Tank Location: HR1 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	573	6	352189 248108

Sensitive Land Use

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
102	**Ancient Woodland** Name: Sally Bed Reference: 1504332 Area(m²): 15019.68 Type: Ancient and Semi-Natural Woodland	A23SW (N)	933	7	352523 248651
103	**Nitrate Vulnerable Zones** Name: Hereford, England Description: Groundwater Source: Environment Agency, Head Office	A13SE (NE)	0	8	352686 247622
104	**Nitrate Vulnerable Zones** Name: R Lugg - Conf R Arrow To Conf R Wye Nvz Description: Surface Water Source: Environment Agency, Head Office	A13SE (NE)	0	8	352686 247622
105	**Sites of Special Scientific Interest** Name: River Lugg Multiple Areas: N Total Area (m2): 1424340.33 Source: Natural England Reference: 1006616 Designation Details: Local Wildlife Site Designation Date: 2nd February 1995 Date Type: Notified Designation Details: Special Area Of Conservation Designation Date: 2nd February 1995 Date Type: Notified Designation Details: Site Of Special Scientific Interest Designation Date: 2nd February 1995 Date Type: Notified Designation Details: Water Framework Directive (WFD) Designation Date: 2nd February 1995 Date Type: Notified	A12NW (W)	686	7	351820 247660
106	**Special Areas of Conservation** Name: River Wye / Afon Gwy (England) Multiple Areas: Y Total Area (m2): 9648452.45 Source: Natural Resources Wales Reference: UK0012642 **Status: Designated**	A12NW (W)	684	3	351821 247656
107	**Special Areas of Conservation** Name: River Wye Multiple Areas: Y Total Area (m2): 9332934.01 Source: Natural England Reference: UK0012642 **Status: Designated**	A12NW (W)	686	7	351820 247659

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Herefordshire Council - Environmental Health Department	March 2013	Annual Rolling Update
Discharge Consents		
Environment Agency - Welsh Region	August 2014	Quarterly
Environment Agency - Midlands Region	October 2017	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Midlands Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - Midlands Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - Midlands Region	October 2017	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Herefordshire Council - Environmental Health Department	August 2014	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
Herefordshire Council - Environmental Health Department	August 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Herefordshire Council - Environmental Health Department	August 2014	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	May 2017	
Pollution Incidents to Controlled Waters		
Environment Agency - Welsh Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - Midlands Region	July 2015	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - Midlands Region	March 2013	As notified
Registered Radioactive Substances		
Environment Agency - Midlands Region	January 2015	
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - Midlands Region - Upper Severn Area	October 2017	Quarterly
Environment Agency - Midlands Region - West Area	October 2017	Quarterly
Water Abstractions		
Environment Agency - Welsh Region	October 2017	Quarterly
Natural Resources Wales	October 2017	Quarterly
Water Industry Act Referrals		
Environment Agency - Midlands Region	July 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Superficial Aquifer Designations		
British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones		
Environment Agency - Head Office	October 2017	Quarterly

Agency & Hydrological	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2017	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2017	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	August 2017	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	August 2017	Quarterly
Flood Defences Environment Agency - Head Office	August 2017	Quarterly
OS Water Network Lines Ordnance Survey	July 2017	6 Weekly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water Suitability Environment Agency - Head Office	October 2013	As notified
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	October 2017	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Midlands Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Midlands Region - Upper Severn Area	October 2017	Quarterly
Environment Agency - Midlands Region - West Area	October 2017	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Midlands Region - Upper Severn Area	July 2017	Quarterly
Environment Agency - Midlands Region - West Area	July 2017	Quarterly
Local Authority Landfill Coverage		
Herefordshire Council	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Herefordshire Council	May 2000	Not Applicable
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites		
Environment Agency - Midlands Region - Upper Severn Area	March 2003	Not Applicable
Environment Agency - Midlands Region - West Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Midlands Region - Upper Severn Area	March 2003	Not Applicable
Environment Agency - Midlands Region - West Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Midlands Region - Upper Severn Area	March 2003	Not Applicable
Environment Agency - Midlands Region - West Area	March 2003	Not Applicable
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	September 2017	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Herefordshire Council - Minerals and Waste Department	February 2016	Annual Rolling Update
Planning Hazardous Substance Consents		
Herefordshire Council - Minerals and Waste Department	February 2016	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2017	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	September 2017	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2017	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Points of Interest - Commercial Services PointX	September 2017	Quarterly
Points of Interest - Education and Health PointX	September 2017	Quarterly
Points of Interest - Manufacturing and Production PointX	September 2017	Quarterly
Points of Interest - Public Infrastructure PointX	September 2017	Quarterly
Points of Interest - Recreational and Environmental PointX	September 2017	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	May 2017	Bi-Annually
Areas of Outstanding Natural Beauty Natural England	August 2017	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	August 2017	Bi-Annually
Marine Nature Reserves Natural England	August 2017	Bi-Annually
National Nature Reserves Natural England	August 2017	Bi-Annually
National Parks Natural England	August 2017	Bi-Annually
Nitrate Vulnerable Zones Environment Agency - Head Office Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	June 2017 October 2015	Bi-Annually
Ramsar Sites Natural England	August 2017	Bi-Annually
Sites of Special Scientific Interest Natural England	August 2017	Bi-Annually
Special Areas of Conservation Natural England Natural Resources Wales	August 2017 August 2017	Bi-Annually Bi-Annually
Special Protection Areas Natural England	August 2017	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

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

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Natural Resources Wales** Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 023 8079 2000 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Herefordshire Council** Brockington, 35 Hafod Road, Hereford, Herefordshire, HR1 1SH	Telephone: 01432 260000 Website: www.herefordshire.gov.uk
6	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
7	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
8	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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