DESK STUDY & BASEMENT IMPACT ASSESSMENT REPORT

No 19 South Street
London
W1K 2XB

Client: Sam Farmar

J20230

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GEA

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This report is intended as a Ground Investigation Report (GIR) as defined in BS EN1997-2, unless specifically noted otherwise. The report is not a Geotechnical Design Report (GDR) as defined in EN1997-2 and recommendations made within this report are for guidance only.

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Part 3: GROUND MOVEMENT ASSESSMENT

EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

BRIEF

This report describes the findings of a Desk Study and Basement Impact Assessment carried out by Geotechnical and Environmental Associates Limited (GEA) on the instructions of Totem Studio London, on behalf of Sam Farmar, with respect to the proposed demolition of the existing property and construction of a new four-storey house, with an additional single storey basement beneath the whole footprint. The purpose of the investigation has been to research the history of the site with respect to previous contaminative uses, to assess the extent of any contamination, to provide information to assist with the design of retaining walls and foundations and to provide an assessment of any impact on the local hydrology, hydrogeology or surrounding structures.

The assessment has been carried out through a review of the results of a limited ground investigation completed by O'Sullivan Civil Engineering on behalf of the structural engineer, Solid Geometry, which comprised a series of shallow trial pits and a fully shored excavation to the full depth of the proposed basement.

DESK STUDY FINDINGS

The desk study findings indicate that the site does not have a potentially contaminative history, having been developed with the existing house since the mid-1800s. Based on the desk study research, it is considered that there is a LOW risk of there being a contaminant linkage at this site that would result in a requirement for remediation work.

GROUND CONDITIONS

The expected ground conditions were encountered in that, below a variable thickness of made ground, Lynch Hill Gravel was encountered to a depth of 4.2 m below existing ground level, with the top of the London Clay inferred at a depth of 4.5 m below existing ground level. The made ground generally comprised brown silty clayey sand with gravel and variable amounts of brick and concrete fragments and extended to depths of between 1.05 m and 1.60 m below existing ground level. The Lynch Hill Gravel comprised an upper layer of brown clayey very sandy clay, which extended to a depth of 3.1 m below existing ground level, where it was underlain by firm brown silty clay to a depth of 3.6 m below existing ground level. Below this, the Lynch Hill Gravel comprised brown slightly clayey very sandy gravel, which was proved to the base of the trial excavation, at a depth of 4.2 m below existing ground level. The base of the Lynch Hill Gravel has been inferred by hand-probing to be present at a depth of 4.50 m below existing ground level, with the underlying London Clay extending to the full depth of depth investigated, of 5.00 m below existing ground level.

Groundwater was encountered towards the base of the Lynch Hill Gravel, at a depth of 4.20 m (18.74 m OD), rising to a standing level of 4.00 (18.94 m AD). Contamination testing has generally indicated low concentrations of the contaminants tested, although elevated lead was measured in one of the samples of the made ground tested.

RECOMMENDATIONS

The proposed basement will extend to a depth of approximately 3.5 m below existing ground floor level, such that formation level is expected to be within the Lynch Hill Gravel. Significant groundwater inflows are not expected to be encountered and therefore the proposed use of traditional underpinning is considered appropriate for support of the proposed basement excavations. As the new basement does not close a pathway or create a cut-off, it is considered that the groundwater will continue to follow a pathway beneath the proposed basement and will not build up significantly behind it. The basement should not, therefore, have any noticeable effect on groundwater flow.

As the development will result in the removal of any potentially contaminated soils, a requirement for remediation work is not envisaged. However, as with any development site, a watching brief should be maintained during the groundworks and a programme of safe working should be implemented to protect workers handling any soil.

The ground movement analysis has indicated movements of sensitive structures fall within acceptable limits.

Part 1: INVESTIGATION REPORT

This section of the report details the objectives of the investigation, the work that has been carried out to meet these objectives and the results of the investigation. Interpretation of the findings is presented in Part 2.

1.0 INTRODUCTION

Geotechnical and Environmental Associates (GEA) has been commissioned by Totem Studio London, on behalf of Sam Farmar, to carry out a desk study and Basement Impact Assessment for this site at No 19 South Street, London, W1K 2XB, in the City of Westminster.

A ground investigation has been completed by O'Sullivan Civil Engineering on behalf of the structural engineer, Solid Geometry, which comprised a series of shallow trial pits and a fully shored excavation to the full depth of the proposed basement. Records of this work have been provided by the engineers and have been referred to in order to assist in this assessment.

1.1 Proposed Development

It is understood that it is proposed to demolish the existing three-storey building and replace it with a new four-storey house, which will also include a single level basement beneath the full footprint of the site.

The existing ground floor level is to be raised as part of the development, such the proposed basement is expected to extend to a depth of approximately 4.2 m (approx. 19.4 m OD) below the proposed ground floor level of about 23.6 m OD.

This report is specific to the proposed development and the advice herein should be reviewed if the development proposals are amended.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows:

- to check the history of the site with respect to previous contaminative uses;
- to provide an assessment of the risk of encountering unexploded ordnance (UXO) beneath the site;
- to determine the ground conditions and their engineering properties;
- to use the above information to provide recommendations for shallow foundations and retaining walls;
- to assess the impact of the proposed basement on the local hydrogeology, hydrology and stability of the surrounding natural and build environment;
- to provide an indication of the degree of soil contamination present; and
- to assess the risk that any such contamination may pose to the proposed development, its users or the wider environment.

1.3 Scope of Work

In order to meet the above objectives, a desk study and Basement Impact Assessment has been carried out, comprising, in summary, the following activities:

- a review of historical Ordnance Survey (OS) maps and environmental searches sourced from the Envirocheck database;
- a review of readily available geological and hydrogeological maps;
- commissioning of a Preliminary UXO Risk Assessment by 1st Line Defence, a specialist in the field;
- a walkover survey of the site carried out in conjunction with the desk study;
- inspection of the trial pits and trial hole completed by O'Sullivan Civil Engineering by an engineer from GEA;
- an assessment of the potential impact of the proposed development on the local hydrogeology, hydrology and land stability;
- testing of selected soil samples, taken during the site visit, for contamination and geotechnical purposes; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

This report includes a contaminated land assessment which has been undertaken by a suitably qualified and competent professional in accordance with the methodology presented by the Environment Agency in their Land contamination risk assessment (LCRM)[1] published 8 October 2020. This involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the United Kingdom. Risk management is divided into three stages; Risk Assessment, Options Appraisal and Remediation, and each stage comprises three tiers. The Risk Assessment stage includes preliminary risk assessment (PRA), generic quantitative risk assessment (GQRA) and detailed quantitative risk assessment (DQRA)and this report includes the PRA and GQRA.

The work has also been carried out to address the requirements of Policy CM28.1[2] of Westminster's City Plan, dated July 2016. The aim of the work is to provide information on land stability and groundwater and in particular to assess whether the development will affect the stability of neighbouring properties or groundwater movements and whether any identified impacts can be appropriately mitigated by the design of the development.

The requirements of the SMS addressed within this report are detailed below, along with the sections of this report where each of the requirements is covered;

- a thorough desk study (Sections 2.0 to 2.7);
- a site investigation which can be demonstrated to be relevant to the site (Sections 3.0 to 4.6);

1 https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
2 City of Westminster (2016) *Westminster's City Plan: Consolidated with Basement and Mixed-Use Revisions*

- an analysis of the Upper Aquifer (when present) and how the basement may impact on any groundwater flow (Section 2.6 and Section 7.3);
- consideration of flood risk and surface water flooding (Section 2.6); and
- an assessment of movements expected and how these will affect adjoining or adjacent properties (Part 3).

The exploratory methods adopted in this investigation have been selected on the basis of the constraints of the site including but not limited to access and space limitations, together with any budgetary or timing constraints. Where it has not been possible to reasonably use an EC7 compliant investigation technique a practical alternative has been adopted to obtain indicative soil parameters and any interpretation is based upon engineering experience, local precedent where applicable and relevant published information.

1.4 Limitations

The conclusions and recommendations made in this report are limited to those that can be made on the basis of the investigation. The results of the work should be viewed in the context of the range of data sources consulted, the number of locations where the ground was sampled and the number of soil, gas or ground water samples tested. No liability can be accepted for conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from third parties are given in good faith on the assumption that the information is accurate; no independent validation of third-party information has been made by GEA.

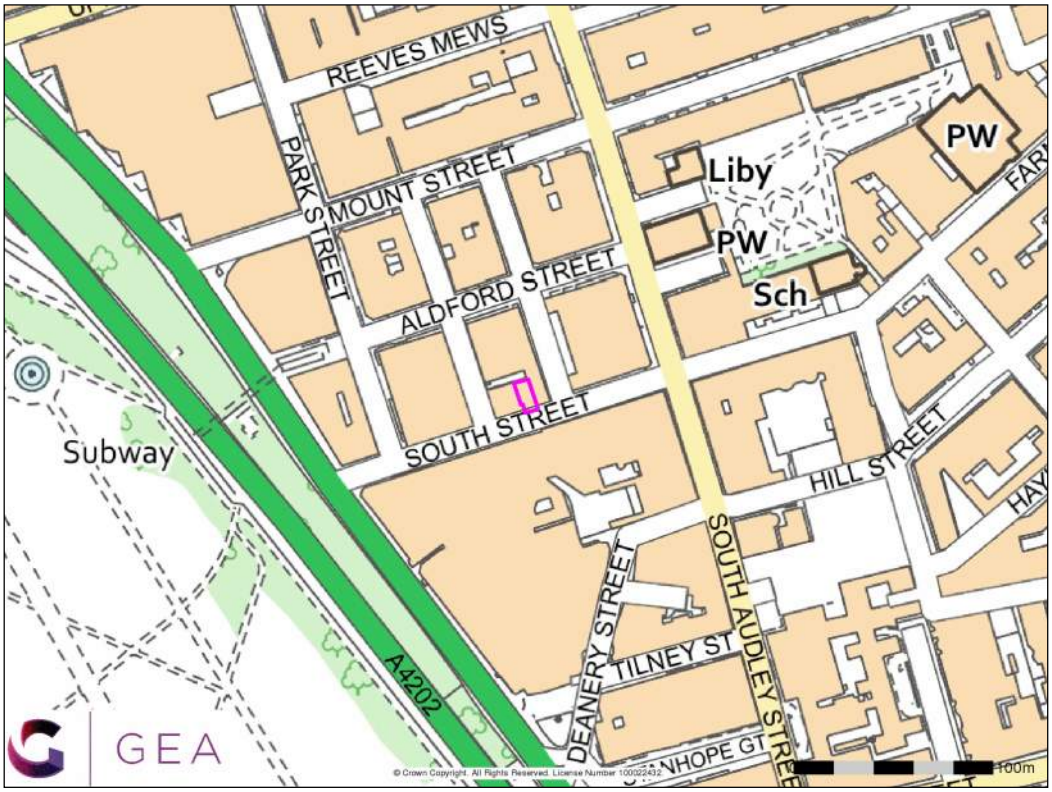
2.0 THE SITE

2.1 Site Description

The site is located in the Mayfair area of the City of Westminster, approximately 500 m southeast of Marble Arch London Underground Station, 500 m to the northwest of Green Park London Underground Station and 175 m to the east of Hyde Park. It may additionally be located by National Grid Reference 528320, 180440, and is shown on the map extract overleaf.

The site fronts onto South Street to the south and a private alleyway to the north and is bounded to the east and west by similar three-storey properties of No 17 South Street and No 21 South Street to west, respectively. Whilst the site and adjoining properties to the east and west do not include existing basements, No 15 South Street to the west and the adjoining properties to the north, fronting onto Rex Place, Aldford Street and Balfour Mews, are all understood to include existing basement structures.

The site is essentially level, although the existing ground floor it is set approximately 0.70 m below surrounding street level, at a level of 22.94 m OD. It is rectangular in shape, measuring approximately 7.5 m by 16 m in maximum extent and is occupied by a three-storey mid-terraced house, with a small courtyard space on the north-western part of the site, which is shared with No 17 South Street and provides access to the shared alleyway that leads onto Rex Place.



The site is devoid of vegetation, as it is entirely covered by the existing buildings and areas of external hardstanding. The building on site is not listed, nor are any of the adjoining structures.

2.2 Site History

The site history has been researched by reference to internet sources and historical Ordnance Survey (OS) maps obtained from the Envirocheck database.

The earliest maps studied, dated 1850 to 1872, show that South Street had been established by this time, with the site occupied by a terraced property with an existing rear courtyard and Mews area immediately to the north, much as the present configuration. The Dorchester Hotel was present approximately 50 m to the south, whilst the rest of the surrounding comprised similar terraced structures to those present on and immediately around the site.

Aldford Street, then known as Chapel Street, had also been established to the north. However, neither of the present-day streets of Balfour Mews and Rex Place, to the east and west of the site respectively, had been established at this time, with these areas occupied by terraced housing fronting onto South Street and Chapel Street.

At some time between 1896 and 1916, Balfour Mews was established to the east of the site, with Rex Place following at some time between 1916 and 1920.

The site and immediate surrounding area have since remained essentially unchanged to the present day.

2.3 Other Information

A search of public registers and databases has been made via the Envirocheck database and relevant extracts from the search are appended. Full results of the search can be provided if required.

The Envirocheck report has indicated that there are no recorded landfill sites, waste management, transfer, treatment or disposal sites, or any areas of potentially infilled land located within 500 m of the site.

There have been no pollution incidents to controlled waters within 500 m of the site, nor are there any other records of environmental controls or incidents that are likely to have an adverse impact on the site.

There are records of three fuel stations within 500 m of the site, two of which located 190 m to the southeast and 300 m to the west of the site, respectively, are listed as being obsolete. However, the third record, located 128 m to the west, is listed as active and corresponds with the existing Esso garage on Park Lane.

Information on Urban Soil Chemistry provided by the BGS also indicates that background concentrations for lead in the vicinity of the site are likely to range between 300 mg/kg and 600 mg/kg. Therefore, whilst relatively high concentrations of lead may be encountered within any near surface soils present on the site, a significant proportion of the measured concentration is likely to be the result of residual airborne sources and this will need to be taken account of in any subsequent risk assessment.

Reference to records compiled by the Health Protection Agency (formerly the National Radiological Protection Board) indicates that the site falls within an area where less than 1 % of homes are affected by radon emissions and therefore radon protective measures will not be necessary.

2.4 Preliminary UXO Risk Assessment

A Preliminary UXO Risk Assessment has been completed by 1st Line Defence (report ref EP12115-00, dated October 2020), and a copy of the report is included in the appendix. The risk assessment has been carried out in accordance with the guidelines provided by CIRIA[3], which state that the likelihood of encountering and detonating UXO below a site should be assessed along with establishing the consequences that may arise. The first phase comprises a preliminary risk assessment, which should be undertaken at an early stage of the development planning. If such an assessment identifies a high level of risk then a detailed risk assessment should be carried out by a UXO specialist, which will identify an appropriate course of action with regard to risk mitigation.

The report indicates that, during World War II (WWII), the site was located within the Metropolitan Borough of Westminster, which sustained a very high bomb density. However, the site does not appear to have been directly affected by bombing and is not labelled as suffering any damage on available damage mapping. It is considered likely that the property would have been regularly accessed throughout the war and subject to regular post-raid checks for signs of UXO. As such, no significant risk of encountering unexploded ordnance has therefore been identified for the site and, in accordance with the recommendations of the report, no further action is recommended.

3 CIRIA C681 (2009) *Unexploded ordnance (UXO) A guide for the construction industry*

2.5 Geology

The British Geological Survey (BGS) map of the area indicates that the site is underlain by the Lynch Hill Gravel over the London Clay Formation

According to the British Geological Society (BGS) Memoir, the Lynch Hill Gravel comprises sand and gravel with local lenses of silt and clay, whilst the underlying London Clay can typically be described as homogenous, slightly calcareous silty clay to very silty clay, with some beds of clayey silt grading to silty fine-grained sand.

GEA has previously carried out an investigation at No 2-4 Balfour Mews, approximately 20 m to the north of the site, which confirmed the expected ground conditions in that, beneath a surface covering of concrete, Lynch Hill Gravel was encountered and was underlain by London Clay. The Lynch Hill Gravel comprised orange-brown fine to coarse sand and angular to sub-angular gravel, with pockets of clay recorded in Borehole No 1, and extended to depths of between 3.60 m (17.24 m OD) and at least 4.90 m (15.56 m OD) below basement level. Below this, firm becoming stiff brown fissured clay becoming stiff grey fissured clay of the London Clay, extended to the maximum depth investigated of 9.85 m (10.99 m OD) below basement level.

A search of the BGS database has revealed a pair of historical boreholes in the vicinity of the site, located approximately 65 m to the east-southeast, which confirm the presence of the Lynch Hill Gravel to depths of between 5.00 m (17.19 m OD) and 5.70 m (17.43 m OD), and below which the underlying London Clay was proved to a depth of 25.00 m (-1.87 m OD).

A record of a deeper borehole, located approximately 100 m to the southwest of the site, indicates that the London Clay extends to a depth of at least 58 m and below which a downward sequence of the Lambeth Group, Thanet Sand and White Chalk is present.

2.6 Hydrology and Hydrogeology

The Lynch Hill Gravel is classified by the Environment Agency (EA) as a Secondary 'A' aquifer, which refers to 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 that were formerly classified as minor aquifers.

The underlying London Clay is classified as Unproductive Strata, which is soil or rock with low permeability and of negligible significance for water supply or river base flow.

The nearest surface water feature is an artificial fountain within Hyde Park, approximately 250 m to the west-northwest, whilst the closest part of the River Thames is located approximately 2 km to the southeast of the site.

Reference to The Lost Rivers of London[4] indicates that the Tyburn flowed in a southern direction past the south-eastern corner of Berkley Square, approximately 500 m to the east of the site, whilst a tributary of the River Westbourne rose in the area just to the northwest of Marble Arch, approximately 900 m to the northwest of the site, which then flowed in a southerly direction across Hyde Park before joining with the main course of the river at the present location of The Serpentine.

4 Nicholas Barton & Stephen Myers (2016) The *Lost Rivers of London.* Historical Publications Ltd

Groundwater is likely to be present near the boundary between the relatively high permeability Lynch Hill Gravel and the low permeability London Clay and is likely to flow in a generally southerly direction, with the local topography and towards the River Thames.

During the previous investigation at No 2-4 Balfour Mews, groundwater was encountered during drilling at 2.7 m (18.14 m OD) and 7.6 m (13.24 m OD) below basement level, whilst subsequent monitoring recorded groundwater within the Lynch Hill Gravel at a depth of 1.46 m (19.38 m OD) below basement level.

Based on this information, groundwater is therefore expected to be present at a depth of approximately 3.50 m below existing ground floor level of the site, corresponding to a level of about 19.44 m OD.

The site is not located within a Groundwater Source Protection Zone, nor is it located within a nitrate vulnerable zone. It is not indicated as being at risk of flooding from rivers or seas, nor has a potential risk of surface water flooding been identified. However, the BGS Flood Map indicates that the site is in an area with a potential risk for groundwater flooding to occur within properties situated below ground level.

The site is entirely covered by the existing building and hardstanding and therefore infiltration of rainwater into the ground beneath the site is limited, such that the majority of surface runoff is likely to drain into combined sewers in the road.

2.7 Preliminary Risk Assessment

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation of contaminated land. The determination of contaminated sites is based on a "suitable for use" approach which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach.

2.7.1 Source

The desk study findings do not indicate the site to have a potentially contaminative history as it has apparently been developed with the existing residential building since the mid-1800s.

Made ground may be present below and beyond the footprint of the existing house. However, given the history of the site, it is likely to comprise re-worked natural soils with a low organic content and be of limited thickness (≤ 1.0 m). It is therefore unlikely to represent a potential source of gas generation, as sufficient quantities of relatively recently deposited methanogenic materials are unlikely to be present, such that no sources of soil gas have been identified on site.

Offsite uses with potential for contamination have been identified within 250 m of the site, such as the existing petrol station, 128 m to the west of the site. However, given the distance and relative location with respect to the site, i.e., not directly upstream, they are not considered to pose a risk to the site.

There are no historical or existing landfill sites within 1 km of the site and no records of any infilled land within 500 m, such that a risk of soil gas migrating onto the site has not been identified.

2.7.2 Receptor

The continued use of the site for residential purposes means that end users represent relatively high sensitivity receptors, as at present.

Buried services are likely to come into contact with any contaminants present within the soils through which they pass and site workers are likely to come into contact with any contaminants present in the soils during construction works.

Any groundwater in the Lynch Hill Gravel could theoretically be at risk from leaching contaminants in any made ground and is therefore considered to represent a moderate risk receptor. At depth, the site is underlain by Unproductive Strata of the London Clay, so deep groundwater within the underlying Chalk aquifer is not considered to be a potential receptor.

2.7.3 Pathway

End users are presently isolated from direct contact with any contaminants present within any made ground beneath the site by the presence of the existing building and areas of external hardstanding, and will continue to be so, as the proposed development does not introduce any new pathways and will also result in the removal of any made ground from beneath the site through the excavation of the proposed basement.

The granular soils of the Lynch Hill Gravel could allow the migration of soluble contaminants, if present, to migrate to adjacent sites via the groundwater and vice versa. However, this pathway is already in existence. Additionally, as the site will remain covered by the extent of the proposed new building and associated basement, there is not considered to be a pathway for the leaching of surface water down to the groundwater table.

The negligibly permeable London Clay beneath the site would effectively create a barrier for the potential migration of contaminants to the Principal Aquifer at depth, and therefore a pathway does not exist.

Notwithstanding the risk to site workers and buried services, there is therefore, considered to be a low potential for a significant contaminant pathway to be present between any potential contaminant source and a target for the particular contaminant.

2.7.4 Preliminary Risk Appraisal

On the basis of the above it is considered that there is a LOW risk of there being a significant contaminant linkage at this site, which would result in a requirement for major remediation work.

As there is not considered to be a potential for hazardous ground gases to be present on or migrating towards the site, there should be no need to consider ground gas exclusion systems, or ground gas monitoring at this site, as outlined in Table A1 of RB17[5]. In any case, due to the nature of construction, which will comprise reinforced concrete walls and floors, and statutory requirements with respect to waterproofing, the proposed basement will have an inherent resistance against ground gas ingress of no less than that required for a low to medium risk site (CS3)[6], further reducing any potential risk.

5 Card, G, Wilson S, Mortimer S (2012), *A Pragmatic Approach to Ground Gas Risk Assessment.* CL:AIRE Research Bulletin RB17. CL:AIRE, London, UK. ISSN 2047-6450 (online)

6 Wilson S, Card, G, Mortimer S & Roberts J (2018). *Basement Waterproofing and Ground Gas.* Ground Gas Information Sheet No 4 (online). EPG and GB Card and Partners Ltd.

3.0 EXPLORATORY WORK

The presence and occupation of the existing structures severely limited access across the site. In order to meet the objectives described in Section 1.2, as far as possible within these access restrictions, two shallow trial pits were excavated, together with a fully shored trial hole, which extended to a depth of 4.20 m (18.74 m OD), but was locally deepened in one corner with a probing bar, to the maximum depth of the investigation of 5.0 m (17.94 m OD).

The trial pit records are appended, together with a site plan indicating the exploratory positions. Where shown, the Ordnance Datum levels have been interpolated from an undated 'site survey' drawing (ref: 19 south st_survey_00), a copy of which is included in the appendix. All depths are given relative to existing ground floor level of 22.94 m OD.

3.1 Sampling Strategy

The trial pit and trial hole locations were specified by the consulting engineer and positioned on site by O'Sullivan Civil Engineering in accessible locations, whilst avoiding known and suspected buried services.

An engineer from GEA visited site during the fieldwork to inspect the excavations and take samples for subsequent laboratory analysis.

Two samples of the made ground have been tested for the presence of contamination. The analytical suite of testing was selected to identify a range of typical industrial contaminants for the purposes of general coverage. For this investigation, the analytical suite for the soil included a range of metals, speciation of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. The samples were also screened for the presence of asbestos.

The contamination analyses were carried out at an MCERTs accredited laboratory with the majority of the testing suite accredited to MCERTS standards. A summary of the MCERTs accreditation and test methods are included with the attached results and further details are available upon request.

Samples of the natural soil were submitted to a geotechnical laboratory and a selection of suitable samples was scheduled for a programme of geotechnical testing, which included moisture content and Atterberg limit, particle size distribution testing and soluble sulphate and pH analysis.

4.0 GROUND CONDITIONS

The investigation has generally confirmed the expected ground conditions in that, beneath a variable thickness of made ground, Lynch Hill Gravel was encountered, with the top of the underlying London Clay inferred by probing at a depth of 4.50 m (18.44 m OD).

All depths are given relative to existing ground floor level of 22.94 m OD.

4.1 Made Ground

Made ground, typically comprising brown silty clayey sand with gravel and variable amounts of brick and concrete fragments, was encountered to depths of between 1.05 m (21.94 m OD) and 1.60 m (21.34 m OD) below existing ground floor level.

Apart from the presence of fragments of extraneous material noted above, no visual or olfactory evidence of contamination was observed during the fieldwork. However, two samples of the made ground have been analysed for a range of contaminants as a precautionary measure, and the results are detailed within Section 4.5.

4.2 Lynch Hill Gravel

The Lynch Gravel typically comprised an upper layer of brown clayey very sandy gravel, which was encountered below the made ground at the base of Trial Pit Nos 2 and 3 and extended to a depth of 3.10 m (19.84 m OD) below existing ground floor level, where it was underlain by firm brown silty clay with occasional gravel to a depth of 3.60 m (19.34 m OD) below existing ground floor level.

Below this, the Lynch Hill Gravel comprised brown slightly clayey very sandy gravel, which was proved in Trial Pit No 1 to a depth of 4.20 m (18.74 m OD) below existing ground floor level, but was inferred by additional hand-probing to a depth of approximately 4.50 (18.44 m OD) below existing ground floor level.

Atterberg limit tests have indicated the clay layer of the Lynch Hill Gravel to be of moderate shrinkability, with a plasticity index of 37 %.

No visual or olfactory evidence of contamination was observed within the Lynch Hill Gravel; the soil was inspected for discoloration and odours and no volatile vapours were detected using the PID.

4.3 London Clay

The possible presence of the London Clay was inferred by a drop in resistance in the probing bar extended from the base of Trial Pit No 1, from a depth of 4.50 m (18.44 m OD) below existing ground floor level, to the full depth of the investigation of 5.00 m (17.94 m OD) below existing ground floor level.

It is possible that this clay could represent a second clay layer within the Lynch Hill Gravel, similar to that encountered at a depth of between 3.10 m (19.84 m OD) and 3.60 m (19.34 m OD) below existing ground floor level, with the London Clay present at greater depth below the site. However, as nearby records have confirmed the London Clay to be present at a level of 17.24 m OD, the assumption that it represents the top of the London Clay comprises the more conservative option and is considered the most appropriate for the purpose of this assessment.

4.4 Groundwater

Groundwater was encountered towards the base of Trial Pit No 1 at a depth of 4.20 m (18.74 m OD) below existing ground floor level as a moderate inflow, which rose to a depth of 4.00 m (18.94 m OD) below existing ground floor level after a period of about 10 minutes, after which no further increase in level was observed.

4.5 Soil Contamination

The table below sets out the maximum and minimum values measured within the two samples of made ground analysed; all concentrations are in mg/kg unless otherwise stated.

Determinant	TP1 @ 0.5 m	TP2 @ 0.4 m	Generic Risk-based Screening Value
pH	9.6	8.2	N/A
Arsenic	14	14	40
Cadmium	< 0.2	< 0.2	149
Chromium (VI)	< 4	< 4	21
Chromium	17	13	910
Lead	290	**490**	310
Mercury	1.8	1.8	56
Selenium	<1	< 1	595
Copper	27	22	7,100
Nickel	16	13	180
Zinc	50	40	40,000
Total Cyanide	< 1	< 1	140
Total Phenols	< 1	< 1	420
Total PAH	30	25.9	67.1
Sulphide	< 1	23	50
Benzo(a)pyrene	1.6	1.6	4.7
Naphthalene	0.9	0.4	5.6
TPH	35	94	500*
Total Organic Carbon %	0.9	2	6
Asbestos in soil	Not Detected		N/A

Note: Figure in bold indicates concentration in excess of risk-based soil guideline values, as discussed in Part 2 of this report.
*Trigger for speciated testing.

4.5.1 Generic Quantitative Risk Assessment

The use of a risk-based approach has been adopted to provide an initial screening of the test results to assess the need for subsequent site-specific risk assessments. Contaminants of concern are those that have values in excess of generic human health risk-based guideline values, which are either the CLEA[7] Soil Guideline Values where available, the Suitable 4 Use Values[8] (S4UL) produced by LQM/CIEH calculated using the CLEA UK Version 1.06[9] software, or the DEFRA Category 4 Screening values[10], assuming a residential end use without plant uptake. The key generic assumptions for this end use are as follows:

7 *Updated Technical Background to the CLEA Model (Science Report SC050021/SR3) Jan 2009* and Soil Guideline Value reports for specific contaminants; all DEFRA and Environment Agency.
8 *The LQM/CIEH S4Uls for Human Health Risk Assessment* S4UL3065 November 2014
9 Contaminated Land Exposure Assessment (CL|EA) Software Version 1.06 Environment Agency 2009
10 CL:AIRE (2013) Development *of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Final Project Report SP1010 and DEFRA (2014) Development *of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Policy Companion Document SP1010

- that groundwater will not be a critical risk receptor;
- that the critical receptor for human health will be young female children aged zero to six years old;
- that the exposure duration will be six years;
- that the critical exposure pathways will be direct soil and indoor dust ingestion, skin contact with soils and indoor dust, and inhalation of indoor and outdoor dust and vapours; and
- that the building type equates to a two-storey small, terraced house.

It is considered that these assumptions are acceptable for this generic assessment of this site, albeit conservative, as the development does not introduce any new pathways and will result in the removal of the made ground beneath the site through excavation of the proposed basement.

The tables of generic screening values derived by GEA and an explanation of how each value has been derived are included in the Appendix.

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of these generic screening values there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include;

- additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

The contamination testing has revealed relatively low concentrations of each of the contaminants tested, although elevated lead has been identified in the sample of made ground recovered from Trial Pit No 2 at a depth of 0.4 m.

This assessment is based upon the potential for risk to human health, which at this site is considered to be the critical risk receptor.

All samples have been found to be free from asbestos fibres.

The significance of these results is considered further in Part 2 of the report.

4.6 Existing Foundations

The trial pit findings are summarised in the table below and the trial pit records, and associated site plan can be found in the appendix.

Trial Pit No	Structure	Foundation detail	Bearing Stratum
1	Party Wall with No 21	Brick Footing Top – N/A Base – 0.50 m Lateral projection – None	Made Ground
	Front Wall of No 19	Brick Footing Top – Approx. 0.40 m Base – 1.65 m Lateral projection – 210 mm	Brown clayey very sandy GRAVEL
2	Party Wall with No 17	Brick Footing Top – N/A Base – 1.60 m Lateral projection – None	Brown clayey very sandy GRAVEL
3	Rear Wall of No 19	Concrete Footing Top – 0.75 m Base – 1. 05 m Lateral projection – Approx. 0.2 m	Brown clayey very sandy GRAVEL
	Party Wall with No 21	Brick Footing Top – N/A Base – 1.05 m Lateral projection – None	Brown clayey very sandy GRAVEL

Part 2: DESIGN BASIS REPORT

This section of the report provides an interpretation of the findings detailed in Part 1, in the form of a ground model, and then provides advice and recommendations with respect to the proposed development.

5.0 INTRODUCTION

It is understood that it is proposed to demolish the existing three-storey building and replace it with a new four-storey house, which will also include a single level basement beneath the full footprint of the site.

The proposed basement is expected to extend to a level of 19.40 m OD, which is equivalent to 3.5 m below existing ground floor level of 22.94 m OD, or 4.20 m below proposed ground floor level, which will be raised to a level of 23.6 m OD as part of the development. It is expected to be formed by traditional hit and miss underpinning of the existing foundations.

Anticipated loads for the proposed development are not known at this stage, but are expected to be light to moderate based on the information provided to date.

6.0 GROUND MODEL

The desk study has revealed that the site does not have a potentially contaminative history as it has been developed with the existing residential building since the early to mid-1800s. No significant off-site sources of contamination have been identified. On the basis of the fieldwork, the ground conditions at this site can be characterised as follows:

- below a variable thickness of made ground, Lynch Hill Gravel has been proved to a depth of 4.20 m (18.74 m OD) below existing ground floor level, with the presence of the underlying London Clay, inferred from a depth of 4.50 (18.44 m OD) below existing ground floor level, to the full depth of the investigation, of 5.00 m (17.94 m OD) below existing ground floor level;

- the made ground comprises brown silty clayey sand with gravel and variable amounts of brick and concrete fragments, and extends to depths of between 1.05 m (21.94 m OD) and 1.60 m (21.34 m OD) below existing ground floor level;

- the underlying Lynch Hill Gravel comprises an upper layer of brown clayey very sandy gravel, which extended to a depth of 3.10 m (19.84 m OD) below existing ground floor level;

- a layer of firm brown silty clay was then encountered to a depth of 3.60 m (19.34 m OD) below existing ground floor level and below which, brown slightly clayey very sandy Gravel was encountered to a depth of 4.20 m (18.74 m OD) below existing ground floor level;

- the base of the Lynch Hill Gravel has been inferred by hand-probing to be present at a depth of 4.50 m (18.44 m OD) below existing ground floor level, with the underlying London Clay extending to the full depth of depth investigated, of 5.00 m (17.94 m OD) below existing ground floor level;

- groundwater was encountered during excavation of the main trial hole, as a moderate inflow at a depth of 4.20 m (18.74 m OD) below existing ground floor level, rising to a standing level of 4.00 m (18.94 m OD) below existing ground floor level; and

- with the exception of elevated lead in one of the samples tested, the made ground has generally been found to include generally low concentrations of common contaminants and is free from asbestos fibres.

7.0 ADVICE AND RECOMMENDATIONS

Excavations for the proposed basement structure will require temporary support to maintain stability of the excavation and surrounding structures at all times. The existing foundations will need to be underpinned prior to construction of the proposed new basement or will need to be supported by new retaining walls.

Formation level for the proposed basement will be within the Lynch Hill Gravel, which should provide an eminently suitable bearing stratum for the proposed development.

Based on the fieldwork and the findings of previous investigations in the area, groundwater is unlikely to be encountered within the basement excavation.

7.1 Basement Construction

It is understood that it is proposed to excavate a single level basement beneath the proposed new house, which will extend to a depth of approximately 4.2 m (approx. 19.4 m OD) below proposed ground floor level, or approximately 3.5 m below existing ground floor level; formation level should therefore be within the Lynch Hill Gravel.

The information obtained to date has indicated that groundwater is unlikely to be encountered within the basement excavation, with groundwater shown to be present at a level of 18.94 m OD, such that it should be possible to form the basement without the need for any groundwater protection measures.

Shallow seepages may be encountered from within the made ground, particularly in the vicinity of any existing foundations; however, such inflows are unlikely to be prolonged, or of significant volume, and should be adequately controlled using conventional methods, such as sump pumping, although it would be prudent for the chosen contractor to have a contingency in place should more significant inflows be encountered.

The design of basement support in the temporary and permanent conditions needs to take account of the necessity to maintain the stability of the surrounding structures and the possible requirement to control groundwater inflows. There are a number of methods by which the sides of the basement excavation could be supported in the temporary and permanent conditions. The choice of wall may be governed to a large extent by whether it is to be incorporated into the permanent works and have a load bearing function.

As the excavations are expected to remain dry, the simplest method will be to form the retaining walls by means of concrete underpinning of the existing boundary walls, using a traditional hit and miss approach. Careful workmanship will be required to ensure that movement of the surrounding structures does not arise, but this method will have the benefit of minimising the plant required, along with associated noise and disruption, and maximising usable space in the new basement.

Alternatively, consideration may be given to the use of a contiguous bored micropile retaining walls, with the use of localised grouting, if necessary, in order to deal with localised groundwater inflows. However, noise and disruption would be greater, and the wall would require a concrete lining, resulting in a greater number of operations and significant loss of basement space. If grouting of the gravels were to be required, then that would introduce further disruption, risk and cost.

Based on the findings of the site investigation traditional structural underpinning in short lengths directly beneath the party walls would appear to be the most appropriate solution for the project.

The ground movements associated with the basement excavation will depend on the method of excavation and support and the overall stiffness of the basement structure in the temporary condition. Thus, a suitable amount of propping will be required to provide the necessary rigidity. In this respect the timing of the provision of support to the wall will have an important effect on movements.

An assessment of the movements has been carried out and is discussed in Part 3 of this report.

7.1.1 Basement Retaining Walls

The following parameters are suggested for the design of the permanent basement retaining walls.

Stratum	Bulk Density (kg/m^3)	Effective Cohesion (c' – kN/m^2)	Effective Friction Angle (ϕ' – degrees)
Made ground	1750	Zero	26
Lynch Hill Gravel	1850	Zero	34
London Clay	2000	Zero	24

The investigations, including a deep trial excavation completed by others, have confirmed that groundwater may be assumed to be below basement level; the advice in BS8102:2009[11] should also be followed in this respect.

Whilst the investigation has indicated that ground water is unlikely to be present within the basement excavation, consideration will need to be given to the risk of surface water inflows collecting behind the retaining walls and unless this can be adequately negated, possibly with the use of a suitable drainage system behind the walls, then it may be necessary to adopt an assumed groundwater level of two-thirds of the retained height, subject to a minimum depth of 1.0 m, for the design of new retaining walls.

7.1.2 Basement Heave

The excavation of approximately 3.5 m of soil to form the proposed basement will result in an unloading of about 60 kN/m^2, which will result in elastic heave and long-term swelling of the underlying London Clay, although these effects are likely to be mitigated by the remaining thickness of Kempton Park Gravel, which extends to a level of at least 18.44 m OD, as well as the loads of the proposed development.

Further consideration is given to heave movements in Part 3 of this report.

11 BS8102 (2009) *Code of practice for protection of below ground structures against water from the ground*

7.2 Spread Foundations

Spread foundations, including underpinned foundations, extending from proposed formation level to bear within the basal deposits of the Lynch Hill Gravel at a level of approximately 19.4 m OD, may be designed to apply a net allowable bearing pressure of up to 150 kN/m².

This value incorporates an adequate factor of safety against bearing capacity failure and should ensure that settlement remains within normal tolerable limits. The design value should, however, be checked once the final loads and levels are known, as it is dependent on tolerable settlement and the anticipated thickness of gravel remaining below the foundations.

7.3 Hydrogeological Assessment

The basement excavation is expected to extend to a depth of approximately 3.50 m below existing ground level, to a level of approximately 19.40 m OD, such that formation level will be within the Lynch Hill Gravel.

Groundwater has been encountered towards the base of the Lynch Hill Gravel at a level of 18.94 m OD, such that the proposed excavations should not extend below the water table.

As the interface between the Lynch Hill Gravel and the essentially impermeable London Clay below, was found to be at a depth of approximately 4.40 m (18.44 m OD) below existing ground level, the new basement will not provide a cut-off to groundwater flows by keying into the London Clay, such that there will be sufficient space for groundwater to continue flowing beneath the proposed basement.

In conclusion, as the new basement does not close a pathway, it is considered that the groundwater will follow a pathway below the proposed basement and will not build up significantly behind it. The basement should not, therefore, have a significant effect on groundwater flow.

7.4 Shallow Excavations

It is considered likely that shallow excavations for foundations and services that extend through the made ground and into the underlying Lynch Hill Gravel should remain generally stable in the short term, although some instability may occur. However, should deeper excavations be considered, or if excavations are to remain open for prolonged periods it is recommended that provision be made for battered side slopes or lateral support. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides considered in order to comply with normal safety requirements.

Inflows of groundwater into shallow excavations are not generally anticipated, although seepages may be encountered from perched water tables, particularly in the vicinity of existing foundations. However, any such inflows should be suitably controlled by sump pumping.

7.5 Basement Floor Slab

Following excavation of the basement, it should be possible to adopt a moderately loaded ground bearing floor slab within the granular soils of the Lynch Hill Gravel at proposed formation level, provided that it can be suitably reinforced to accommodate the potential ground movements predicted in Part 3 of this report; otherwise, it would need to be suspended over a void or a layer of compressible material.

Further consideration is given to heave movements in Part 3 of this report.

7.6 Effect of Sulphates

Chemical analyses carried out on selected samples for water soluble sulphate have been compared with of Table C2 of BRE Special Digest 1: SD1 Third Edition (2005) in order to determine the sulphate class and are summarised in the table below.

The guidelines contained in the above digest should be followed in the design of foundation concrete.

Stratum	No of samples	pH	SO_4 (mg/l)		Design Sulphate Class	ACEC Class
			Range	Characteristic Value		
Made Ground	2	9.6 to 8.2	670 to 1600	1600	DS-3	AC-3
Lynch Hill Gravel (clay)	1	7.6	440	440	DS-1	AC-1

7.7 Contamination Risk Assessment

The desk study research has indicated that the site has not had a contaminative history in that it has only been occupied by the existing residential property. However, the results of the contamination testing have identified an elevated concentration of lead within one of the samples of the made ground tested.

The exact source of the contamination is unknown. However, the made ground was noted as containing variable amounts of extraneous material, and it is therefore likely that a fragment of such material was present within the samples tested, accounting for the elevated concentrations.

Information on Urban Soil Chemistry provided by the BGS also indicates that background concentrations for lead in the vicinity of the site vary between 300 mg/kg and 600 mg/kg, such that the concentrations measured in the samples from Trial Pit Nos 1 and 2, could be the result of residual airborne sources, rather than being specific to the site.

Lead compounds are relatively immobile and unlikely to be in a soluble form and are considered to be non-volatile or of a low volatility. The contamination does not therefore present a vapour risk or a significant risk of leaching and migration within any perched groundwater within the made ground.

In addition, as it is proposed to excavate a basement beneath the footprint of the new building, such that the made ground encountered during the investigation will be removed from the site, following which end users will remain isolated from any remaining soils by the extent of the proposed basement and areas of external hardstanding.

A risk to end users is not therefore envisaged. However, the contamination will pose a risk to site workers during the ground works and protective measure should be employed as detailed below.

7.7.1 Site Workers

Site workers should be made aware of the potential presence of contamination within the made ground and a programme of working should be identified to protect workers handling any soil.

The method of site working should be in accordance with guidelines set out by HSE[12] and CIRIA[13] and the requirements of the Local Authority Environmental Health Officer.

As with any development site, a watching brief should be maintained during the groundworks and if any suspicious soil is identified then an inspection should be made by a suitably qualified engineer and further testing carried out if required.

7.8 Waste Disposal

Under the European Waste Directive, waste is classified as being either Hazardous or Non-Hazardous and landfills receiving waste are classified as accepting hazardous or non-hazardous wastes or the non-hazardous sub-category of inert waste in accordance with the Waste Directive. Waste classification is a staged process, and this investigation represents the preliminary sampling exercise of that process. Once the extent and location of the waste that is to be removed has been defined, further sampling and testing may be necessary. The results from this ground investigation should be used to help define the sampling plan for such further testing, which could include WAC leaching tests where the totals analysis indicates the soil to be a hazardous waste or inert waste from a contaminated site. It should however be noted that the Environment Agency guidance WM3[14] states that landfill WAC analysis, specifically leaching test results, must not be used for waste classification purposes.

Any spoil arising from excavations or landscaping works, which is not to be re-used in accordance with the CL:AIRE[15] guidance, will need to be disposed of to a licensed tip. Waste going to landfill is subject to landfill tax at either the standard rate of £94.15 per tonne (about £175 per m^3) or at the lower rate of £3.00 per tonne (roughly £5.50 per m^3). However, the classifications for tax purposes and disposal purposes differ and currently all made ground and topsoil is taxable at the 'standard' rate and only naturally occurring soil and stones, which are accurately described as such in terms of the 2011 Order, would qualify for the 'lower rate' of landfill tax.

Based upon on the technical guidance provided by the EA it is considered likely that the soils encountered during this ground investigation, as represented by the chemical analyses carried out, would be generally classified as follows;

Soil Type	Waste Classification (Waste Code)	WAC Testing Required Prior to Landfill Disposal?	Current applicable rate of Landfill Tax
Made Ground	Non-hazardous (17 05 04)	No	£94.15/tonne (Standard rate)
Lynch Hill Gravel	Should be Inert (17 05 04)	Should not be required but confirm with receiving landfill	£3.00 / tonne (Reduced rate for uncontaminated naturally occurring rocks and soils)

12 HSE (1992) HS(G)66 *Protection of workers and the general public during the development of contaminated land* HMSO
13 CIRIA (1996) A *guide for safe working on contaminated sites.* Report 132. Construction Industry Research and Information Association
14 Environment Agency 2015. *Guidance on the classification and assessment of waste.* Technical Guidance WM3 First Edition
15 CL:AIRE March 2011. *The Definition of Waste: Development Industry Code of Practice* Version 2

Under the requirements of the European Waste Directive all waste needs to be pre-treated prior to disposal. The pre-treatment process must be physical, thermal, chemical or biological, including sorting. It must change the characteristics of the waste in order to reduce its volume, hazardous nature, facilitate handling or enhance recovery. The waste producer can carry out the treatment, but they will need to provide documentation to prove that this has been carried out. Alternatively, the treatment can be carried out by an approved contractor. The Environment Agency has issued a position paper[16] which states that in certain circumstances, segregation at source may be considered as pre-treatment and thus excavated material may not have to be treated prior to landfilling if the soils can be segregated onsite prior to excavation by sufficiently characterising the soils insitu prior to excavation.

The above opinion with regard to the classification of the excavated soils is provided for guidance only and should be confirmed by the receiving landfill once the soils to be discarded have been identified.

The local waste regulation department of the Environment Agency (EA) should be contacted to obtain details of tips that are licensed to accept the soil represented by the test results. The tips will be able to provide costs for disposing of this material but may require further testing.

16 Environment Agency 23 Oct 2007 Regulatory *Position Statement Treating non-hazardous waste for landfill - Enforcing the new requirement*

Part 3: GROUND MOVEMENT ANALYSIS

This section of the report comprises an analysis of the ground movements arising from the proposed basement and foundation scheme discussed in Part 2 and the information obtained from the investigation, presented in Part 1 of the report.

8.0 INTRODUCTION

The sides of an excavation will move to some extent regardless of how they are supported. The movement will typically be both horizontal and vertical and will be influenced by the engineering properties of the ground, groundwater level and flow, the efficiency of the various support systems employed during underpinning and the efficiency or stiffness of any support structures used.

An analysis has been carried out of the likely movements arising from the proposed excavation and the results of this analysis have been used to predict the effect of these movements on surrounding structures.

8.1 Construction Sequence

Consideration is being given to the redevelopment of the site, which will include the construction of a single level basement that will extend to a depth of 3.5 m (approx. 19.4 m OD) below existing ground level.

It is currently understood that traditional underpinning will be employed to support the proposed basement excavations.

The following sequence of operations has been derived to enable analysis of the ground movements around the basement, both during and after construction, and may be considered as two groups of activities, the first comprising the short-term temporary works, whilst the second represents the construction of the permanent works.

The detail of the support provided to adjacent walls is beyond the scope of this report and the structural engineer will be best placed to agree the methodology with the chosen contractor(s) once appointed.

8.1.1 Temporary Support to Underpinned Walls

It is understood that underpinning of the existing foundations and boundary walls will take place in a 'hit and miss' sequence, in stages to be agreed with the temporary works engineer and under party wall agreement.

Underpinning is to be undertaken in short sections not exceeding 1.0 m to 1.2 m in length, with no adjacent pin to be excavated until a minimum of 48 hours after the adjacent pin has been cast and dry-packed placed, with the sides of the excavation adequately shored and propped.

8.1.2 Permanent Works

When the final excavation depths have been reached the permanent works will be formed which, from the information provided, are understood to comprise reinforced concrete walls with a drained cavity lining discharging to a sump pit.

It is anticipated that the floor slabs, which will act as permanent props, will be constructed lowest level first and when each floor has achieved adequate strength, the temporary props will be removed, and the subsequent walls and floors cast until the structure is complete.

Reinforced concrete will be used for floor slabs and basement raft slab. In the event that a piled foundation solution is adopted, heave protection will need to be installed beneath the basement slab.

9.0 GROUND MOVEMENTS

9.1 Basis of Ground Movement Assessment

An assessment of ground movements within and surrounding the excavation has been undertaken using the X-Disp and P-Disp computer programs licensed from the OASYS suite of geotechnical modelling software from Arup. These programs are commonly used within the ground engineering industry and are considered to be appropriate tools for this analysis.

The analysis of potential ground movements within the excavation and along the proposed underpinning, as a result of unloading and subsequent loading of the underlying soils, has been carried out using the Oasys P-Disp software package and is based on the assumption that the soils behave elastically, which provides a reasonable approximation of soil behaviour at small strains.

The X-Disp program has then been used to predict the potential horizontal ground movements likely to arise from the construction of the proposed basement due to lateral movement of soil behind the proposed retaining walls, which have then been combined with the vertical ground movements imported from P-Disp to enable a damage assessment to be undertaken.

For the purpose of these analyses, the corners have been defined by x and y coordinates, with the x-direction parallel with South Street (approx. east-west), whilst the y-direction is parallel with the orientation of the party walls with the adjoining properties (approx. north-south). Vertical movement is in the z-direction.

For this movement analysis, the basement has been modelled as a polygon, with maximum dimensions of 8.0 m by 16 m, which will extend to a level of 19.4 m OD.

Wall lengths of less than 10 m have been modelled as 1 m long structural elements, while greater than 10 m wall lengths have been modelled as 2 m elements.

Based on the findings of the trial pits, the foundations of the adjoining properties of No 17 and No 21 South street have been conservatively set at a depth of 1.0 m (approx. 22 m OD) below existing ground floor level. The remaining nearby structures are all understood to include existing basement levels, which for the purpose of the assessment have been assumed to extend to a depth of at least 3.0 m, such that a formation level of 20.0 m OD has been adopted for the purpose of this assessment.

It is assumed that suitable propping will be provided during the construction of the basement as well as in the permanent condition, such that the walls can be considered to be stiff for the purpose of the ground movement modelling.

Samples of the output movement contour plots are included within the appendix and the full outputs of all the analyses can be provided on request.

9.2 P-Disp Model

Unloading of the Lynch Hill Gravel and underlying London Clay will take place as a result of the excavation of the proposed basement and the reduction in vertical stress will cause heave to take place. Undrained soil parameters have been used to estimate the potential short-term movements, which include the "immediate" or elastic movements as a result of the basement excavation. Drained parameters have been used to provide an estimate of the total movement.

The elastic analysis requires values of soil stiffness at various levels to calculate displacements. Values of stiffness for the soils at this site are readily available from published data[17] and a well-established method has been used to provide estimated values. Relationships of $E_u = 750\ C_u$ and $E' = 0.75\ E_u$ for the cohesive soils and 2000 x SPT N (estimated from soil description) have been used to obtain values of Young's modulus.

The excavation of an approximately 3.5 m of soil to form the proposed basement will result in an unloading of about 60 kN/m^2.

The soil parameters used in this assessment are tabulated overleaf.

Stratum	Depth Range (m below existing ground floor level / m OD)	Eu (KN/m²)	E'(KN/m²)
Made Ground	GFL / 23.0 to 1.5 / 21.5	-	10,000
Lynch Hill Gravel (upper)	1.5 / 21.5 to 3.0 / 20.0	-	30,000
Lynch Hill Gravel (clay)	3.0 / 20.0 to 3.5 / 19.5	30,000	22,500
Lynch Hill Gravel (lower)	3.5 / 19.5 to 4.5 / 18.5	-	40,000 to 50,000
London Clay	4.5 / 18.5 to 58.0 / -35.0	37,500 to 240,000	28,125 to 180,000

A rigid boundary for the analysis has been set at a depth of 58 m (-3.5.0 m OD) below existing ground level, at which point nearby BGS records indicate the base of the London Clay is likely to be encountered and below which, essentially incompressible soils of the Lambeth Group and Thanet Sand are expected to be present. An initial strength of 50 kN/m^2 and an increase in cohesion of 5 kN/m^2 for each metre of depth has been adopted to provide a highly conservative estimate of the likely strength profile within the London Clay beneath the site.

In the absence of specific information with respect to the proposed loading of the new building the allowable bearing pressure of 150 kN/m^2 has been adopted for the proposed underpinning, so that an assessment of the potential behaviour of these foundations can be included within the analysis.

9.3 Ground Movements – Surrounding the Excavation

9.3.1 X-Disp Model

Vertical Movements: In order to address the potential impact of the proposed underpinning, the vertical movements obtained from the P-Disp analysis have been imported into X-Disp to enable a damage assessment to be undertaken.

17 Burland JB, Standing, JR, and Jardine, FM (2001) *Building response to tunnelling, case studies from construction of the Jubilee Line Extension.* CIRIA Special Publication 200

For the purpose of this analysis, the total movements have been adopted as the most critical case in terms of potential damage to the neighbouring properties.

Horizontal Movements: Settlement of the soil behind underpinning may occur during installation and due to the excavation in front of the wall causing the wall to deflect. For an underpinned wall, this movement is likely to be small as the wall will be subject to a continued vertical loading from the structure above, which will also act as additional support at ground level. The magnitude of the settlement will be controlled to a large extent by the quality of workmanship of the underpins and by the existing building that is likely to provide additional rigidity.

Experience with respect to the construction of underpinned retaining walls suggests that movements are intrinsically linked to the retained height and that horizontal ground movements from underpinning construction should typically remain within the range of 2 mm to 5 mm following completion of the works, provided that they are installed by a reputable and experienced contractor in accordance with the guidelines published by the Association of Specialist Underpinning Contractors[18].

For the purpose of this X-Disp analysis, a ground movement curve assuming that horizontal settlement behind the wall due to excavation will be equivalent to 0.15% of the retained height has therefore been adopted, with movement that reduces with depth towards the base of the excavations, as well as diminishing with distance from the wall, according to the trend line set by a wall within clay (see Fig 6.15a of CIRIA C760[19]).

9.3.2 Results

The movements predicted by the combined X-Disp and P-Disp analysis are summarised in the table below; the results are presented below and in subsequent tables to the degree of accuracy required to allow predicted variations in ground movements around the structure to be illustrated, but may not reflect the anticipated accuracy of the predictions.

Short-term movements from underpinning & basement excavation

Phase of Works	Wall Movement (mm)*	
	Vertical Heave / Settlement	Horizontal Movement
Immediately behind wall	3.0 to 4.0	3.0 to 4.0
At 5 m from wall	<1.0	2.0 to 3.0
At 10 m from wall	<<1.0	<1.0

**A positive number denotes settlement, whilst a negative number denotes heave.*

Total movements following completion of development

Phase of Works	Wall Movement (mm)*	
	Vertical Heave / Settlement	Horizontal Movement
Immediately behind wall	3.0 to 5.0	3.0 to 4.0

18 Haslam S, O'Connor L (2013) Guidelines *on safe and efficient basement construction directly below or near to existing structures.* ASUC

19 Gaba, A, Hardy, S, Powrie, W, Doughty, L and Selemetas, D (2017) Embedded *retaining walls – guidance for economic design.* CIRIA Report C760.

At 5 m from wall	<1.0	2.0 to 3.0
At 10 m from wall	<<1.0	<1.0

**A positive number denotes settlement, whilst a negative number denotes heave.*

The estimated movements are considered to represent a worst-case scenario, particularly as the movements resulting from basement excavation will be minimised due to control of the propping in the temporary works and a regime of monitoring.

9.4 Ground Movements within the Excavation (Heave / Settlement)

9.4.1 Results

The P-Disp analysis indicates that short-term heave resulting from the basement excavation is likely to be in the order of 4 mm to 6 mm, whilst 3 mm to 4 mm of settlement is anticipated on the proposed underpinning.

In the long term, following completion of the basement construction, approximately 1 mm of additional heave or settlement is expected over the footprint of the site.

The potential movements are summarised in the table below.

Location	Movements (mm) Heave is -ve and Settlement +ve)	
	Short-term Movements	Total Movements
Centre of proposed basement	-5.0 to -4.0	-6.0 to -5.0
Edge of proposed basement / Underpinning	3.0 to 4.0	4.0 to 5.0

**A positive number denotes settlement, whilst a negative number denotes heave.*

10.0 DAMAGE ASSESSMENT

In addition to the assessment of the likely movements that will result from the proposed development, some of the neighbouring structures have been set as sensitive structures, requiring Building Damage Assessments, on the basis of the classification given in Table 6.4 of C760, as follows.

- The adjoining properties of No 17 and No 21 South Street, to the west and east of the site, respectively; and
- The nearby properties of No 15 South Street, No 10 Balfour Mews and No 8 Rex Place, to the west, northeast and northwest of the site, respectively; and

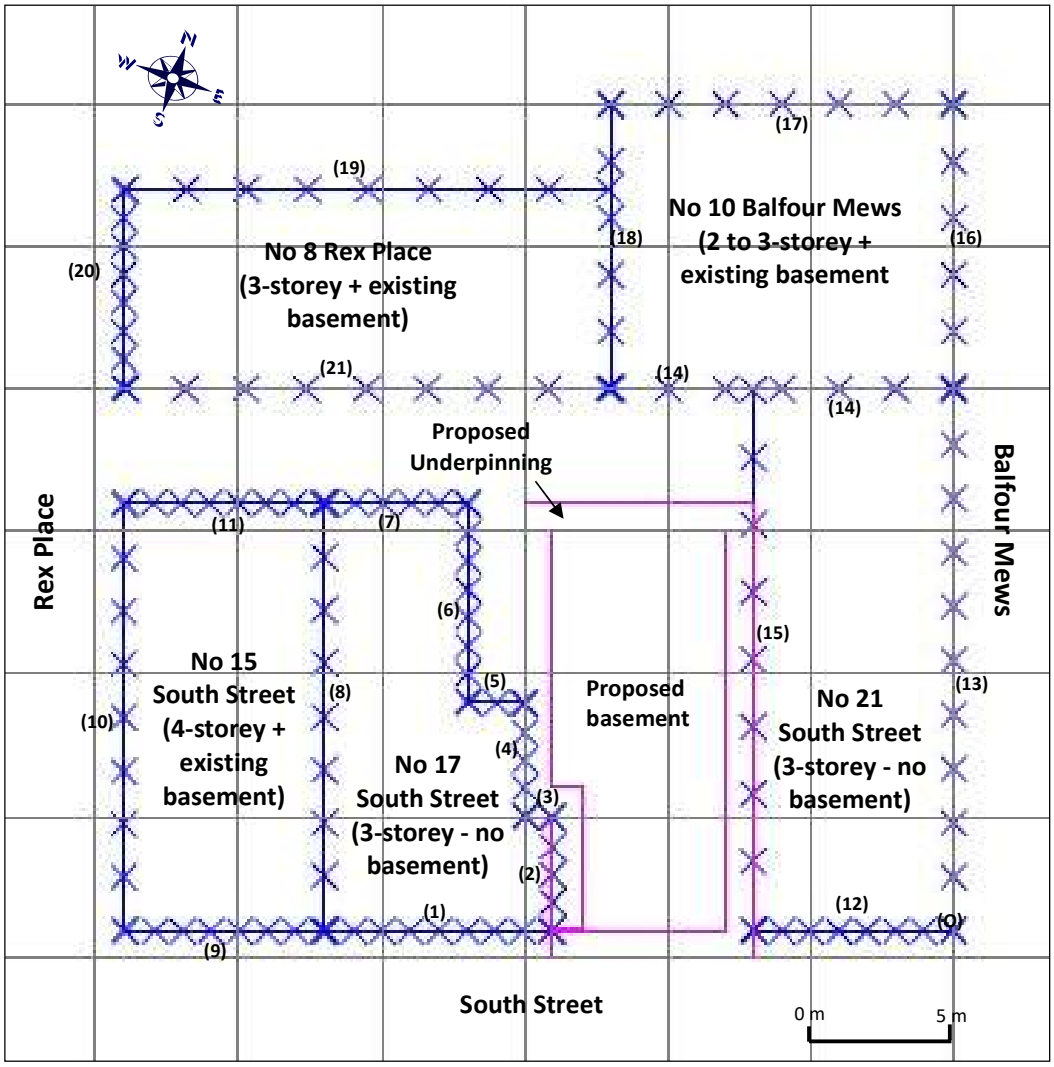
.

All other nearby structures have been found to be at sufficient distance as not to be affected by the proposed development and have not therefore been included within the analysis.

The sensitive structures outlined above have been modelled as lines in the analysis and are the lines along which the damage assessment has been undertaken. For clarity, these critical lines and the specific reference numbers used in the assessment are shown on the plan overleaf.

These lines are expected to be sensitive at their foundation level, which for the purpose of the assessment have been set at a depth of 1.0 m (approx. 22.0 m OD) below existing ground floor level for No 17 and No 21 South Street, whilst the remaining structures are all understood to include existing basements, with a foundation level of at least 3.0 m (approx. 20.0 m OD) below existing ground level.

Building heights have been derived from the number of storeys, as observed during the site walkover.



10.1 Damage to Neighbouring Structures

The combined movements resulting from underpinning and excavation of the proposed basement, calculated using the X-Disp and P-Disp modelling software have been used to carry out an assessment of the likely damage to adjacent properties and the results are summarised in the table below.

Sensitive Structure	Ref No / Elevation	Critical Stage	Max Tensile Strain (%)	Category of Damage*
No 17 South Street	1	Total	0.04	Category 0 - Negligible
	2	Total	0.01	Category 0 - Negligible
	3	Total	0.04	Category 0 - Negligible
	4	Total	0.01	Category 0 - Negligible
	5	Total	0.04	Category 0 - Negligible
	6	Total	<0.01	Category 0 - Negligible
	7	Total	0.04	Category 0 - Negligible
	8	Total	<0.01	Category 0 - Negligible
No 15 South Street	9	Short-term	<0.05	Category 0 - Negligible
	10	Total	<0.01	Category 0 - Negligible
	11	Short-term	0.04	Category 0 - Negligible
No 21 South Street	12	Short-term	0.05	Category 1 – Very Slight
	13	Total	<0.01	Category 0 - Negligible
	14	Total	<0.01	Category 0 - Negligible
	15	Total	0.02	Category 0 - Negligible
No 10 Balfour Mews	16	Total	<0.01	Category 0 - Negligible
	17	Total	<0.01	Category 0 - Negligible
	18	Short-term	0.04	Category 0 - Negligible
No 8 Rex Place	19	Total	<0.01	Category 0 - Negligible
	20	Total	<0.01	Category 0 - Negligible
	21	Total	<0.01	Category 0 - Negligible

*From Table 6.4 of C760: Classification of visible damage to walls.

The building damage reports for sensitive structures highlighted in the above table predict that the damage to the adjoining and nearby structures would generally be Category 0 (negligible), with a limited section of Category 1 (Very Slight) damage to the frontage of No 21 South Street.

The results discussed above are based on individual building lines, or walls, that have been further divided up into a series of 1.0 m to 2.0 m segments that can move independently of one another. In reality, this is unlikely to be the case as the walls will behave as single stiff elements that are also joined continuously with the rest of the structure. The ground movement curves have also been applied from the surface without any adjustment for reducing ground movements with depth, such that the analysis is likely to overpredict the potential horizontal ground movements that will in reality be experienced by structures with basement levels or foundations below the assumed surface level for the proposed basement.

The results therefore provide a conservative estimate of the behaviour of each of the sensitive structures and overestimate the degree of damage, although they provide a useful indication of the most critical structures within the adjoining properties.

10.2 Monitoring of Ground Movements

The predictions of ground movement based on the ground movement analysis should be checked by monitoring of adjacent properties and structures.

The precise monitoring strategy will be developed at a later stage and it will be subject to discussions and agreements with the owners of the adjacent properties and structures. Contingency measures will be implemented if movements of the adjacent structures exceed predefined trigger levels. Both contingency measures and trigger levels will need to be developed within a future monitoring specification for the works.

10.3 Building Damage Assessment Conclusions

The analysis has concluded that the predicted damage to the neighbouring properties from the construction of the basement retaining walls and excavation would be generally 'Negligible' to 'Very Slight'. On this basis, the damage that has been predicted to occur as a result of the construction of the proposed basement falls within the acceptable limits, although careful construction, including the careful control of the proposed underpinning, will be required to ensure that no excessive movements occur that would lead to damage in excess of these limits.

Whilst it is recommended that movement monitoring is carried out on all structures prior to and during the proposed excavation and construction, it is unlikely that specification of these works will be required as part of the planning conditions, but may be required in order to satisfy party wall awards.

11.0 OUTSTANDING RISKS AND ISSUES

This section of the report aims to highlight areas where further work is required as a result of limitations on the scope of this investigation, or where issues have been identified by this investigation that warrant further consideration. The scope of risks and issues discussed in this section is by no means exhaustive but covers the main areas where additional work may be required.

The ground is a heterogeneous natural material and variations will inevitably arise between the locations at which it is investigated. This report provides an assessment of the ground conditions based on the discrete points at which the ground was sampled, but the ground conditions should be subject to review as the work proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

As discussed throughout the report, groundwater is unlikely to be encountered during the basement excavation, although it would be prudent for the chosen contractor to have a contingency in place should more significant inflows be encountered..

The GMA has concluded that the predicted damage to the neighbouring properties from the construction of the basement retaining walls and excavation would be generally 'Negligible' to 'Very Slight', such that the damage that has been predicted falls within the acceptable limits. Nevertheless, careful construction, including the careful construction of the underpinned walls, will be required to ensure that no excessive movements occur that would lead to damage in excess of these limits.

The investigation has not identified the presence of any significant contamination and as the majority of the made ground will be removed from this site through the excavation of the

proposed basement, remedial measures should not be required. However, as with any site there is a potential for further areas of contamination to be present within the made ground beneath parts of the site not covered by the investigation it is recommended that a watching brief is maintained during any groundworks for the proposed new foundations and that if any suspicious soils are encountered that they are inspected by a geoenvironmental engineer and further assessment may be required.

These areas of doubt should be drawn to the attention of prospective contractors and further investigation will be required or sufficient contingency should be provided to cover the outstanding risk.

APPENDIX

Desk Study

Envirocheck Extracts

Historical Maps

Preliminary UXO Risk Assessment

Existing Plans & Elevations

Ground Investigation

Site Plan

Trial Pit Records

Geotechnical Test Results

Contamination Test Results (soil)

Generic Risk-Based Screening Values

Ground Movement Assessment

P-DISP ANALYSIS

Short Term & Total Movement Plots

X-DISP ANALYSIS

Movement Plots – Vertical & Horizontal Movements

BUILDING DAMAGE ASSESSMENT (X-DISP)

Tabular Output of Results

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
263075527_1_1

Customer Reference:
J20230

National Grid Reference:
528320, 180440

Slice:
A

Site Area (Ha):
0.02

Search Buffer (m):
1000

Site Details:

19, South Street
LONDON
W1K 2XB

Client Details:

Mr S Branch
GEA Ltd
Widbury Barn
Widbury Hill
Ware
Herts
SG12 7QE

GEA

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

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GEA

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		2	1	19
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	pg 7		2	6	11
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 10			Yes	
Pollution Incidents to Controlled Waters	pg 10				2
Prosecutions Relating to Authorised Processes	pg 10				1
Registered Radioactive Substances	pg 10				1
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 10				1
Water Abstractions	pg 11		3	2	43 (*84)
Water Industry Act Referrals	pg 44				1
Groundwater Vulnerability Map	pg 44	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 44	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 44	Yes	n/a	n/a	n/a
Source Protection Zones	pg 44				1
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 44				9

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 46				1
Local Authority Landfill Coverage	pg 46	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)	pg 47				4
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

GEA

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 48	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry					
BGS Recorded Mineral Sites	pg 48				1
BGS Urban Soil Chemistry	pg 48		Yes	Yes	Yes
BGS Urban Soil Chemistry Averages	pg 51	Yes			
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				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 51	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 51	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 51	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 51		Yes	n/a	n/a
Radon Potential - Radon Affected Areas			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 52		51	110	745
Fuel Station Entries	pg 127		2	1	1
Points of Interest - Commercial Services	pg 128		4	11	57
Points of Interest - Education and Health	pg 134			1	1
Points of Interest - Manufacturing and Production	pg 134			34	126
Points of Interest - Public Infrastructure	pg 147		5	1	13
Points of Interest - Recreational and Environmental	pg 149				5
Gas Pipelines					
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
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					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (SE)	0	1	528321 180442
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (E)	73	1	528400 180442
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	79	1	528250 180400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	83	1	528250 180500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	173	1	528500 180442
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	185	1	528300 180250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	234	1	528321 180200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	300	1	528321 180750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (E)	323	1	528650 180442
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SE)	325	1	528550 180200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SE)	334	1	528500 180150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	338	1	528550 180700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (S)	392	1	528400 180050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	434	1	528321 180000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (S)	441	1	528400 180000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	454	1	528750 180600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (NE)	460	1	528550 180850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NW (SW)	463	1	528000 180100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (N)	468	1	528450 180900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	492	1	528800 180300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Caprice Hodings Limited Property Type: FOOD+BEVERAGE SERVICES/CAFE/RESTAURANT/PUB Location: Scott'S Restaurant 20-22 Mount Street London W1t 1hj W1t 1hj Authority: Environment Agency, Thames Region Catchment Area: Guc Reference: Canm.1191 Permit Version: 2 Effective Date: 9th January 2013 Issued Date: 9th January 2013 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Land/Soakaway Receiving Water: Gwater Via Re-Injection Bhole **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	190	2	528429 180607
1	**Discharge Consents** Operator: Caprice Hodings Limited Property Type: FOOD+BEVERAGE SERVICES/CAFE/RESTAURANT/PUB Location: Scott'S Restaurant 20-22 Mount Street London W1t 1hj W1t 1hj Authority: Environment Agency, Thames Region Catchment Area: Guc Reference: Canm.1191 Permit Version: 1 Effective Date: 23rd November 2006 Issued Date: 23rd November 2006 Revocation Date: 8th January 2013 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Land/Soakaway Receiving Water: Gwater Via Re-Injection Bhole **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)	190	2	528429 180607
2	**Discharge Consents** Operator: Kering International Limited Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: 6 Carlos Place London . W1k 3ap Authority: Environment Agency, Thames Region Catchment Area: Not Supplied Reference: Eprbb3997vv Permit Version: 1 Effective Date: 11th March 2015 Issued Date: 11th March 2015 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Underground Water Receiving Water: Groundwaters **Status: New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	301	2	528532 180665
3	**Discharge Consents** Operator: Grosvenor Properties Property Type: REAL ESTATE ACTIVITIES/BUYING/SELLING/RENTING Location: 40 - 54 Grosvenor Hill London London W1k 3ql Authority: Environment Agency, Thames Region Catchment Area: Not Supplied Reference: Eprgp3321xd Permit Version: 2 Effective Date: 16th September 2011 Issued Date: 16th September 2011 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Land/Soakaway Receiving Water: Groundwater **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	544	2	528765 180766

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Discharge Consents** Operator: Kimanda Property Services Limited Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: 38 Belgrave Square London London Sw1x 8nt Sw1x 8nt Sw1x 8nt Authority: Environment Agency, Thames Region Catchment Area: Guc Reference: Canm.1046 Permit Version: 1 Effective Date: 9th March 2006 Issued Date: 20th March 2006 Revocation Date: 9th March 2018 Discharge Type: Trade Discharges - Cooling Water Discharge Environment: Land/Soakaway Receiving Water: Groundwater Via Borehole **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	A8SE (S)	974	2	528376 179462
11	**Discharge Consents** Operator: One Hyde Park Limited Property Type: Undefined Or Other Location: One Hyde Park Knightsbridge London England Sw1x 7lj Authority: Environment Agency, Thames Region Catchment Area: Brent Reference: Npswqd005148 Permit Version: 1 Effective Date: 7th August 2009 Issued Date: 7th August 2009 Revocation Date: 17th August 2021 Discharge Type: Trade Discharge - Process Water Discharge Environment: Underground Water Receiving Water: Groundwater **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	A7SE (SW)	983	2	527658 179708
12	**Local Authority Pollution Prevention and Controls** Name: The Dorchester Location: Park Lane, London Authority: Westminster City Council, Environmental Health Department Permit Reference: 07/14063/EE1EP Dated: 14th June 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	108	3	528325 180326
13	**Local Authority Pollution Prevention and Controls** Name: Malthurst Park Lane Location: 80-83 Park Lane, LONDON, W1Y 4HB Authority: Westminster City Council, Environmental Health Department Permit Reference: VR 7 Dated: 26th May 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A13NW (W)	128	3	528192 180483
14	**Local Authority Pollution Prevention and Controls** Name: London Hilton Location: 22 Park Lane, London, W1k 1be Authority: Westminster City Council, Environmental Health Department Permit Reference: 06/48985/EE1EP Dated: 6th July 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	333	3	528481 180141
15	**Local Authority Pollution Prevention and Controls** Name: Master Touch (Dry Cleaners) Location: 29 Shepherd Market, London, W1J 7PS Authority: Westminster City Council, Environmental Health Department Permit Reference: 07/14095/EE1EP Dated: 31st May 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A14SW (SE)	428	3	528700 180226

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Local Authority Pollution Prevention and Controls** Name: Four Seasons Hotel Location: Hamilton Place, London Authority: Westminster City Council, Environmental Health Department Permit Reference: DC72/11/00226/EE1EP Dated: 18th March 2011 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	455	3	528510 180019
17	**Local Authority Pollution Prevention and Controls** Name: Washington Dry Cleaners Location: 18 Half Moon Street, London, W1j 7bf Authority: Westminster City Council, Environmental Health Department Permit Reference: 06/38204/EE1EP Dated: 20th September 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	481	3	528785 180290
18	**Local Authority Pollution Prevention and Controls** Name: Intercontinental London Park Lane Location: 1 Hamilton Place, London Authority: Westminster City Council, Environmental Health Department Permit Reference: 07/55709/EE1EP Dated: 2nd August 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A8NE (S)	483	3	528458 179971
19	**Local Authority Pollution Prevention and Controls** Name: Mayfair Cobblers Location: 4 White Horse Street, London, W1J 7LG Authority: Westminster City Council, Environmental Health Department Permit Reference: 09/74394/EE1EP Dated: 26th October 2010 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A14SW (SE)	499	3	528767 180201
20	**Local Authority Pollution Prevention and Controls** Name: Avis Rent-A-Car Location: 8 Balderton Street, Mayfair, LONDON, W1Y 1TF Authority: Westminster City Council, Environmental Health Department Permit Reference: VR 25 Dated: 3rd March 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Manually positioned to the road within the address or location	A18SE (N)	503	3	528329 180953
21	**Local Authority Pollution Prevention and Controls** Name: Sheraton Park Lane Hotel Location: Piccadilly, London, W1j 7bx Authority: Westminster City Council, Environmental Health Department Permit Reference: 06/48978/EE1EP Dated: 6th June 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A9NW (SE)	504	3	528679 180076
22	**Local Authority Pollution Prevention and Controls** Name: Buckingham Dry Cleaners Location: 83 Duke Street, London, W1k 5pf Authority: Westminster City Council, Environmental Health Department Permit Reference: 06/48998/EE1EP Dated: 5th September 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A18SE (N)	527	3	528431 180966

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Local Authority Pollution Prevention and Controls** Name: White Rose Laundries Location: 16 Hinde Street, London, W1u 2bb Authority: Westminster City Council, Environmental Health Department Permit Reference: 06/38284/EE1EP Dated: 17th September 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A18NE (N)	975	3	528399 181422
	Nearest Surface Water Feature	A18SW (NW)	482	-	528047 180849
31	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: LONDON Authority: Environment Agency, Thames Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 22nd May 1996 Incident Reference: SE960221 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	687	2	529000 180300
32	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: WESTMINSTER Authority: Environment Agency, Thames Region Pollutant: Miscellaneous - Natural Note: Not Supplied Incident Date: 25th August 1998 Incident Reference: THNE1998040335 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	730	2	527600 180300
33	**Prosecutions Relating to Authorised Processes** Location: Regent Street, London Prosecution Text: Failure to comply with packaging waste regulations Prosecution Act: Pro97 Hearing Date: 17th May 2004 Verdict: Guilty Fine: 4000 Costs: 1789 Positional Accuracy: Manually positioned to the road within the address or location	A19SE (NE)	971	2	529085 181050
34	**Registered Radioactive Substances** Name: Royal Institution Of Great Britain (The) Location: 21 Albemarle Street, LONDON, W1S 4BS Authority: Environment Agency, Thames Region Permit Reference: Bm7359 Dated: 28th February 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation either revoked or cancelled** Positional Accuracy: Automatically positioned to the address	A14NE (E)	699	2	528996 180637
35	**Substantiated Pollution Incident Register** Authority: Environment Agency - Thames Region, North East Area Incident Date: 21st June 2011 Incident Reference: 895821 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: General Biodegradable Materials and WastesAlgae	A7NW (SW)	817	2	527575 180100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**Water Abstractions** Operator: Caprice Holdings Limited Licence Number: 28/39/39/0228 Permit Version: 1 Location: Scotts Restaurant-Borehole Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Non-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: Scotts Restaurant, 20-22 Mount Street, Mayfair, London Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 3rd November 2006 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	155	2	528390 180590
36	**Water Abstractions** Operator: Caprice Holdings Limited Licence Number: 28/39/39/0228/R01 Permit Version: 1 Location: Scotts Restaurant-Borehole Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Heat Pump 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 April Authorised End: 31 March Permit Start Date: 1st April 2019 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	162	2	528394 180595
36	**Water Abstractions** Operator: Caprice Holdings Limited Licence Number: 28/39/39/0228 Permit Version: 2 Location: Scotts Restaurant-Borehole Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Non-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: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 16th September 2010 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	162	2	528394 180595
37	**Water Abstractions** Operator: Marchesi 1824 Uk Licence Number: Th/039/0039/159 Permit Version: 1 Location: Borehole At Mount Street In Mayfair, London Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Heat Pump Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Mount Street In Mayfair Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 23rd January 2020 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	295	2	528568 180612

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**Water Abstractions** Operator: Kering International Limited Licence Number: Th/039/0039/106 Permit Version: 1 Location: Borehole At 6 Carlos Place, London Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Heat Pump 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 April Authorised End: 31 March Permit Start Date: 11th March 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	301	2	528532 180665
39	**Water Abstractions** Operator: Grosvenor Properties Licence Number: Th/039/0039/160 Permit Version: 1 Location: 40-54 Grosvenor Hill London Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Heat Pump 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 April Authorised End: 31 March Permit Start Date: 25th November 2019 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	544	2	528765 180766
39	**Water Abstractions** Operator: Grosvenor Properties Licence Number: Th/039/0039/036 Permit Version: 3 Location: 40-54 Grosvenor Hill London Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Heat Pump 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 April Authorised End: 31 March Permit Start Date: 14th October 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	544	2	528765 180766
39	**Water Abstractions** Operator: Grosvenor West End Properties Limited Licence Number: Th/039/0039/036 Permit Version: 2 Location: 40-54 Grosvenor Hill London Authority: Environment Agency, Thames Region Abstraction: Other Industrial/Commercial/Public Services: Heat Pump 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 April Authorised End: 31 March Permit Start Date: 11th November 2011 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	544	2	528765 180766

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
51	**Water Industry Act Referrals** Name: Nuplex Resins Ltd Location: NUPLEX RESINS LTD, PO BOX 20980 ORIEL HOUSE, 16 CONNAUGHT PLACE, LONDON, LONDON, W2 2ZB Authority: Environment Agency, Thames Region Permit Reference: By5951 Dated: 21st October 2004 Process Type: Permissions or amendments to discharge under the Water Industry Act 1991 Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations **Status: Application cancelled** Positional Accuracy: Manually positioned to the address or location	A17SW (NW)	893	2	527634 181025
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Mixed Dilution: 300-550 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: High	A13NE (SE)	0	5	528321 180442
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13NE (SE)	0	5	528321 180442
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NE (SE)	0	5	528321 180442
52	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A7SE (SW)	988	2	527830 179577
	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				
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 776.7 Watercourse Level: Not Supplied Permanent: True Watercourse Name: The Westbourn Catchment Name: Thames Primacy: 1	A8NW (SW)	655	6	528055 179835
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 76.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: The Westbourn Catchment Name: Thames Primacy: 1	A7NE (SW)	670	6	527848 179960

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: The Westbourn Catchment Name: Thames Primacy: 1	A7NE (SW)	677	6	527822 179976
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: The Westbourn Catchment Name: Thames Primacy: 1	A7NE (SW)	679	6	527819 179978
57	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 887.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: The Serpentine Catchment Name: Thames Primacy: 1	A7NE (SW)	689	6	527794 179990
58	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 225.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: The Westbourn Catchment Name: Thames Primacy: 1	A8SE (S)	866	6	528577 179607
59	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 19.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: The Westbourn Catchment Name: Thames Primacy: 1	A9SW (SE)	994	6	528807 179566
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 469.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: The Westbourn Catchment Name: Thames Primacy: 1	A9SW (SE)	994	6	528807 179566
61	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 129.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A9SW (SE)	995	6	528790 179555

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
62	**Licensed Waste Management Facilities (Locations)** Licence Number: 104088 Location: Buckingham Palace, London, SW1A 1AA Operator Name: Royal Household Property Section Operator Location: Not Supplied Authority: Environment Agency - Thames Region, North East Area Site Category: Composting **Licence Status: Issued** Issued: 13th June 2012 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SE (S)	728	2	528453 179718
	Local Authority Landfill Coverage Name: Westminster City Council - Has supplied landfill data		0	3	528321 180442
	Local Authority Landfill Coverage Name: Royal Borough of Kensington And Chelsea - Has no landfill data to supply		795	7	527914 179751

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
63	**Control of Major Accident Hazards Sites (COMAH)** Name: Thames Power Ltd Location: Devonshire House, Mayfair Place, LONDON, W1X 5FH Reference: Not Supplied Type: Lower Tier **Status: Record Ceased To Be Supplied Under COMAH Regulations** Positional Accuracy: Automatically positioned to the address	A14SW (E)	662	8	528981 180333
64	**Control of Major Accident Hazards Sites (COMAH)** Name: Oil And Pipeline Agency Location: 35-38 Portman Square, London, W1H 6EU Reference: Not Supplied Type: Upper Tier **Status: Record Ceased To Be Supplied Under COMAH Regulations** Positional Accuracy: Automatically positioned to the address	A18NW (N)	759	8	528046 181158
65	**Control of Major Accident Hazards Sites (COMAH)** Name: Interconnector UK Ltd Location: 56 58 Conduit Street, LONDON, W1R 9FD Reference: Not Supplied Type: Lower Tier **Status: Record Ceased To Be Supplied Under COMAH Regulations** Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	926	8	529097 180956
66	**Control of Major Accident Hazards Sites (COMAH)** Name: Total Oil Marine Plc Location: 33 Cavendish Square, LONDON, W1M 9HF Reference: Not Supplied Type: Lower Tier **Status: Record Ceased To Be Supplied Under COMAH Regulations** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	998	8	528890 181271

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Thames Group	A13NE (SE)	0	1	528321 180442
	BGS Estimated Soil Chemistry No data available				
67	**BGS Recorded Mineral Sites** Site Name: Marylebone Tile Kiln Location: Marlebone, Middlesex Source: British Geological Survey, National Geoscience Information Service Reference: 232478 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Not Available Geology: ! Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A18NW (N)	700	1	528280 181149
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528232, 180254 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 18.20 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 57.20 mg/kg Lead Measured Concentration: 404.30 mg/kg Nickel Measured Concentration: 27.70 mg/kg	A13SW (SW)	201	1	528232 180254
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528312, 180776 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 20.80 mg/kg Cadmium Measured Concentration: 0.80 mg/kg Chromium Measured Concentration: 62.80 mg/kg Lead Measured Concentration: 928.70 mg/kg Nickel Measured Concentration: 29.40 mg/kg	A13NW (N)	326	1	528312 180776
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528747, 180663 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 25.40 mg/kg Cadmium Measured Concentration: 0.70 mg/kg Chromium Measured Concentration: 80.10 mg/kg Lead Measured Concentration: 452.30 mg/kg Nickel Measured Concentration: 38.10 mg/kg	A14NW (NE)	476	1	528747 180663

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528189, 179848 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 17.60 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 67.40 mg/kg Lead Measured Concentration: 219.80 mg/kg Nickel Measured Concentration: 22.90 mg/kg	A8NW (S)	601	1	528189 179848
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528869, 180171 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 22.70 mg/kg Cadmium Measured Concentration: 1.30 mg/kg Chromium Measured Concentration: 64.30 mg/kg Lead Measured Concentration: 803.40 mg/kg Nickel Measured Concentration: 34.40 mg/kg	A14SW (SE)	603	1	528869 180171
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527745, 180248 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 12.40 mg/kg Cadmium Measured Concentration: 0.90 mg/kg Chromium Measured Concentration: 64.30 mg/kg Lead Measured Concentration: 361.90 mg/kg Nickel Measured Concentration: 19.90 mg/kg	A12SE (W)	604	1	527745 180248
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527748, 180737 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 14.20 mg/kg Cadmium Measured Concentration: 0.90 mg/kg Chromium Measured Concentration: 50.10 mg/kg Lead Measured Concentration: 277.30 mg/kg Nickel Measured Concentration: 19.80 mg/kg	A12NE (NW)	636	1	527748 180737
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528766, 179833 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 16.40 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 59.70 mg/kg Lead Measured Concentration: 204.00 mg/kg Nickel Measured Concentration: 22.20 mg/kg	A9NW (SE)	746	1	528766 179833

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527753, 179837 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 22.70 mg/kg Cadmium Measured Concentration: 0.30 mg/kg Chromium Measured Concentration: 55.50 mg/kg Lead Measured Concentration: 253.90 mg/kg Nickel Measured Concentration: 24.50 mg/kg	A7NE (SW)	824	1	527753 179837
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 529103, 180125 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 15.90 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 91.60 mg/kg Lead Measured Concentration: 202.70 mg/kg Nickel Measured Concentration: 24.40 mg/kg	A14SE (E)	836	1	529103 180125
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 527793, 181188 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 11.40 mg/kg Cadmium Measured Concentration: 0.40 mg/kg Chromium Measured Concentration: 60.70 mg/kg Lead Measured Concentration: 90.40 mg/kg Nickel Measured Concentration: 19.70 mg/kg	A17NE (NW)	905	1	527793 181188
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528775, 181325 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 26.60 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 66.60 mg/kg Lead Measured Concentration: 497.10 mg/kg Nickel Measured Concentration: 31.30 mg/kg	A19NW (NE)	985	1	528775 181325
	BGS Measured Urban Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Grid: 528250, 181440 Soil Sample Type: Topsoil Sample Area: London Arsenic Measured Concentration: 22.30 mg/kg Cadmium Measured Concentration: 0.60 mg/kg Chromium Measured Concentration: 66.10 mg/kg Lead Measured Concentration: 1709.30 mg/kg Nickel Measured Concentration: 25.60 mg/kg	A18NW (N)	992	1	528250 181440

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages Source: British Geological Survey, National Geoscience Information Service Sample Area: London Count Id: 7209 Arsenic Minimum Concentration: 1.00 mg/kg Arsenic Average Concentration: 17.00 mg/kg Arsenic Maximum Concentration: 161.00 mg/kg Cadmium Minimum Concentration: 0.10 mg/kg Cadmium Average Concentration: 0.90 mg/kg Cadmium Maximum Concentration: 165.20 mg/kg Chromium Minimum Concentration: 13.00 mg/kg Chromium Average Concentration: 79.00 mg/kg Chromium Maximum Concentration: 2094.00 mg/kg Lead Minimum Concentration: 11.00 mg/kg Lead Average Concentration: 280.00 mg/kg Lead Maximum Concentration: 10000.00 mg/kg Nickel Minimum Concentration: 2.00 mg/kg Nickel Average Concentration: 28.00 mg/kg Nickel Maximum Concentration: 506.00 mg/kg	A13NE (SE)	0	1	528321 180442
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	528321 180442
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	528321 180442
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	528321 180442
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	528321 180442
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	528321 180442
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (SE)	0	1	528321 180442
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	21	1	528322 180413
	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 (SE)	0	1	528321 180442
	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 (SE)	0	1	528321 180442

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
68	**Contemporary Trade Directory Entries** Name: Regent Belt Co Ltd Location: 25, South Street, London, W1K 2XD Classification: Bags, Belts & Accessories - Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	35	-	528358 180453
69	**Contemporary Trade Directory Entries** Name: Argus Resources Uk Ltd Location: 18, South Street, London, W1K 1DG Classification: Oil Companies **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (S)	54	-	528300 180384
70	**Contemporary Trade Directory Entries** Name: Gamar Telecommunications Location: 16, Park Street, London, W1K 2HZ Classification: Telecommunications Equipment & Systems **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	79	-	528251 180494
71	**Contemporary Trade Directory Entries** Name: Vision 2000 Europe Ltd Location: 3, Park Street, London, W1K 7HD Classification: Photocopiers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	80	-	528238 180426
71	**Contemporary Trade Directory Entries** Name: B M W Park Lane Location: 56-59, Park Lane, London, W1K 1QB Classification: Car Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	84	-	528261 180375
71	**Contemporary Trade Directory Entries** Name: Lexus Location: 56-59, Park Lane, London, W1K 1QB Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	84	-	528261 180375
71	**Contemporary Trade Directory Entries** Name: Mclaren Cars Ltd Location: 61, Park Lane, London, W1K 1QF Classification: Car Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	88	-	528243 180393
71	**Contemporary Trade Directory Entries** Name: B M W Motorrad Park Lane Location: 68 Park Lane, London, W1K 7TT Classification: Car Dealers **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A13SW (W)	93	-	528223 180437
71	**Contemporary Trade Directory Entries** Name: B M W - Park Lane Location: 70, Park Lane, London, W1K 7TT Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (W)	93	-	528223 180437
71	**Contemporary Trade Directory Entries** Name: Rolls Royce Motor Cars (London) Location: 70, Park Lane, London, W1K 7TT Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (W)	93	-	528223 180437
71	**Contemporary Trade Directory Entries** Name: Mini Park Lane Location: 70, Park Lane, London, W1K 7TT Classification: Car Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (W)	93	-	528223 180437
71	**Contemporary Trade Directory Entries** Name: B M W Export Location: 63-70 Park Lane, London, W1K 7TP Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13SW (W)	99	-	528218 180432

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
72	**Contemporary Trade Directory Entries** Name: Victor Chandler International Location: 4-6, Deanery Street, London, W1K 1AY Classification: Laboratories **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	97	-	528384 180357
72	**Contemporary Trade Directory Entries** Name: Kangqi Oil (Uk) Ltd Location: 6, Deanery Street, London, W1K 1BA Classification: Oil Companies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	97	-	528384 180357
72	**Contemporary Trade Directory Entries** Name: Hanson Transport Grp Ltd Location: 2, Deanery Street, London, W1K 1AU Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	97	-	528397 180369
72	**Contemporary Trade Directory Entries** Name: Grossmith Location: 6, Deanery Street, London, W1K 1BA Classification: Perfume Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	97	-	528384 180357
72	**Contemporary Trade Directory Entries** Name: J C B Location: 3, Deanery Street, London, W1K 1AX Classification: Plant & Machinery Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	98	-	528392 180363
72	**Contemporary Trade Directory Entries** Name: Japan Eurotex Ltd Location: 77, South Audley Street, London, W1K 1JG Classification: Knitting Machine - Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	119	-	528409 180350
72	**Contemporary Trade Directory Entries** Name: Alphasteel Ltd Location: 77, South Audley Street, London, W1K 1JG Classification: Steel Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	119	-	528409 180350
72	**Contemporary Trade Directory Entries** Name: Tecteon Plc Location: 77, South Audley Street, London, W1K 1JG Classification: Oil & Gas Exploration Supplies & Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	119	-	528409 180350
72	**Contemporary Trade Directory Entries** Name: Eurobuns Holdings Ltd Location: 80, South Audley Street, London, W1K 1JH Classification: Food Products - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	133	-	528417 180338
73	**Contemporary Trade Directory Entries** Name: Purdey Location: 57, South Audley Street, London, W1K 2ED Classification: Gunsmiths **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (N)	108	-	528347 180555
74	**Contemporary Trade Directory Entries** Name: Bremont Watch Co Location: 29, South Audley Street, London, W1K 2PE Classification: Clocks & Watches - Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	120	-	528382 180554
74	**Contemporary Trade Directory Entries** Name: Floor Safety Technology Ltd Location: 90, Mount Street, London, W1K 2ST Classification: Cleaning Materials & Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	139	-	528395 180568

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
74	**Contemporary Trade Directory Entries** Name: Sketchley Retail Ltd Location: 93, Mount Street, London, W1K 2SY Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	151	-	528402 180579
74	**Contemporary Trade Directory Entries** Name: Acrealton Ltd Location: 28, Mount Street, London, W1K 2RU Classification: Freight Forwarders **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (N)	170	-	528385 180608
75	**Contemporary Trade Directory Entries** Name: Coltraco Ultrasonics Location: 46-47, Mount Street, London, W1K 2SA Classification: Ultrasonic Equipment Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (N)	126	-	528310 180576
75	**Contemporary Trade Directory Entries** Name: Anglo-Colonial Marine Ltd Location: 46-47, Mount Street, London, W1K 2SA Classification: Marine Equipment & Supplies **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (N)	126	-	528310 180576
75	**Contemporary Trade Directory Entries** Name: Gioia Jewellery Location: 46-47, Mount Street, London, W1K 2HH Classification: Jewellery Manufacturers & Repairers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	126	-	528310 180576
75	**Contemporary Trade Directory Entries** Name: Jeeves Location: Mayfair, London, W1K 2QQ Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A13NE (N)	163	-	528328 180613
75	**Contemporary Trade Directory Entries** Name: Jeeves Of Belgravia Location: 53-54, South Audley Street, London, W1K 2QQ Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (N)	163	-	528328 180613
75	**Contemporary Trade Directory Entries** Name: Better Energy Systems Ltd Location: 37, South Audley Street, London, W1K 2PN Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (N)	165	-	528366 180610
76	**Contemporary Trade Directory Entries** Name: Park Lane Location: 77, Park Lane, London, W1K 7TP Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A13NW (W)	127	-	528190 180468
76	**Contemporary Trade Directory Entries** Name: Park Lane Rover Location: 77, Park Lane, London, W1K 7TP Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A13NW (W)	127	-	528190 180468
76	**Contemporary Trade Directory Entries** Name: Park Lane M G Location: 77, Park Lane, London, W1K 7TP Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A13NW (W)	127	-	528190 180468
76	**Contemporary Trade Directory Entries** Name: Esso Location: 83, Park Lane, London, W1K 7HB Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	128	-	528192 180483

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
76	**Contemporary Trade Directory Entries** Name: Fountain Garage Location: 83, Park Lane, London, W1K 7HB Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	128	-	528192 180483
76	**Contemporary Trade Directory Entries** Name: B M W Park Lane London Location: 77, Park Lane, London, W1K 7TP Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	128	-	528192 180483
77	**Contemporary Trade Directory Entries** Name: Rezayat (Europe) Ltd Location: 52, Mount Street, London, W1K 2SF Classification: Chemicals & Allied Products **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	127	-	528268 180566
77	**Contemporary Trade Directory Entries** Name: Basul Location: 38, Park Street, London, W1K 2JF Classification: Textile Manufacturing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	155	-	528224 180573
78	**Contemporary Trade Directory Entries** Name: Davidson Location: 96, Mount Street, London, W1K 2TB Classification: Furniture Manufacturers - Home & Office **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	165	-	528426 180578
78	**Contemporary Trade Directory Entries** Name: Parmigiani Location: 97, Mount Street, London, W1K 2TD Classification: Clocks & Watches - Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	175	-	528432 180587
78	**Contemporary Trade Directory Entries** Name: Boss & Co Location: 16, Mount Street, London, W1K 2RH Classification: Gunsmiths **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	209	-	528438 180624
78	**Contemporary Trade Directory Entries** Name: Boss & Co Location: 16, Mount Street, London, W1K 2RH Classification: Gunsmiths **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	209	-	528438 180624
78	**Contemporary Trade Directory Entries** Name: Oven Cleaning Mayfair Location: 14, Mount Street, London, W1K 2RF Classification: Oven cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	221	-	528452 180628
79	**Contemporary Trade Directory Entries** Name: Astra Zeneca Location: 15, Stanhope Gate, London, W1K 1LN Classification: Pharmaceutical Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	177	-	528422 180286
80	**Contemporary Trade Directory Entries** Name: Audley Square Car Park Location: 5, Audley Square, London, W1K 1DS Classification: Car Painters & Sprayers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	184	-	528500 180376
80	**Contemporary Trade Directory Entries** Name: Waverton Street Filling Station Location: 5-7, Waverton Street, London, W1J 5QW Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	190	-	528503 180365

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
81	**Contemporary Trade Directory Entries** Name: Lake Health Co Location: 108, Mount Street, London, W1K 2TP Classification: Chemists' & Pharmacists' Suppliers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	240	-	528502 180609
82	**Contemporary Trade Directory Entries** Name: Bloomsbury Trading Pte Ltd Location: 30-36, Upper Grosvenor Street, London, W1K 7PG Classification: Footwear Manufacturers & Wholesale **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	247	-	528127 180608
82	**Contemporary Trade Directory Entries** Name: Hudson Engineering Location: Grosvenor House, 86, Park Lane, London, W1K 7TL Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	247	-	528127 180608
83	**Contemporary Trade Directory Entries** Name: Ensco Location: 6, Chesterfield Gardens, London, W1J 5BQ Classification: Oil & Gas Exploration Supplies & Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	257	-	528544 180297
83	**Contemporary Trade Directory Entries** Name: Seven Energy Location: 6, Chesterfield Gardens, London, W1J 5BQ Classification: Oil & Gas Exploration Supplies & Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	257	-	528544 180297
83	**Contemporary Trade Directory Entries** Name: Sibir Energy Plc Location: 17c, Curzon Street, London, W1J 5HU Classification: Oil Companies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	288	-	528561 180269
84	**Contemporary Trade Directory Entries** Name: Spymaster Location: 38 Park La, London, W1Y 4DH Classification: Radio Communication Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	260	-	528406 180188
84	**Contemporary Trade Directory Entries** Name: Svenska Petroleum Exploration Location: 25, Park Lane, London, W1K 1RA Classification: Oil & Gas Exploration Supplies & Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (S)	297	-	528437 180160
85	**Contemporary Trade Directory Entries** Name: Aurum Mining Plc Location: 26, Curzon Street, London, W1J 7TQ Classification: Metals - Mining **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	287	-	528522 180226
86	**Contemporary Trade Directory Entries** Name: Springtime (London) Ltd Location: 17, Hill Street, London, W1J 5LJ Classification: Water Coolers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	301	-	528623 180491
86	**Contemporary Trade Directory Entries** Name: Bidvest Location: 11, Hill Street, London, W1J 5LF Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	336	-	528653 180517
86	**Contemporary Trade Directory Entries** Name: Zamin Advisors Location: 11, Hill Street, London, W1J 5LF Classification: Metals - Mining **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	336	-	528653 180517

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
287	**Contemporary Trade Directory Entries** Name: Merck Sharp & Dohme Location: 33, Cavendish Square, London, W1G 0PW Classification: Pharmaceutical Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	998	-	528890 181271
287	**Contemporary Trade Directory Entries** Name: Total Location: 33, Cavendish Square, London, W1G 0PW Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	998	-	528890 181271
287	**Contemporary Trade Directory Entries** Name: Sumitomo Precision Products Co Ltd Location: 33, Cavendish Square, London, W1G 0LU Classification: Machinery - Industrial & Commercial **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	998	-	528890 181271
287	**Contemporary Trade Directory Entries** Name: Sumitomo Metal Industries Ltd Location: 33, Cavendish Square, London, W1G 0LU Classification: Metal Products - Fabricated **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	998	-	528890 181271
287	**Contemporary Trade Directory Entries** Name: George Pacific (Europe) Ltd Location: 33, Cavendish Square, London, W1G 0FJ Classification: Paper & Cardboard Products & Packaging - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	998	-	528890 181271
287	**Contemporary Trade Directory Entries** Name: Total Petroleum Services Ltd Location: 33, Cavendish Square, London, W1G 0PW Classification: Oil Fuel Distributors **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	998	-	528890 181271
287	**Contemporary Trade Directory Entries** Name: Oriel Resources Ltd Location: 33, Cavendish Square, London, W1G 0PW Classification: Metals - Mining **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	998	-	528890 181271
288	**Contemporary Trade Directory Entries** Name: Uflex Europe Ltd Location: Portman Towers,38-39 George Street, London, W1H 7HW Classification: Packaging Materials Manufacturers & Suppliers **Status: Active** Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	999	-	527873 181344
289	**Fuel Station Entries** Name: Mfg Park Lane Location: 83, Park Lane Mount Street, Mayfair , London, Inner London, W1K 7HB Brand: Esso Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A13NW (W)	128	-	528192 180483
290	**Fuel Station Entries** Name: Mpk Waverton Filling Station Hgv Location: 5-7, Waverton Street , Mayfair , London, Inner London, W1J 5QW Brand: Unbranded Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	190	-	528503 180365
291	**Fuel Station Entries** Name: Park Lane Garage Location: Park Lane , Mayfair , London, Inner London, W1K 7TP Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A13NW (W)	298	-	528036 180553

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
292	**Fuel Station Entries** Name: Selfridges Service Station Location: Edwards Mews , , London, Inner London, W1A 1AB Brand: Texaco Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the road within the address or location	A18NW (N)	761	-	528249 181208
293	**Points of Interest - Commercial Services** Name: Hanson Transport Grp Ltd Location: 2 Deanery Street, London, W1K 1AU Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13SE (SE)	97	9	528397 180369
293	**Points of Interest - Commercial Services** Name: Hanson Transport Group Ltd Location: 2 Deanery Street, London, W1K 1AU Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13SE (SE)	97	9	528397 180369
294	**Points of Interest - Commercial Services** Name: B M W Park Lane London Location: 77 Park Lane, London, W1K 7TP Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13NW (W)	129	9	528191 180482
295	**Points of Interest - Commercial Services** Name: Acrealton Ltd Location: 28 Mount Street, London, W1K 2RU Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13NE (N)	170	9	528384 180608
296	**Points of Interest - Commercial Services** Name: Mafair Car Clinic Location: Park Lane, London, W1K 7AN Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A13NW (W)	298	9	528036 180553
296	**Points of Interest - Commercial Services** Name: Posh Wash Car Valeting Location: Park Lane, London, W1K 7AN Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A13NW (W)	304	9	528024 180535
297	**Points of Interest - Commercial Services** Name: Bidvest Foodservice Location: 11 Hill Street, London, W1J 5LF Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13NE (E)	335	9	528652 180517
298	**Points of Interest - Commercial Services** Name: Z M G Corporation Location: 52 Upper Brook Street, London, W1K Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A18SW (N)	355	9	528194 180782
298	**Points of Interest - Commercial Services** Name: Zmg Corporation Location: 52 Upper Brook Street, London, W1K 2BU Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A18SW (N)	356	9	528195 180783
299	**Points of Interest - Commercial Services** Name: Seven Seas Chartering Ltd Location: Berger House 36-38, Berkeley Square, London, W1J 5AD Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A13NE (NE)	371	9	528656 180612
299	**Points of Interest - Commercial Services** Name: Reloux Location: 43 Berkeley Square, London, W1J 5AP Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A14NW (E)	412	9	528717 180567

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
332	**Points of Interest - Commercial Services** Name: Gardline Location: 67-69 George Street, London, W1U 8LT Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A18NW (N)	991	9	528022 181395
333	**Points of Interest - Education and Health** Name: H C A International Ltd Location: 97-99 Park Street, London, W1K 7HA Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A18SW (NW)	472	9	528089 180862
334	**Points of Interest - Education and Health** Name: Schoen Clinic London Location: Basement Floor to Third Floor Rear 64-66, Wigmore Street, London, W1U 2SB Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A18NE (N)	922	9	528462 181362
335	**Points of Interest - Manufacturing and Production** Name: Berkeley Mineral Resources Location: 6 Derby Street, London, W1J 7AD Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A13SE (SE)	280	9	528490 180208
335	**Points of Interest - Manufacturing and Production** Name: Berkeley Mineral Resources Location: 6 Derby Street, London, W1J 7AD Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A13SE (SE)	280	9	528490 180208
335	**Points of Interest - Manufacturing and Production** Name: Aurum Mining Plc Location: 26 Curzon Street, London, W1J 7TQ Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A13SE (SE)	286	9	528522 180226
335	**Points of Interest - Manufacturing and Production** Name: Aurum Mining Plc Location: 26 Curzon Street, London, W1J 7TQ Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A13SE (SE)	287	9	528522 180226
335	**Points of Interest - Manufacturing and Production** Name: London Executive Offices Location: 32 Curzon Street, London, W1J 7TS Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A13SE (SE)	319	9	528580 180242
336	**Points of Interest - Manufacturing and Production** Name: Executive Offices Group Location: Gefinor House 18b, Charles Street, London, W1J 5DU Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A13SE (E)	299	9	528619 180376
336	**Points of Interest - Manufacturing and Production** Name: Argyll Business Centres Location: Gefinor House 18b, Charles Street, London, W1J 5DU Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A13SE (E)	299	9	528619 180376
336	**Points of Interest - Manufacturing and Production** Name: Argyll Business Centres Location: Gefinor House 18b, Charles Street, London, W1J 5DU Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A13SE (E)	299	9	528619 180376
336	**Points of Interest - Manufacturing and Production** Name: Argyll Business Centres Location: Gefinor House 18b, Charles Street, London, W1J 5DU Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A13SE (E)	325	9	528648 180388

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
383	**Points of Interest - Manufacturing and Production** Name: Gemfields Location: 1 New Burlington Place, London, W1S 2HR Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A19SE (NE)	931	9	529145 180885
384	**Points of Interest - Manufacturing and Production** Name: Consolidated Diamond Gold Ltd Location: 207 Regent Street, London, W1B 3HH Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A19SE (NE)	940	9	529080 181005
385	**Points of Interest - Manufacturing and Production** Name: 33 Grosvenor Place Location: 33 Grosvenor Place, London, SW1X 7HG Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A8SE (S)	971	9	528586 179500
386	**Points of Interest - Manufacturing and Production** Name: Turkish Chamber of Commerce & Industry Location: Bury House 33, Bury Street, London, SW1Y 6AU Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A14SE (E)	979	9	529292 180276
387	**Points of Interest - Manufacturing and Production** Name: Oxus Gold Location: Meridien House 42, Upper Berkeley Street, London, W1H 5QJ Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A17NW (NW)	988	9	527620 181151
388	**Points of Interest - Manufacturing and Production** Name: Adfone Business Services Location: Chesham House 150, Regent Street, London, W1B 5SJ Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A19SE (NE)	994	9	529242 180826
389	**Points of Interest - Manufacturing and Production** Name: Oriel Resources Ltd Location: 33 Cavendish Square, London, W1G 0PW Category: Extractive Industries Class Code: Ore Mining Positional Accuracy: Positioned to address or location	A19NW (NE)	997	9	528889 181270
390	**Points of Interest - Public Infrastructure** Name: BP Location: 83 Park Lane, London, W1K 7HB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (W)	128	9	528192 180483
390	**Points of Interest - Public Infrastructure** Name: Malthurst Park Lane Location: 83 Park Lane, London, W1K 7HB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (W)	128	9	528192 180483
390	**Points of Interest - Public Infrastructure** Name: MRH Park Lane Location: 83 Park Lane, London, W1K 7HB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (W)	128	9	528192 180483
390	**Points of Interest - Public Infrastructure** Name: Esso Location: 83 Park Lane, London, W1K 7HB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (W)	129	9	528191 180482
390	**Points of Interest - Public Infrastructure** Name: Fountain Garage Location: 83 Park Lane, London, W1K 7HB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A13NW (W)	129	9	528191 180482

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
391	**Points of Interest - Public Infrastructure** Name: Go Rubbish Go Location: 84 Brook Street, London, W1K 5EH Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A18SE (N)	497	9	528484 180920
392	**Points of Interest - Public Infrastructure** Name: Space Junk Location: 64 North Row, London, W1K Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A18SW (NW)	599	9	528036 180978
393	**Points of Interest - Public Infrastructure** Name: Hlc Environmental Projects Ltd Location: 15 Berkeley Street, London, W1J 8DY Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A14NW (E)	627	9	528953 180470
394	**Points of Interest - Public Infrastructure** Name: Weir Location: W2 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	682	9	527818 179974
394	**Points of Interest - Public Infrastructure** Name: Weir Location: W2 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	682	9	527818 179974
395	**Points of Interest - Public Infrastructure** Name: Marylebone Police Station Location: Marylebone Police Station 1-9, Seymour Street, London, W1H 7BA Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A17NE (NW)	784	9	527967 181151
396	**Points of Interest - Public Infrastructure** Name: Tesco Petrol Filling Station Location: 311 Oxford Street, London, W1C 2HP Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A19NW (NE)	824	9	528795 181125
397	**Points of Interest - Public Infrastructure** Name: West End Central Police Station Location: West End Central Police Station, 27, Savile Row, London, W1S Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A19SE (NE)	844	9	529081 180818
397	**Points of Interest - Public Infrastructure** Name: West End Central Police Station Location: West End Central Police Station 27, Savile Row, London, W1S 2EX Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A19SE (NE)	845	9	529082 180819
397	**Points of Interest - Public Infrastructure** Name: West End Central Police Station Location: West End Central Police Station 27, Savile Row, London, W1S 2EX Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A19SE (NE)	845	9	529082 180819
398	**Points of Interest - Public Infrastructure** Name: Junk & Disorderly Location: 100 Knightsbridge, London, SW1X 7LJ Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A7SE (SW)	889	9	527748 179754
399	**Points of Interest - Public Infrastructure** Name: First Mile Location: Empire House 175, Piccadilly, London, W1J 9TB Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A14NE (E)	918	9	529244 180443

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
399	**Points of Interest - Public Infrastructure** Name: First Mile Location: Empire House 175, Piccadilly, London, W1J 9TB Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A14NE (E)	918	9	529244 180443
400	**Points of Interest - Public Infrastructure** Name: Dop Rubbish Removal London Location: 29 Chapel Street, London, SW1X 7DD Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A8SE (S)	921	9	528421 179519
401	**Points of Interest - Recreational and Environmental** Name: Green Park Location: London, SW1A Category: Recreational Class Code: Municipal Parks And Gardens Positional Accuracy: Positioned to address or location	A9NW (SE)	775	9	528932 179952
402	**Points of Interest - Recreational and Environmental** Name: Royal Parks Agency Location: The Old Police House, Hyde Park, London, W2 2UH Category: Recreational Class Code: Municipal Parks And Gardens Positional Accuracy: Positioned to address or location	A12SW (W)	909	9	527407 180410
403	**Points of Interest - Recreational and Environmental** Name: Playground Location: South Carriage Drive, SW7 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A7NW (SW)	923	9	527613 179842
403	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A7NW (SW)	924	9	527613 179841
404	**Points of Interest - Recreational and Environmental** Name: Play Area Location: SW1X Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8SW (S)	979	9	528244 179458

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	ALV	Alluvium	Clay, Silt, Sand And Peat	Not Supplied - Holocene
	LASI	Langley Silt Member	Clay and Silt	Not Supplied - Devensian
	KPGR	KEMPTON PARK GRAVEL MEMBER	Sand and Gravel	Not Supplied - Devensian
	LHGR	Lynch Hill Gravel Member	Sand and Gravel	Not Supplied - Wolstonian
	HAGR	Hackney Gravel Member	Sand and Gravel	Not Supplied - Wolstonian
	TPGR	TAPLOW GRAVEL MEMBER	Sand and Gravel	Not Supplied - Wolstonian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	LC	London Clay Formation	Clay, Silt and Sand	Not Supplied - Ypresian
	LC	London Clay Formation	Clay and Silt	Not Supplied - Ypresian

GEA

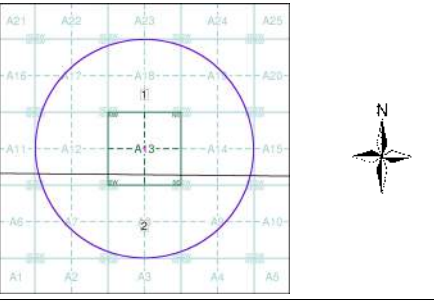
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1	**Map ID:**	2
Map Sheet No:	256	**Map Sheet No:**	270
Map Name:	North London	**Map Name:**	South London
Map Date:	2006	**Map Date:**	1998
Bedrock Geology:	Available	**Bedrock Geology:**	Available
Superficial Geology:	Available	**Superficial Geology:**	Available
Artificial Geology:	Available	**Artificial Geology:**	Available
Faults:	Not Supplied	**Faults:**	Not Supplied
Landslip:	Available	**Landslip:**	Available
Rock Segments:	Not Supplied	**Rock Segments:**	Not Supplied

Geology 1:50,000 Maps - Slice A

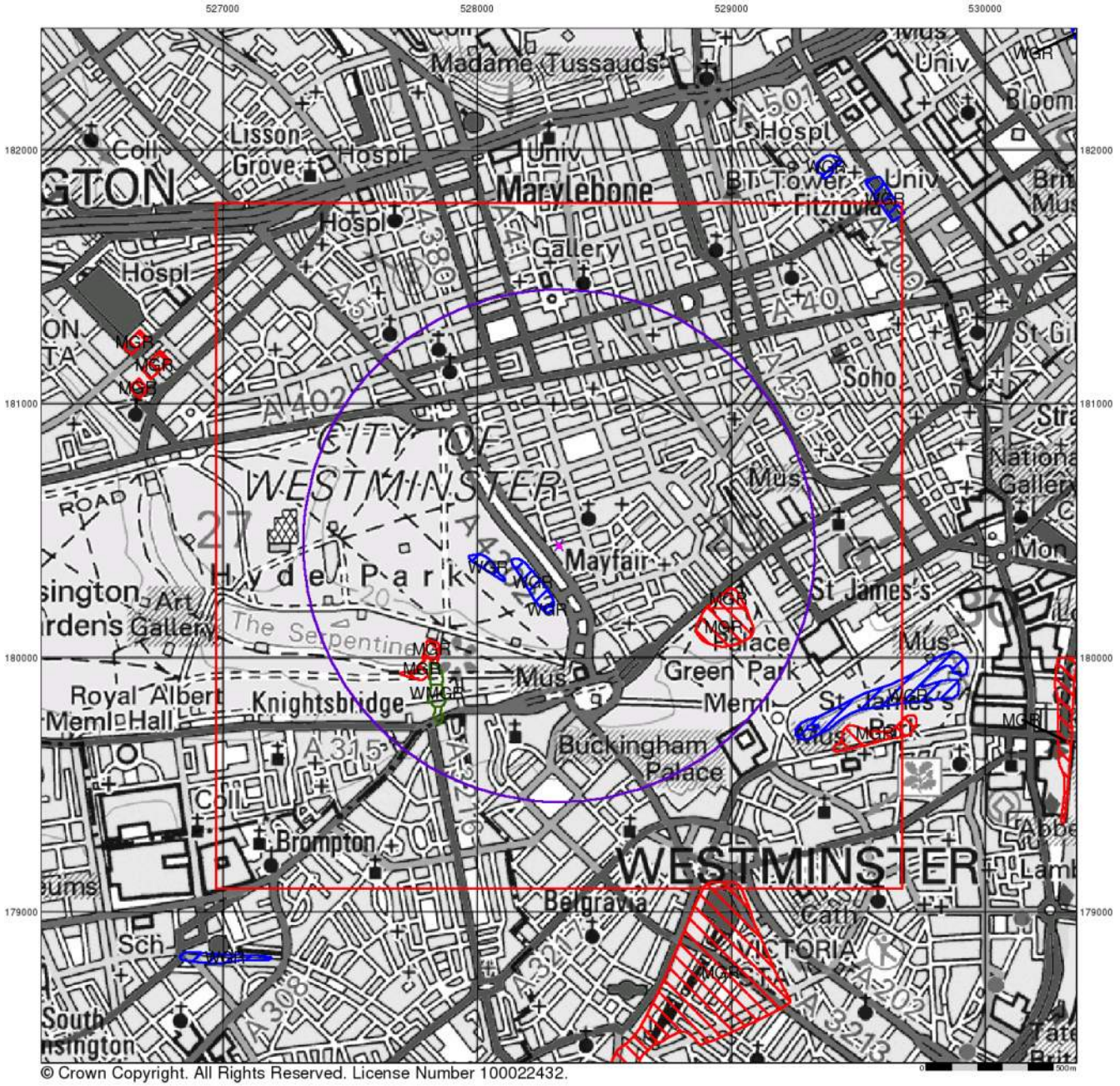


Order Details:

Order Number:	263075527_1_1
Customer Reference:	J20230
National Grid Reference:	528320, 180440
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	1000

Site Details:

19, South Street, LONDON, W1K 2XB



GEA

Artificial Ground and Landslip

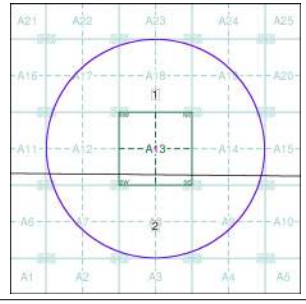
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



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Site Details:

19, South Street, LONDON, W1K 2XB

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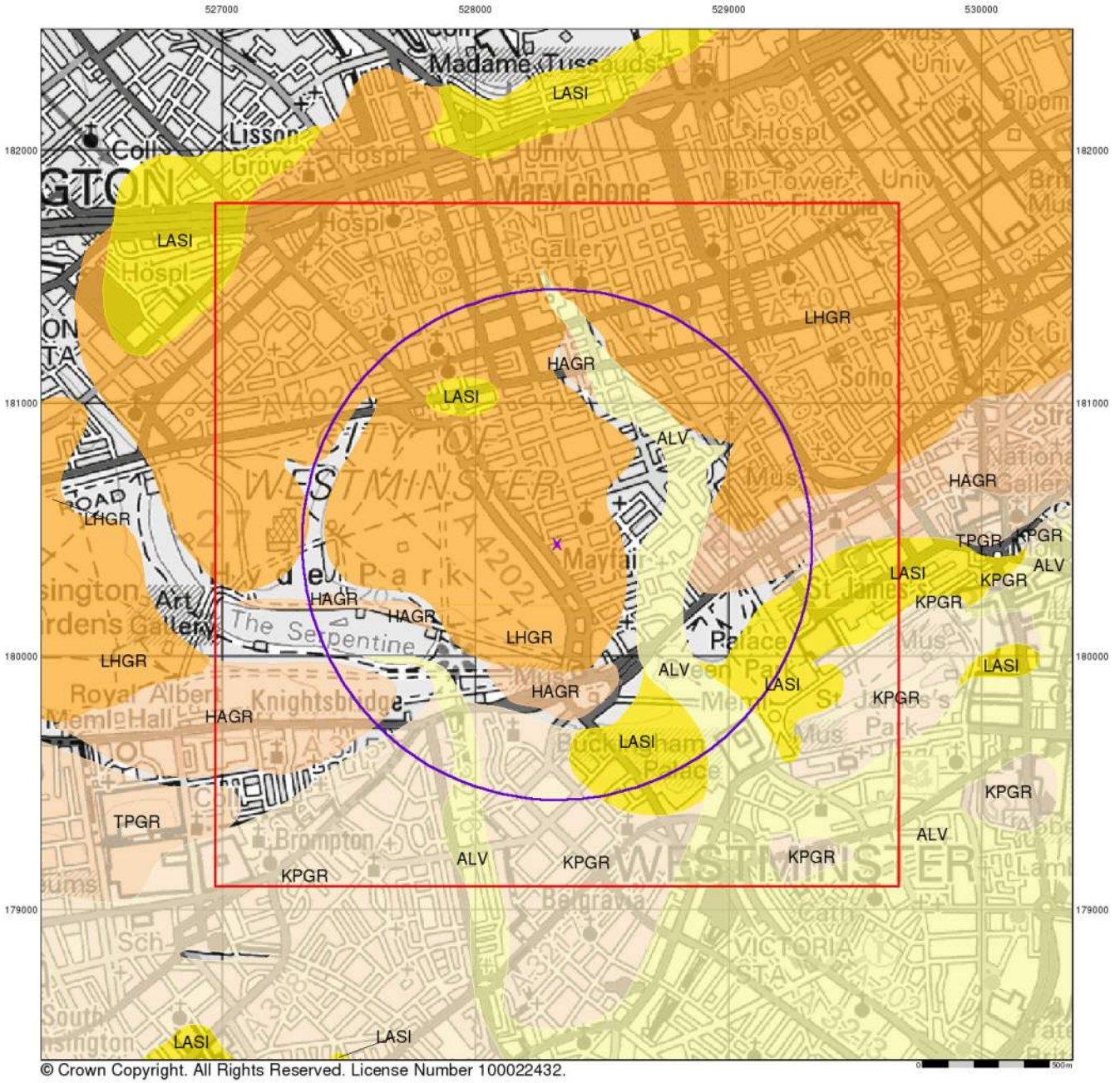
Web: www.envirocheck.co.uk



GEA

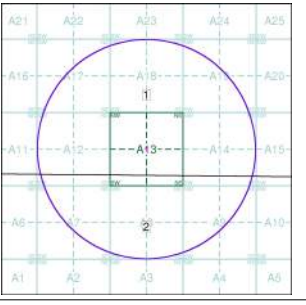
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



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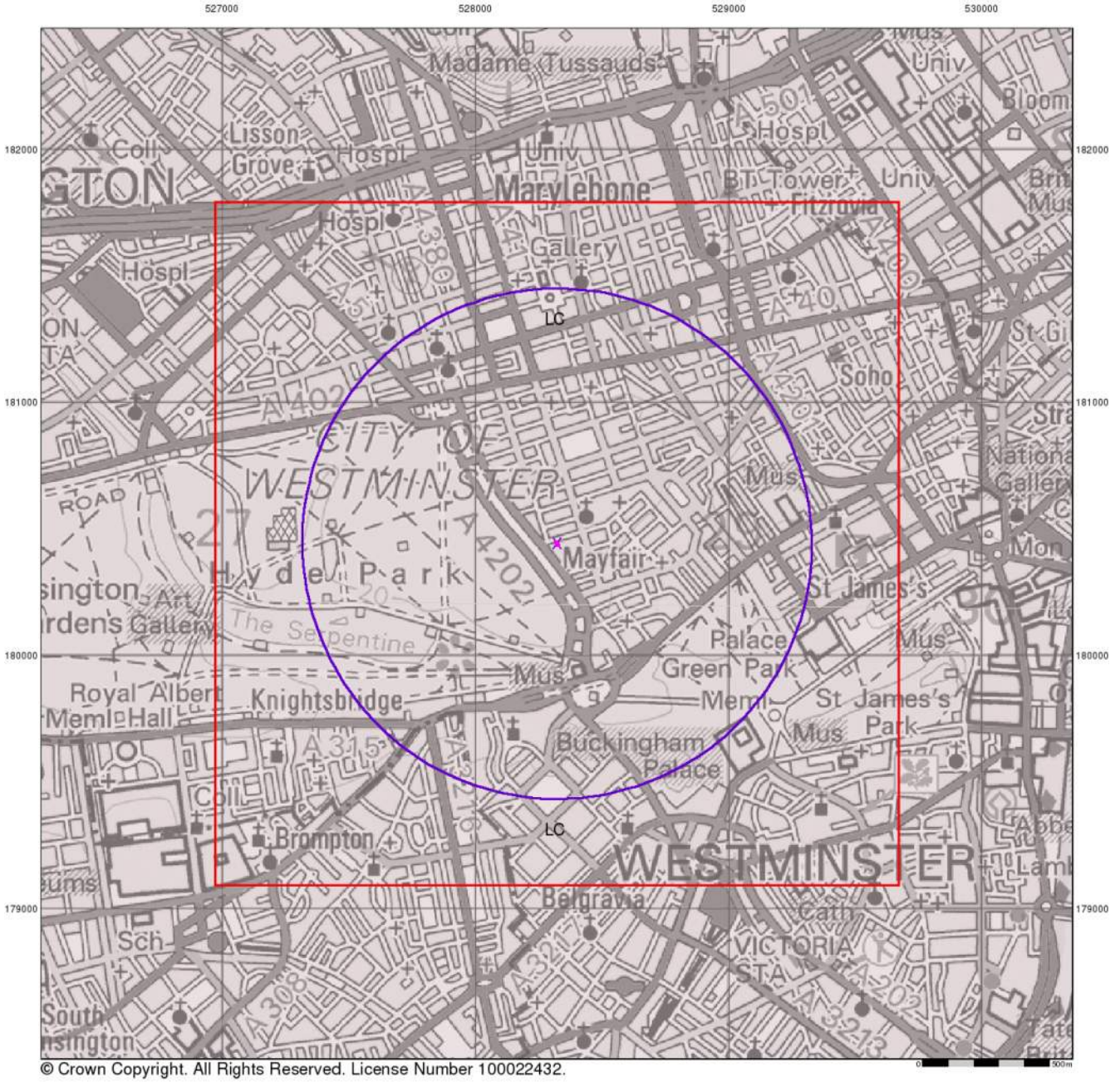


GEA

Bedrock and Faults

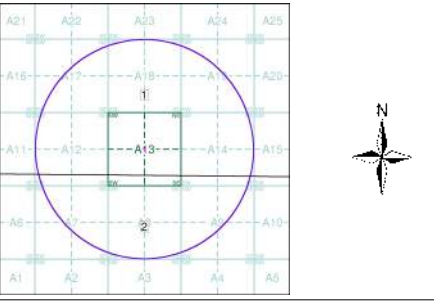
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



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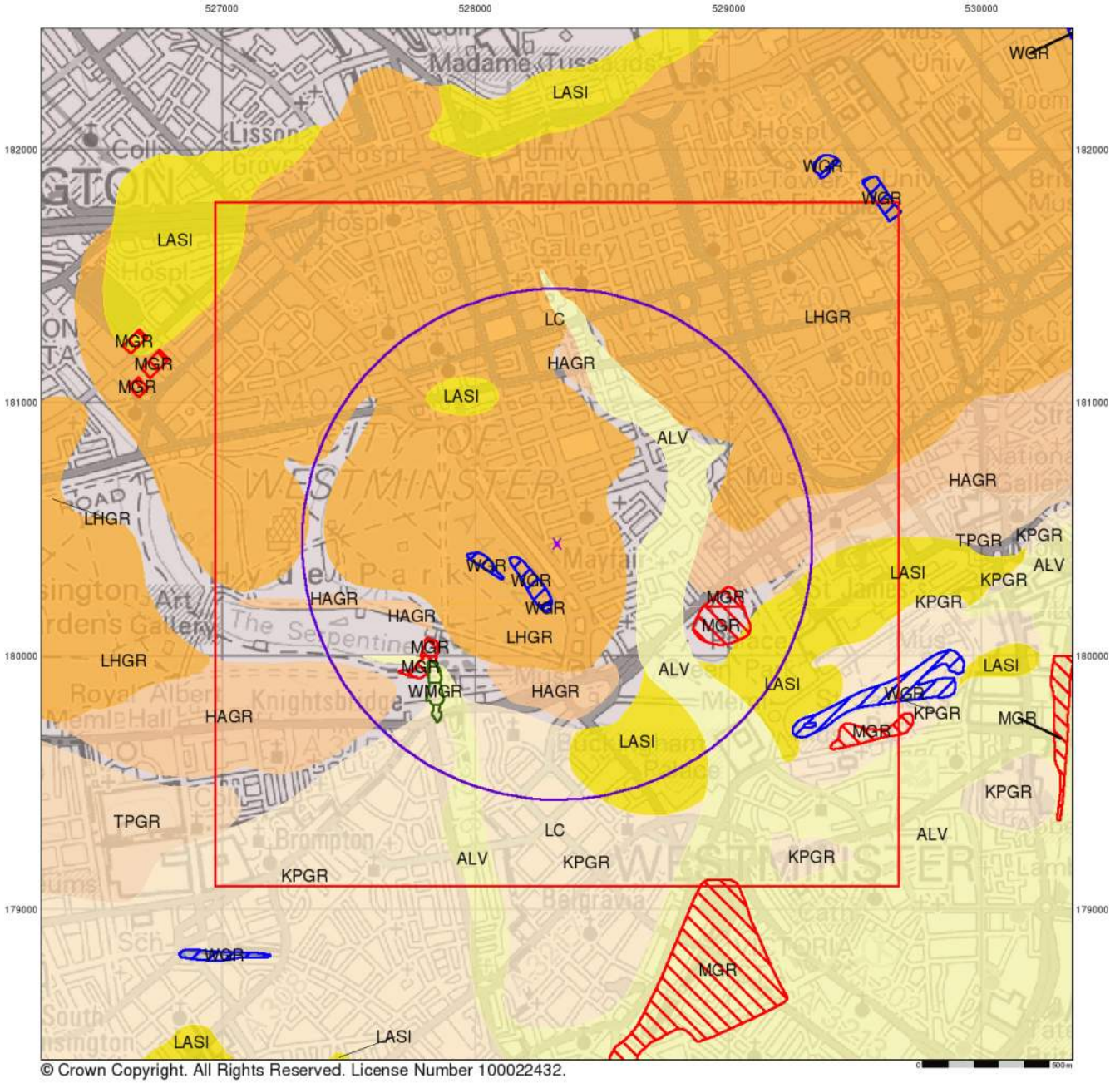


Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

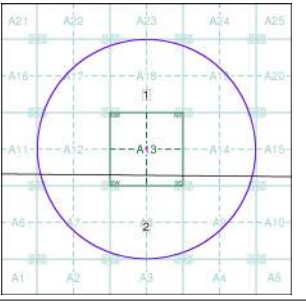
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



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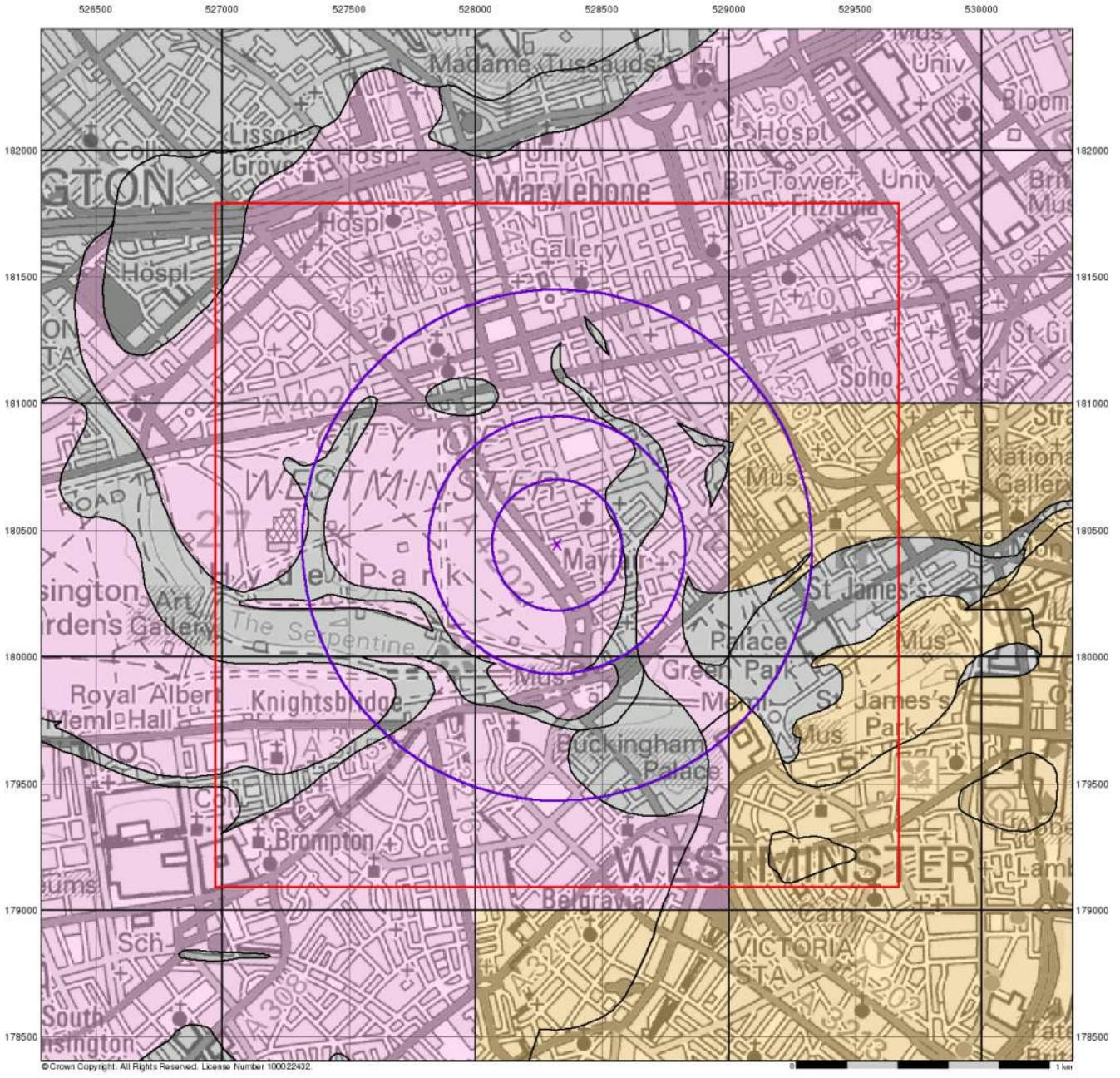


GEA

Groundwater Vulnerability

General

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

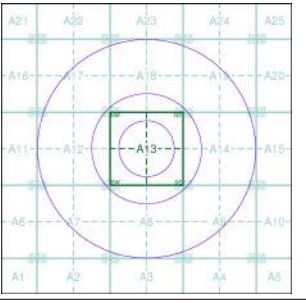
Agency and Hydrological

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

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



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National Grid Reference:	528320, 180440
Slice:	A
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Search Buffer (m):	1000

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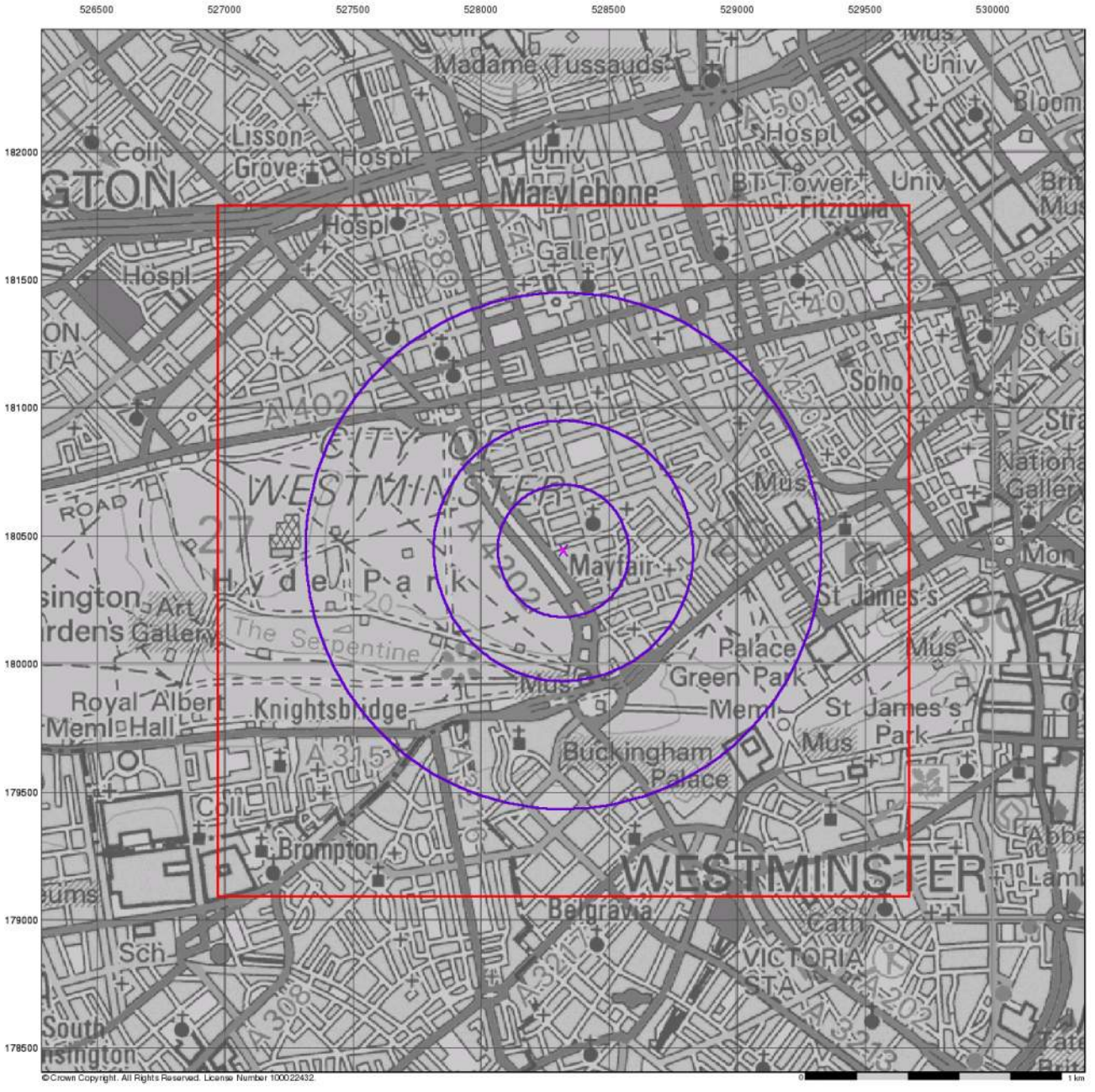


GEA

Bedrock Aquifer Designation

General

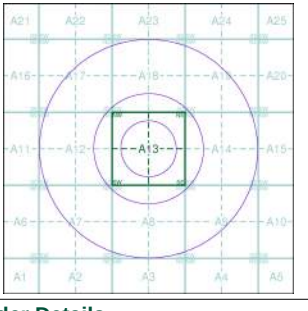
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



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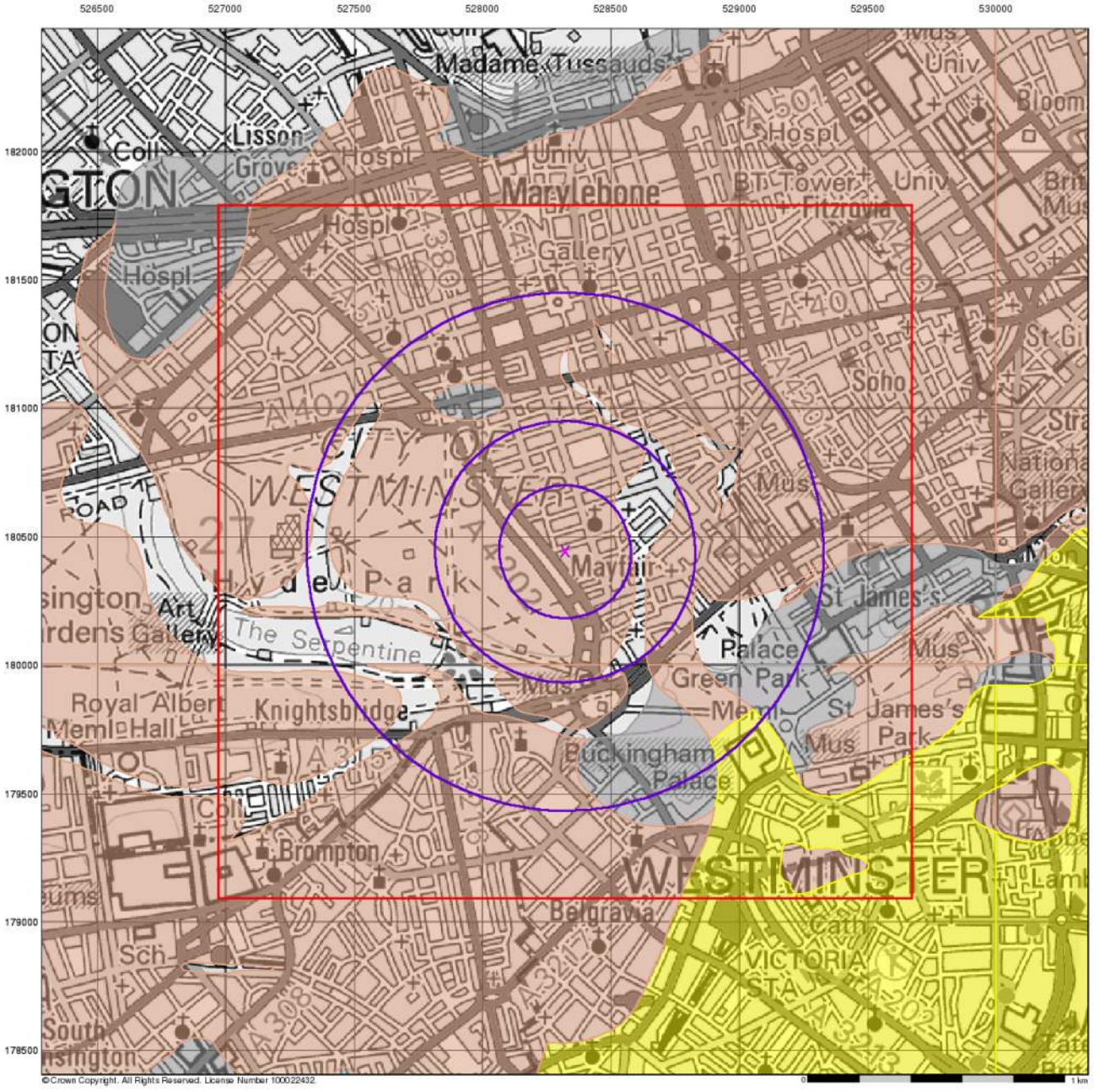


GEA

Superficial Aquifer Designation

General

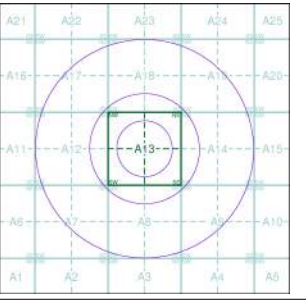
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



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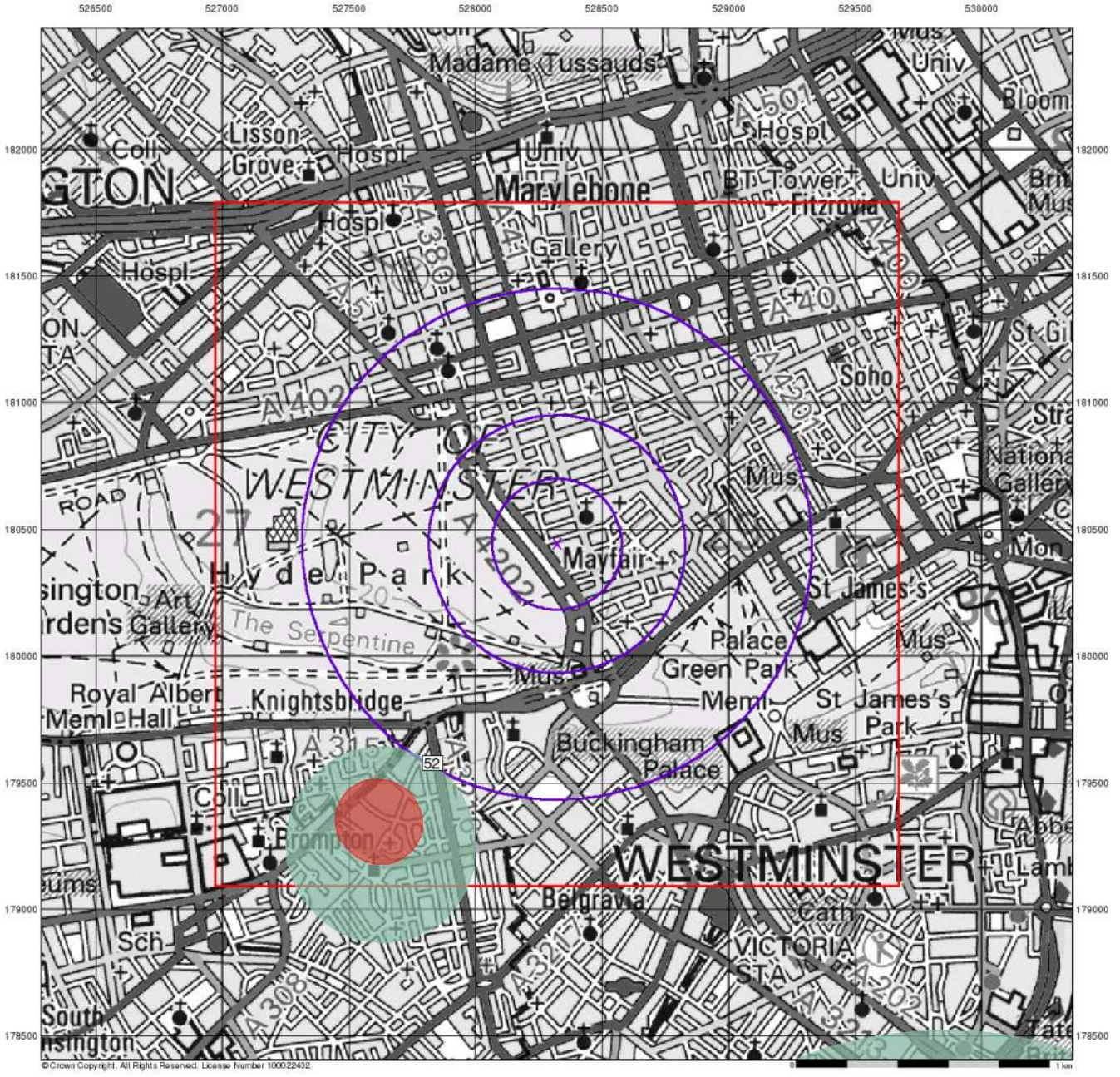


GEA

Source Protection Zones

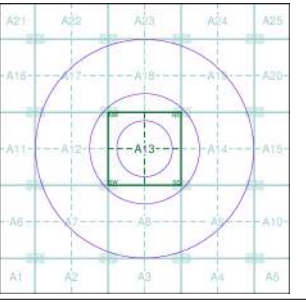
General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



Order Details

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Customer Ref:	J20230
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Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	1000

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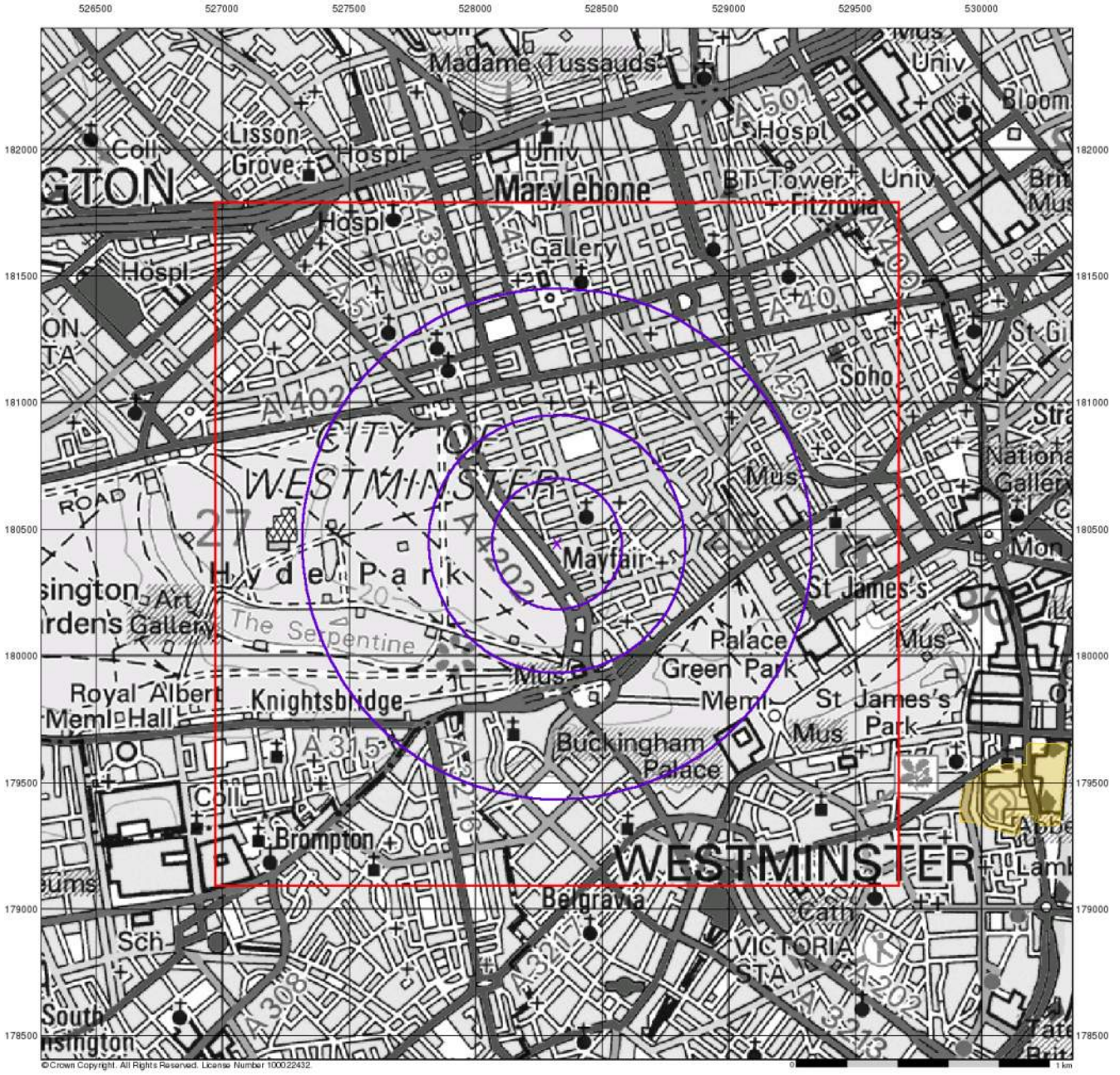


GEA

Sensitive Land Uses

General

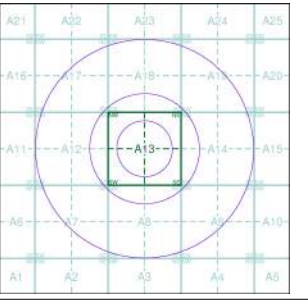
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



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Site Details

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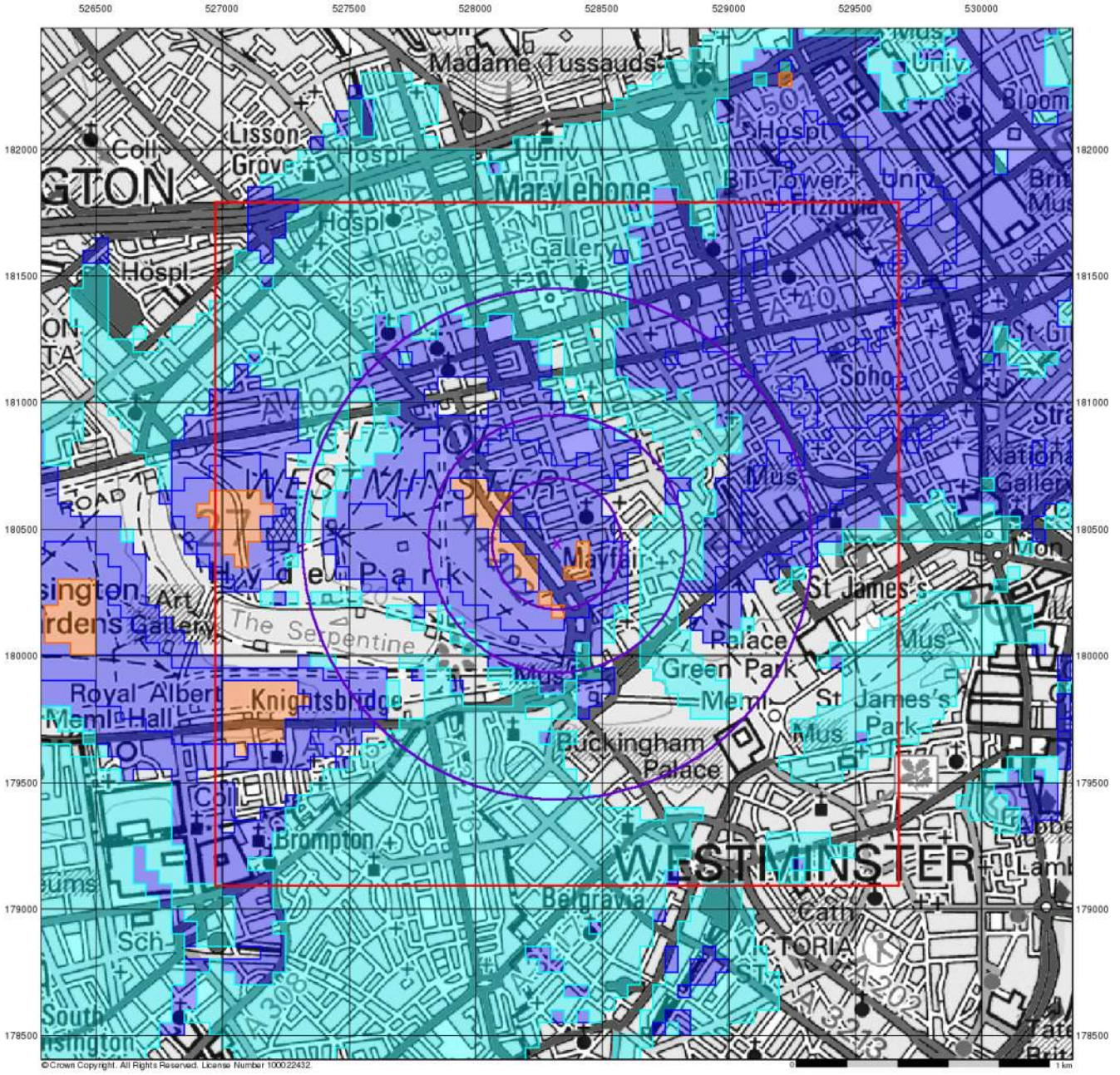


GEA

BGS Flood GFS Data

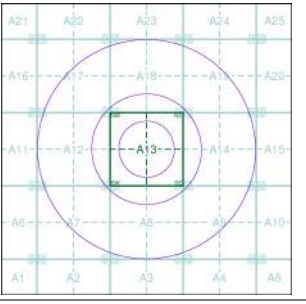
General

Specified Site
Specified Buffer(s)
Bearing Reference Point
Slice

Agency and Hydrological (Flood)

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

Site Sensitivity Context Map - Slice A



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Site Details

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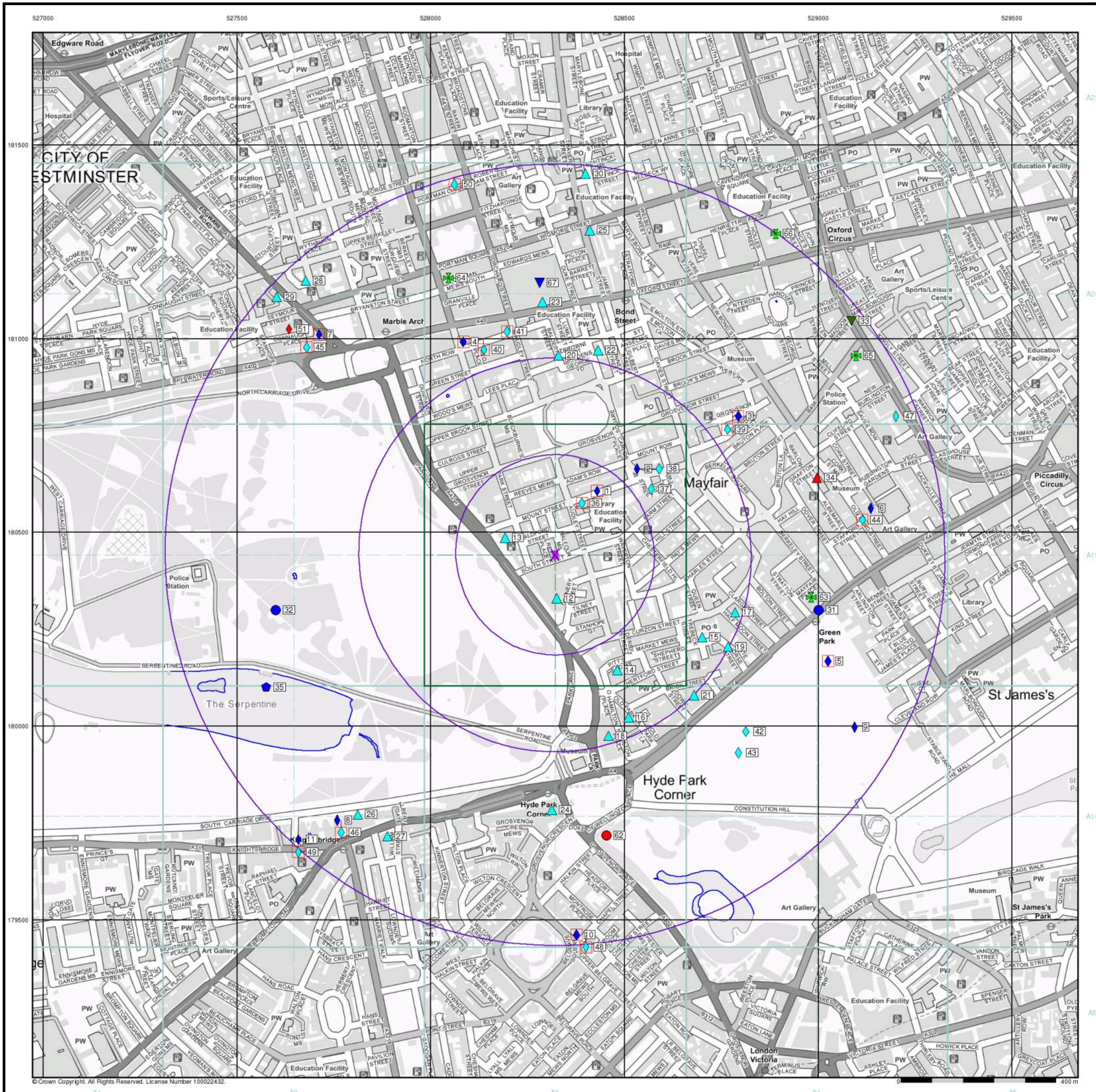


GEA

General

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

Agency and Hydrological

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

Hazardous Substances

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

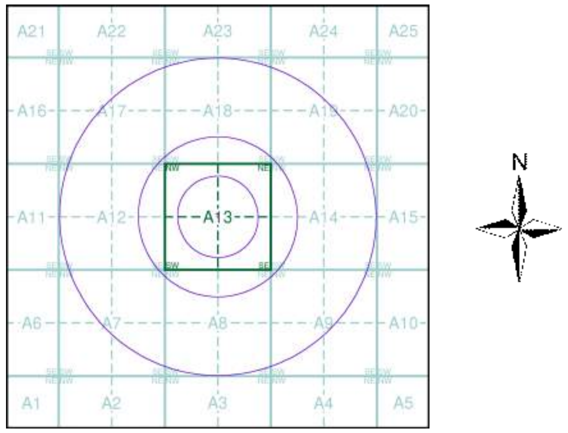
Geological

- BGS Recorded Mineral Site

Waste

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

Site Sensitivity Map - Slice A



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GEA

Industrial Land Use Map

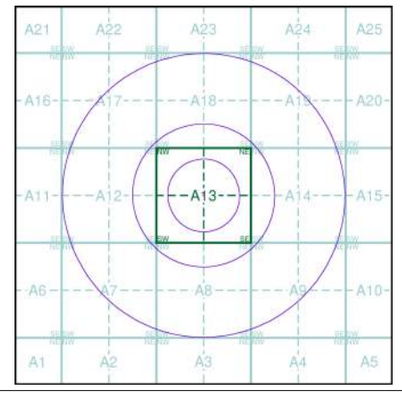
General

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

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Site Area (Ha):	0.02
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Site Details

19, South Street, LONDON, W1K 2XB

GEA

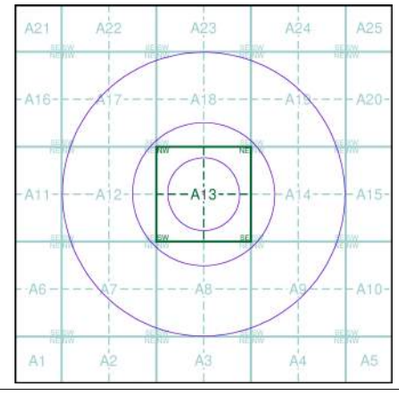
General

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

Agency and Hydrological (Flood)

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

Flood Map - Slice A



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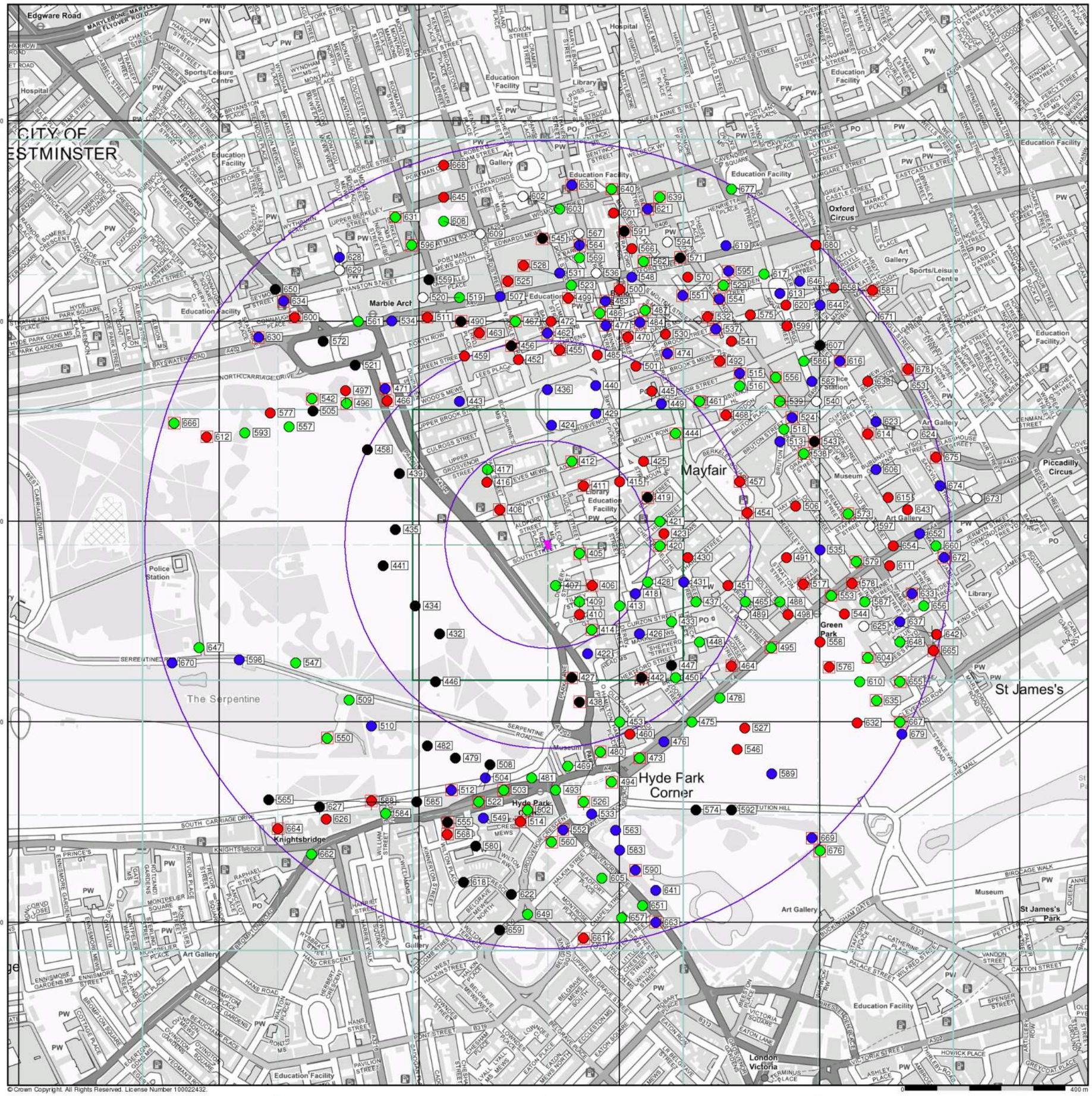


GEA

General

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

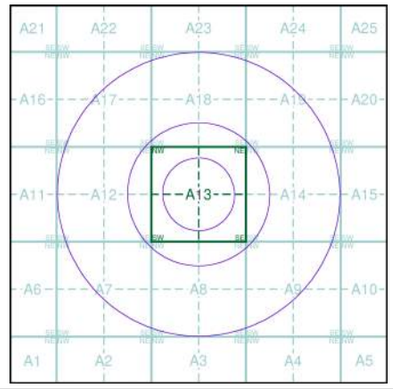
Agency and Hydrological (Boreholes)

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

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

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

Borehole Map - Slice A



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Site Details

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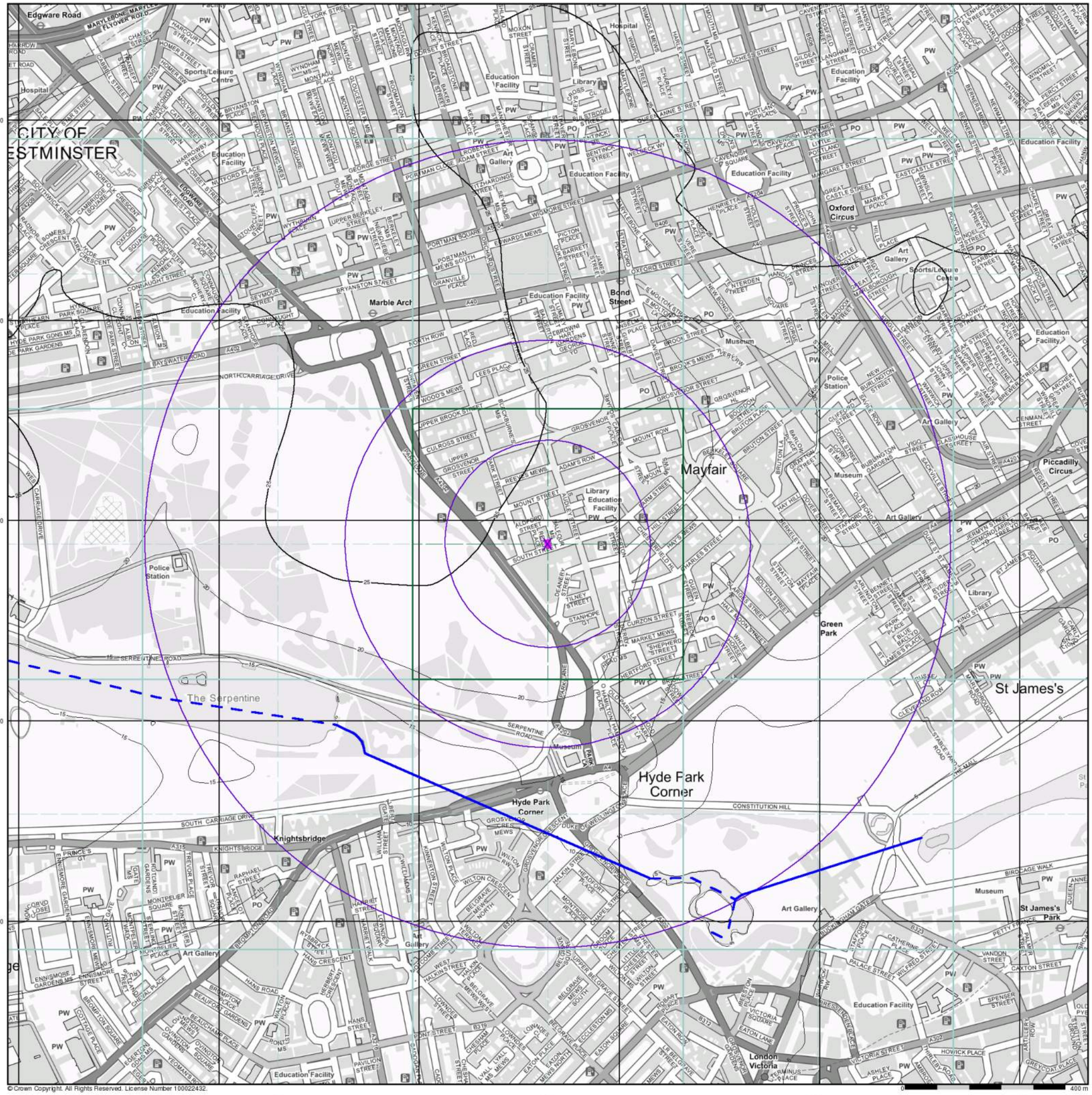


GEA

General

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

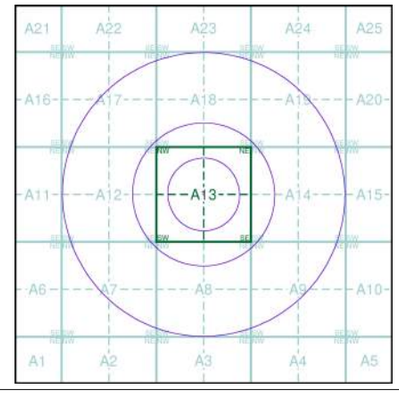
OS Water Network Data

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

Contours (height in meters)

- Standard Contour
- Master Contour
- Spot Height 167.3
- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



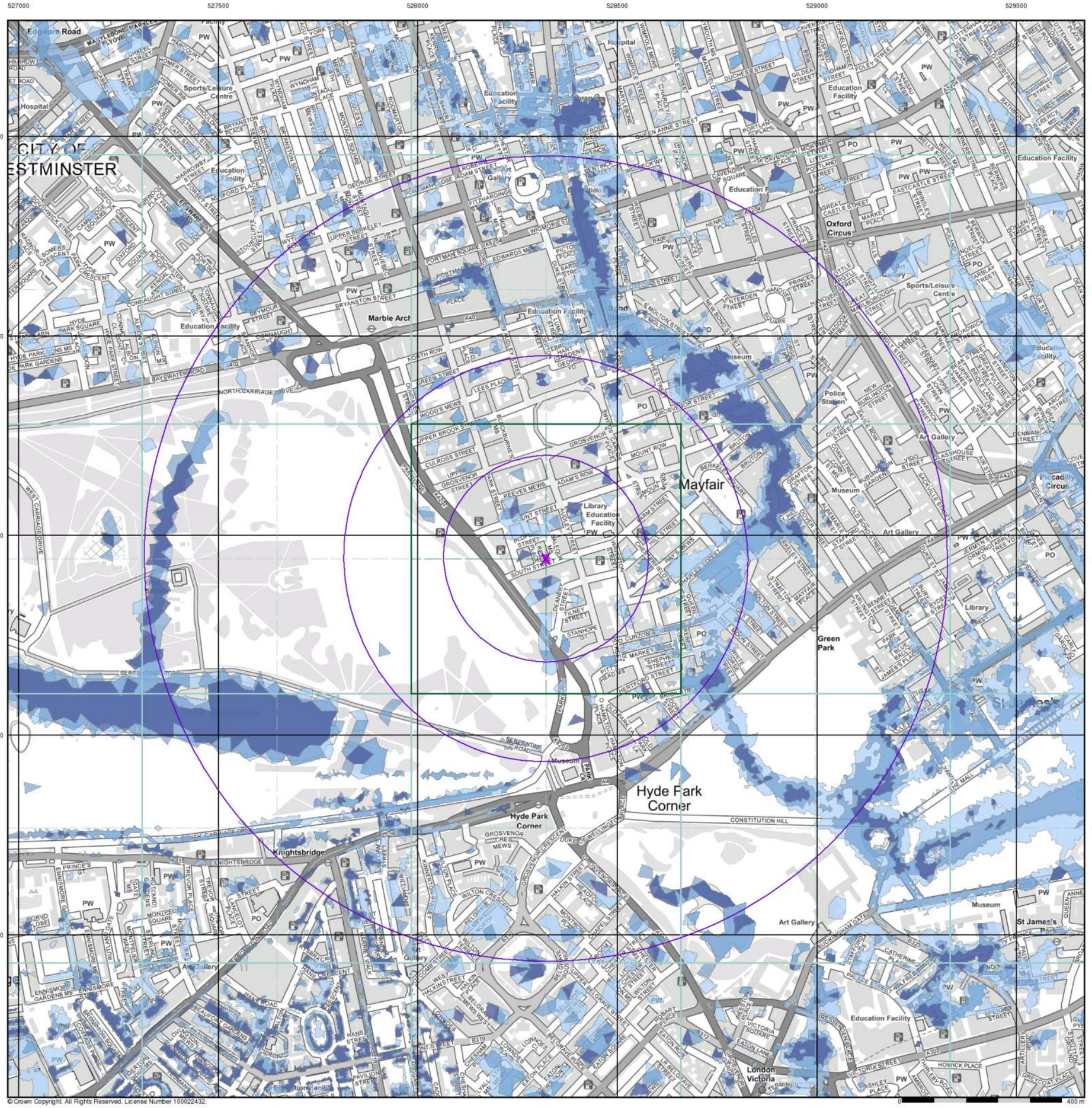
Order Details

Order Number:	263075527_1_1
Customer Ref:	J20230
National Grid Reference:	528320, 180440
Slice:	A
Site Area (Ha):	0.02
Search Buffer (m):	1000

Site Details

19, South Street, LONDON, W1K 2XB

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



GEA

General

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

Risk of Flooding from Surface Water

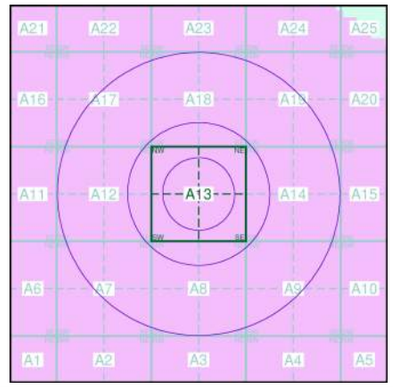
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

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Customer Ref:	J20230
National Grid Reference:	528320, 180440
Slice:	A
Site Area (Ha):	0.02
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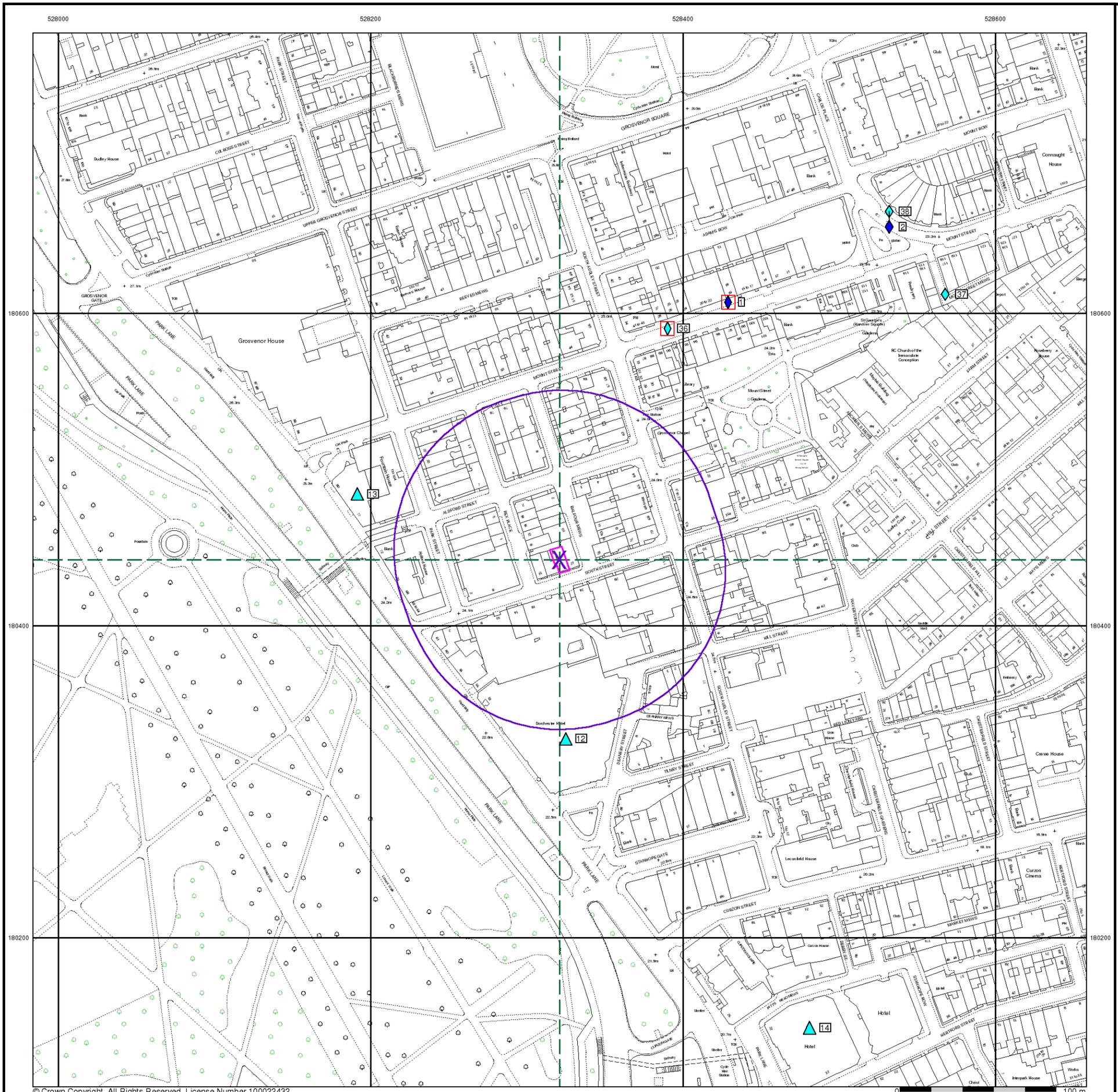


GEA

General

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

Agency and Hydrological

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

Hazardous Substances

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

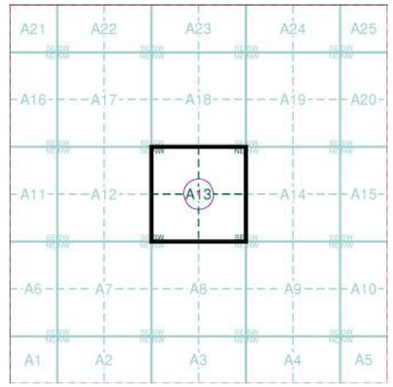
Geological

- BGS Recorded Mineral Site

Waste

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

Site Sensitivity Map - Segment A13



Order Details

Order Number:	263075527_1_1
Customer Ref:	J20230
National Grid Reference:	528320, 180440
Slice:	A
Site Area (Ha):	0.02
Plot Buffer (m):	100

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