Land Contamination Phase I Environmental Site Assessment

B1299 Aldi Stores Limited,
Sturlas Way, Waltham Cross

Ref: B1299-Doc-01
Revision: X1

Prepared for Aldi Stores Limited

Webb Yates Engineers Ltd
37-39 Ludgate Hill,
Birmingham. B3 1EH
0121 726 7670
birmingham@webbyates.co.uk
www.webbyates.co.uk

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GENERAL NOTES

Only construction status documentation is to be constructed from. If you do not have a construction issue document and you are about to build something, please contact Webb Yates Engineers. Ensure that you have the latest revision prior to construction.

REVISION HISTORY

Revisions indicated with line in margin.

Revision status: P = Preliminary, T = Tender, C = Construction, X = For Information

Revision	Date	Author	Signed	Reviewer	Signed	Description
X1	17.09.20	RAC	Robert Carter	RN	Rob Nield	First Issue

1 INTRODUCTION AND BACKGROUND

The purpose of this report is to present a preliminary risk assessment of potential pollution linkages which may be present on the site. This report has been commissioned by Aldi Stores Ltd to support the redevelopment proposals for the site.

Current environmental legislation in respect of contaminated land includes the Environment Act 1995, Water Resources Act 1994, Environmental Protection Act (EPA) 1990, Health and Safety at Work Act 1994, Town and Country Planning Act 1990 and Building Regulations 1985. Part IIA of the EPA 1990 was implemented by Section 57 of the Environment Act (EA) 1995. The regime is detailed in the Department of Environment, Food and Rural Affairs (DEFRA) circular 01/2006 which includes a statement of government policy, a description of the regime, the statutory guidance and a guide to the supporting regulations.

The regime provides a statutory definition of contaminated land based on the risk of significant harm to human health and the environment, or pollution of controlled waters. By adopting the principles of risk assessment and risk management the intention is to ensure that contaminated land is managed effectively, based on its current use, proposed end use and environmental setting.

Under the regime, land is only defined as contaminated if there is a significant 'pollutant linkage'. This requires evidence of the presence of a contaminant (the source), a pathway (or pathways) through which contaminants could travel, and a receptor that could be harmed by the contaminant. In addition the type of receptor and any harm must meet the descriptions of significant harm given in the statutory guidance. A site where a contaminant is causing or is likely to cause pollution of surface water or groundwater (controlled waters) also constitutes contaminated land.

This report follows the methodology set out in 'The Model Procedures for the Management of Land Contamination', CLR 11, (Environment Agency, 2004). These have been developed to provide the technical framework for applying a risk management process when dealing with land affected by contamination. The process 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 UK.

In the context of land contamination, there are three essential elements to any risk:

- A contaminant – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters;
- A receptor – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body; and
- A pathway – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a particular receptor through a particular pathway. This kind of linked combination of contaminant-pathway-receptor is described as a pollution linkage.

2 REPORT OBJECTIVES

The objectives of this report are to provide a site-specific preliminary risk assessment for land contamination which in turn will provide a basis for future assessment and appraisal of development for the site. This risk assessment will follow the methodology set out in 'The Model Procedures for the Management of Land Contamination', CLR 11, (Environment Agency, 2004).

The context for this preliminary risk assessment is the redevelopment of the site by Aldi Stores Ltd to provide a new retail unit located within the existing Homebase store, the existing car park will be configured to include car parking areas for the store. The proposed site is shown on The Harris Partnership Architects drawing number 2924-COR-905B.

3 SITE DESCRIPTION

The site is located off the Sturlas Way, Waltham Cross, vehicular access is via an entrance on Sturlas Way. The site has an approximate National Grid Reference of 535905,200736 and a postcode of EN8 7BF. A map and aerial photograph are provided below. The site covers an area of approximately 15607m^2.

The site is rectangular in shape and is currently part of a retail area with one large retail building with associated car parking on the site. On the north boundary is the A121 Winston Churchill Way, on the east boundary is Sturlas Way, on the south boundary are residential properties along Ruthven Avenue and on the west boundary are further residential properties along Leven Drive and Leven Close.

Figure 1: Site Location Map:

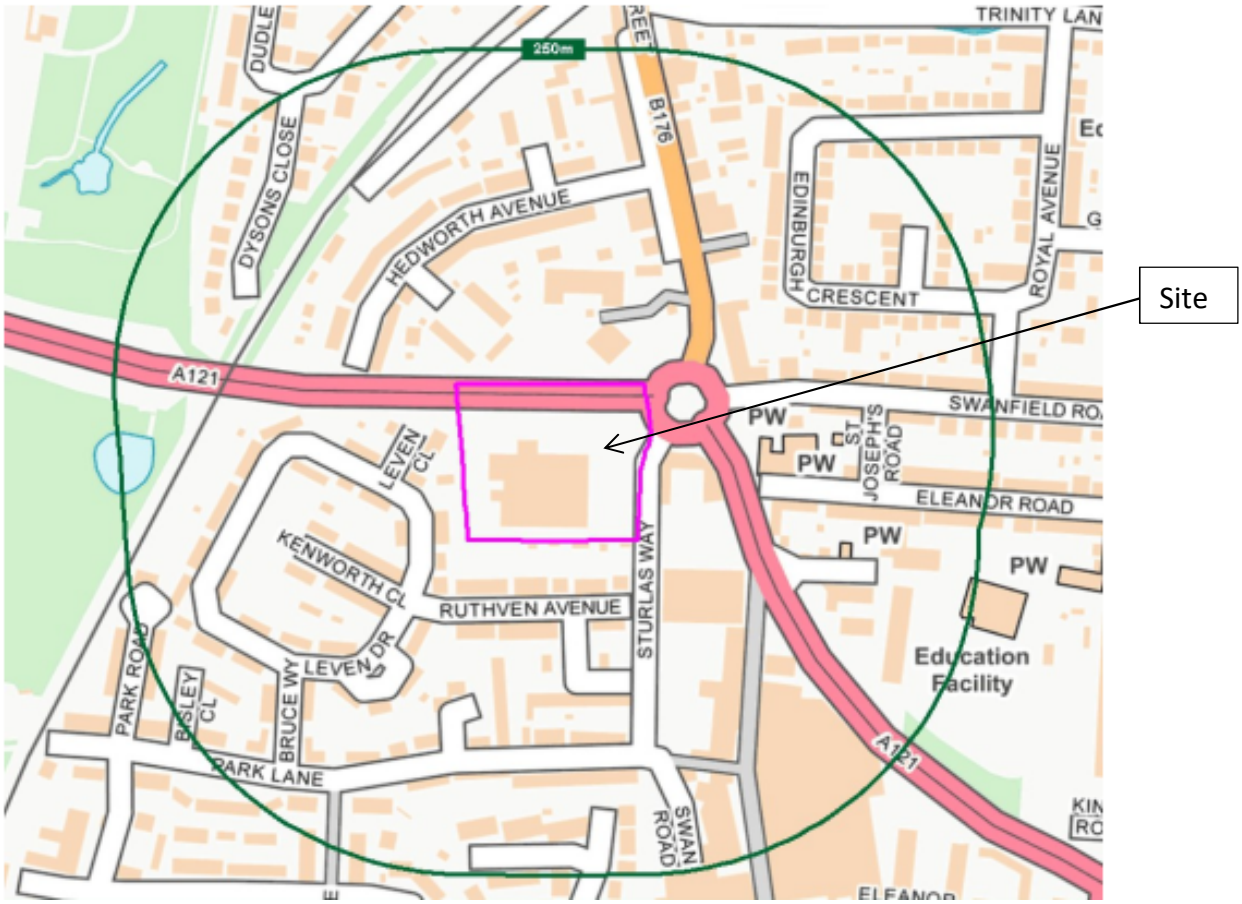


Figure 2: Site Aerial Photograph:

4 DESK STUDY

4.1. PAST AND CURRENT USES OF THE SITE

Historical land uses of the site and adjacent areas have the potential to provide ground contamination.

A review of historical maps shows the Site remained undeveloped from the first map edition dated 1872 until c.1896 when buildings and railways associated with a timber yard were constructed in the south, while the north was in use as the aforementioned timber yard. The built footprint was altered over time up until c.1967 when the Site was in use as a paint brush factory, with associated tanks featured. The Site was redeveloped for commercial use c.1987, and no further significant changes were observed throughout subsequent mapping. Currently the site is in retail use as a Homebase Store.

4.2. INTENDED FUTURE USES OF THE SITE

Current proposals for the site are that the current Homebase retail store will undergo conversion works to incorporate a new retail unit for Aldi Stores Limited within the existing building forming a smaller Homebase Unit. The external hardstanding is to be configured for car parking to both stores, a new goods vehicle bay will be added to the side of the store.

5 SITE WALKOVER

A site walkover was carried out on the 25th July 2019.

6 ENVIRONMENTAL SETTING

6.1 SUPERFICIAL GROUND AND DRIFT GEOLOGY

The BGS Superficial Geology map (1:50,000) for the site indicates that the underlain by Sand and Gravel, namely Kempton Park Gravel Member.

6.2 BEDROCK AND SOLID GEOLOGY

The BGS Superficial Geology map (1:50,000) for the site indicates that the site is underlain by Clay, Silt and Sand, namely London Clay Formation.

6.3 ARTIFICIAL GROUND AND MADE GROUND

The BGS Superficial Geology map (1:50,000) for the site indicated that no data was found including a 50m buffer.

6.4 HYDROLOGY

There are no surface water features present on the site, however, there is one feature within 1-250m of the site.

There are no Surface Water Abstraction Licences within 0-500m of the site.

There is potential for ground water flooding at the surface and the risk is listed as Low to Moderate.

There are no records of pollution incidents listed on site.

6.5 HYDROGEOLOGY

The Environment Agency Groundwater Vulnerability Map for the area indicates the presence of a underlying Secondary A aquifer and a Principal Aquifer on site. The Environment Agency's Groundwater Protection Policy describes Secondary A Aquifers as 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

6.6 RADON

Data from the British Geological Survey, National Geoscience Information Service and BRE Report 211 (2007) indicates that the site is not within an area identified with significant radon potential as less than 1% of properties are above the above the Action Level.

6.7 COAL MINING

Data contained within the Site Solutions Combined report indicates that Coal Mining has not been identified within the site area.

6.8 ENVIRONMENT AGENCY INDUSTRIAL LAND USE DATA

Data contained within the Site Solutions Combined report indicates that there are no recent industrial land uses on site. Data also indicates that there were two historical tanks and energy facilities listed on site, three within 1-250m and twenty-one within 251-500m of the site.

6.9 ENVIRONMENT AGENCY WASTE DATA

Data contained with the Site Solutions Combined report indicates the following:
There are no current registered landfill sites within 250m of the site.
There are no former landfill sites (from Environment Agency Records) listed within 250m of the site.
There are no former landfill sites (from Local Authority and historical mapping records) listed within 250m of the site.

7 EXISTING SITE DRAINAGE AND OTHER SITE SERVICES

It is likely that there will be services running through most of the area of the site due to it currently being occupied by retail developments, therefore the following underground services are likely to be present:

- Foul / combined water sewers
- Surface water sewers
- Surface water soakaways
- Water supply
- Electricity
- Telecommunications
- Street lighting

8 OUTLINE CONCEPTUAL MODEL

8.1. POTENTIAL LAND CONTAMINATION SOURCES

The following potential ground contamination risk sources have been identified from reviewing the publicly available information, historical use:

- Localised oil and hydrocarbon sources from vehicles used on the site and neighbouring usages
- Localised metals, non-metals and inorganic chemicals from current and historic sources
- Asbestos within Made Ground from previous building demolition

8.2. POTENTIAL LAND CONTAMINATION RISK PATHWAYS

The following key contamination risk pathways are considered relevant to the site:

Direct

- Ingestion of chemically impacted soil and liquids
- Inhalation of chemically impacted gases, dust and soil particles
- Inhalation of rising vapours
- Dermal contact with chemically impacted soil and liquids Indirect
- Surface water run-off
- Contamination migration via existing below ground infrastructure and utilities
- Leaching of soluble contamination into surface waters underlying the site
- Accumulation of potentially explosive or asphyxiating gases within confined spaces

8.3. POTENTIAL LAND CONTAMINATION RISK RECEPTORS

The following key contamination risk receptors are considered relevant:

- Groundwater / Controlled waters
- Future site users
- Construction ground-workers (current and future in the event of redevelopment or alterations to utilities, demolition, excavation etc.)
- Ecological Receptors

9 POSSIBLE POLLUTION LINKAGES

Possible pollution linkages to groundwater are possible from localised chemical and oil sources on the site via infiltration and leaching through the Made Ground. Similarly, the potential source of contaminated leachate may also infiltrate and leach through the Made Ground into the groundwater. It is considered that the potential risk of this linkage is low to moderate dependent on the concentration and mobility of contaminants.

There are possible pollution linkages to construction ground-workers from direct contact with contamination in the ground. This linkage is considered to present a low to moderate potential risk. In particular, given the industrial historic uses of the site, it is currently considered there is a moderate risk of pollution linkage to construction workers and site users from localised contamination sources within the ground. For the construction workers, this could be reduced to

low on the implementation of appropriate mitigation measures (e.g. personal protection equipment, method statements) and potential remediation works could reduce the risk to site users to very low risk.

There is a potential pollution linkage from ground gases from various sources. These potentially link to site users and construction workers from inhalation and aggregation of the gases. This is currently assessed as low to moderate risk dependent on the concentration and flows of any ground gases.

As there are records of buildings being present on site previously there is a potential for asbestos to be found in the Made Ground from previous building demolition. There is a potential pollution linkages from inhalation and ingestion for construction workers. This is currently assessed as low to moderate risk dependent on the level of asbestos present.

The table below presents a summary of the potential contamination risks associated with the proposed redevelopment:

Source	Pathway	Receptor	Risk
Localised oil and hydrocarbon sources from current and historic sources	Ingestion, dermal contact and inhalation	Construction workers	Low to Moderate
	Infiltration and leaching	Groundwater – Major Aquifer	Low
Localised metals, non-metals and inorganic chemicals from current and historic sources	Ingestion, dermal contact and inhalation	Construction workers Site users	Low
	Infiltration and leaching	Groundwater – Major Aquifer	Low
Ground gases from Made Ground	Inhalation and aggregation of land gas in confined spaces leading to risk of asphyxiation or explosive gas	Site users Construction workers	Low
Mobile oils / hydrocarbons from nearby local uses	Dermal contact and inhalation/ingestion	Site users Construction workers	Low to Moderate
	Infiltration and leaching	Groundwater	Low to Moderate
Asbestos within Made Ground from historic uses	Inhalation and ingestion	Construction workers	Low

10 NEXT STEPS

It is suggested that the following steps are undertaken:

- Trial hole investigation of the existing building to assess type of foundations.
- Core hole investigation of the existing slab to assess details of concrete slab and membrane.
- Following intrusive investigation, update outline conceptual model and undertake detailed quantitative risk assessment.
- Dependent on outcome of detailed quantitative risk assessment, potentially undertake options appraisal for feasible remediation options / mitigation strategy for the site.

APPENDIX A – SITE PHOTOS

Entrance to the site from Sturlas Way.

The whole site looking southwest from the island on the junction of Sturlas Way and the A121.

Front of the site looking south down Sturlas Way.

The car parking at the front of the existing Homebase Unit.

The car parking around the front and side of the Homebase Unit.

The delivery and storage area at the rear of the Homebase Unit.

Storage area at the rear of the Homebase Unit.

Storage area at the rear of the Homebase Unit along the south boundary.

APPENDIX B – SITE SOLUTIONS COMBINED DATA

SiteSolutions Combined

Contaminated Land
FURTHER ACTION

Flooding
PASSED ✔

Argyll's Overview

Contaminated Land : Plausible contaminant linkages have been identified and soil and groundwater liabilities could occur. Accordingly, potential Liabilities have been identified under the relevant contaminated land legislation.

Flood Risk : The Site is not considered to be at a significant risk of flooding and buildings and contents insurance should be available and affordable.

Environmental Hazards : The following have been identified in the immediate vicinity of the Site: Ground Instability Hazard.

Operational Permits : No authorisations, licences, consents or enforcements have been identified at or within 25m of the Site.

Report on:

Land at 173 High Street, Waltham Cross

Report prepared for:
Freeths LLP - Nottingham

Report Reference:
AEL-4336-FSC-989438

Report date:
24th January 2020

Client Reference:
2005896/19018

National Grid Reference:
535905,200736

Site Location

Report prepared on

Land at 173 High Street, Waltham Cross

Site Area (m^2)

15607.

Current Use

Retail - Homebase Store

Proposed Use

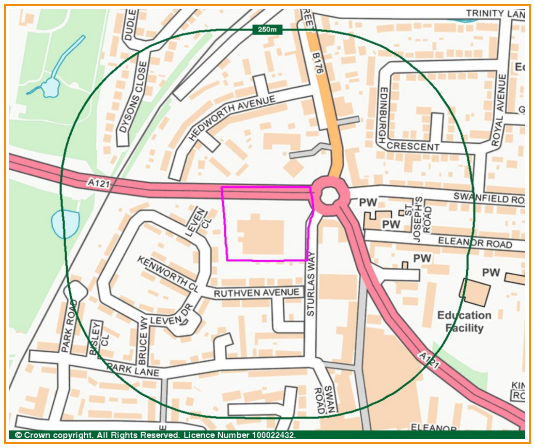
Conversion Works to Split into a Homebase and an Aldi Store

Report Author

Dillon Fiolet
Telephone: 0330 036 6115
E-mail: orders@argyllenviro.com

Additional Information Provided

Refurbishment Proposed



Executive Summary

Risk	Evaluation
Contaminated Land	Further action

Liability Assessment

Potential Liabilities have been identified under Part 2A of the Environmental Protection Act 1990 (or where appropriate, equivalent requirements under the planning regime) and/or the Water Resources Act 1991. To quantify these you may decide to undertake a more detailed assessment through the recommendation(s) set out below.

What is the overall on-site risk?	Moderate
What is the overall off-site risk?	Moderate
What is the environmental sensitivity rating?	High

Recommendations

The Site was historically in use as a factory and a timber yard, which may have caused contamination. This means the Site could be designated as “Contaminated Land”. The Local Authority are responsible for investigating Contaminated Land, and should have more information on the severity of the risk.
We can gather this information for you as part of our SiteSolutions Consult report. We would also be happy to confirm with the Planning Authority whether any further work is required as part of the conversion works. We can usually prepare this report within 10-15 working days, depending on response times. Please contact your report writer on 03300 366 115 to discuss any aspect of our recommendation .

Upgrade to a SiteSolutions Consult: £450 + VAT *including third-party costs*

Risk	Evaluation
Flooding	Passed

Consultant's Comment

The site is not considered to be at significant risk of flooding. No further action is considered necessary. However, it would be prudent to consider the measures outlined in the Recommendations section.

1	If development is proposed would a detailed Flood Risk Assessment be required?	Yes (Drainage)
2	What is the overall risk of flooding, assuming defences fail or are absent or over-topped?	Low to Moderate
3	Are there existing flood defences that might benefit the Site?	Yes
4	What is the risk of flooding when these defences are operational?	Low to Moderate

Insurance

The flood risk identified is unlikely to affect obtaining buildings and contents insurance.

Recommendations

1. Ask the seller whether flooding has occurred in the area before. If it has, please contact us for advice.
2. Establish the availability of buildings and contents insurance before exchanging contracts.

Contaminated Land Risk Analysis

Investigation	Commentary
On-site sources	A review of historical maps shows the Site remained undeveloped from the first map edition dated 1872 until c.1896 when buildings and railways associated with a timber yard were constructed in the south, while the north was in use as the aforementioned timber yard. The built footprint was altered over time up until c.1967 when the Site was in use as a paint brush factory, with associated tanks featured. The Site was redeveloped for commercial use c.1987, and no further significant changes were observed throughout subsequent mapping. We understand the Site is currently in retail use as a Homebase store and will undergo conversion works to split the property into a Homebase and an Aldi store. We have assumed that this will involve internal refurbishment only.
Argyll's Comment	As a result of the historical and current use of the Site, there is a **moderate risk** of contaminants being present.
Off-site sources	A review of historical maps dating from 1872 shows the following potentially contaminative uses within 100m of the Site: the wider timber yard and land associated with the subsequent factory extending adjacent east, several large nurseries from 40m south, multiple depots from adjacent north, a works 100m east, an electrical substation 25m east, and a foundry 5m east.
Argyll's Comment	The historical and current use of the surrounding area is therefore considered to present a **moderate risk** of affecting the Site.
Pathways and receptors	The general area appears to be in mixed commercial/residential use, with residential properties located adjacent west and south. The superficial hydrogeology underlying the Site is classified as a Secondary (A) Aquifer (deposits with moderate permeability) and the bedrock hydrogeology is classified as an Unproductive Stratum (deposits of negligible permeability). The Site lies within a Zone II Source Protection Zone (SPZ). An SPZ is a protection zone placed around a well or borehole that supplies groundwater of potable quality. There are no abstraction licences located within 500m. A pond is located 225m west. Finally no designated eco-receptors were identified within a 500m radius of the Site.
Argyll's Comment	Overall, the Site is therefore considered to have a **high environmental sensitivity**.
Additional Sources of Information	No additional materials have been used in this assessment.

Argyll's Conclusion

Considering the information reviewed during this assessment, a number of plausible contaminant linkages have been identified. Soil and groundwater liabilities could arise whether or not redevelopment is considered.

Please refer to risk analysis methodology section for further guidance and definition of terms.

Current Operations

Environmental Damage Regulations 2009 (EDR)

Potential for owner/operation to incur a Liability under the EDR

Argyll's Comment

The Site has not been identified as being likely to incur liability under the EDR within the scope of this assessment.

Please refer to the risk analysis methodology section for further guidance and definition of terms.

Additional Considerations

Item	Summary	Suggested Action
Asbestos (Development)	If buildings at the Site are to be redeveloped or refurbished a Refurbishment or Demolition (RoD) Survey will be required. In addition, brownfield development sites may have asbestos containing materials (ACM) in top soils and made ground. A soil survey can confirm this.	Contact a UKAS accredited asbestos consultancy.
Energy Performance Certificate	Under the Energy Performance of Buildings (England and Wales) Regulations 2012 and the Energy Performance of Buildings (Scotland) Regulations 2008, there is a requirement for all buildings to have an Energy Performance Certificate (EPC) upon their construction, sale or lease (and in some cases when the building is modified).	Check for EPC or conduct energy assessment
Interceptors	Drainage from car parks or operational areas may discharge to Controlled Waters. This discharge is likely to require treatment prior to release, for example an oil/water interceptor.	Check for valid discharge consent
Air Conditioning/ Refrigeration Equipment	Air conditioning and refrigeration equipment contains heat transfer fluid. If the buildings at the Site were constructed or renovated pre-2004 this fluid may be an ozone depleting substance (ODS). Any fluid in a halon fire-extinguishing system is also a ODS.	Inspect maintenance records
Change of Use Redevelopment	Proposed changes in land use require permission from the Local Authority and are subject to conditions as part of the statutory planning process.	Contact local planning authority or speak with planning consultant

Argyll's Comment

Whilst this assessment is primarily a desktop assessment of potential soil and groundwater liabilities, the above potential liability considerations that fall outside the scope of the Contaminated Land Risk Analysis Methodology have been identified.

Additional sources of information may be available for the Site. These sources could include previous environmental reports (including audits, contaminated land investigation and remediation reports), valuation reports (including property observation checklists), a Land Quality Record, and property deeds. Argyll Environmental would be pleased to review any reports that are available and revise this report accordingly. This may entail additional fees depending upon the volume and complexity of information available. Please contact us for further information.

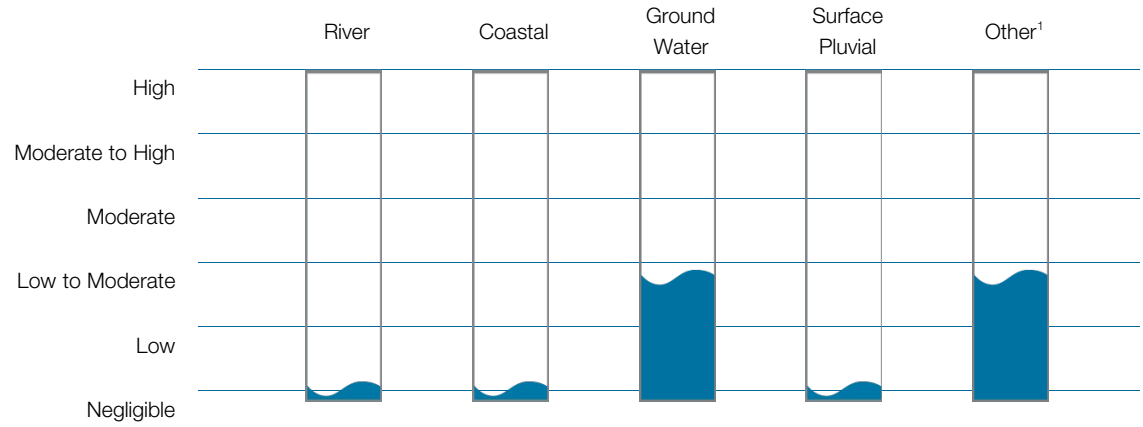
Flood Risk Screening

	Risk	Issue	Evaluation
1	**Development**	If development is proposed would a detailed Flood Risk Assessment be required?	**Yes (Drainage)**
2	**Flooding**	What is the overall risk of flooding, assuming defences fail or are absent or over-topped?	**Low to Moderate**
3	**Flood Defences**	Are there existing flood defences that might benefit the Site?	**Yes**
4	**Effect**	What is the risk of flooding when these defences are operational?	**Low to Moderate**

Insurance

The flood risk identified is unlikely to affect obtaining buildings and contents insurance.

Flood Analysis



Argyll's Comment

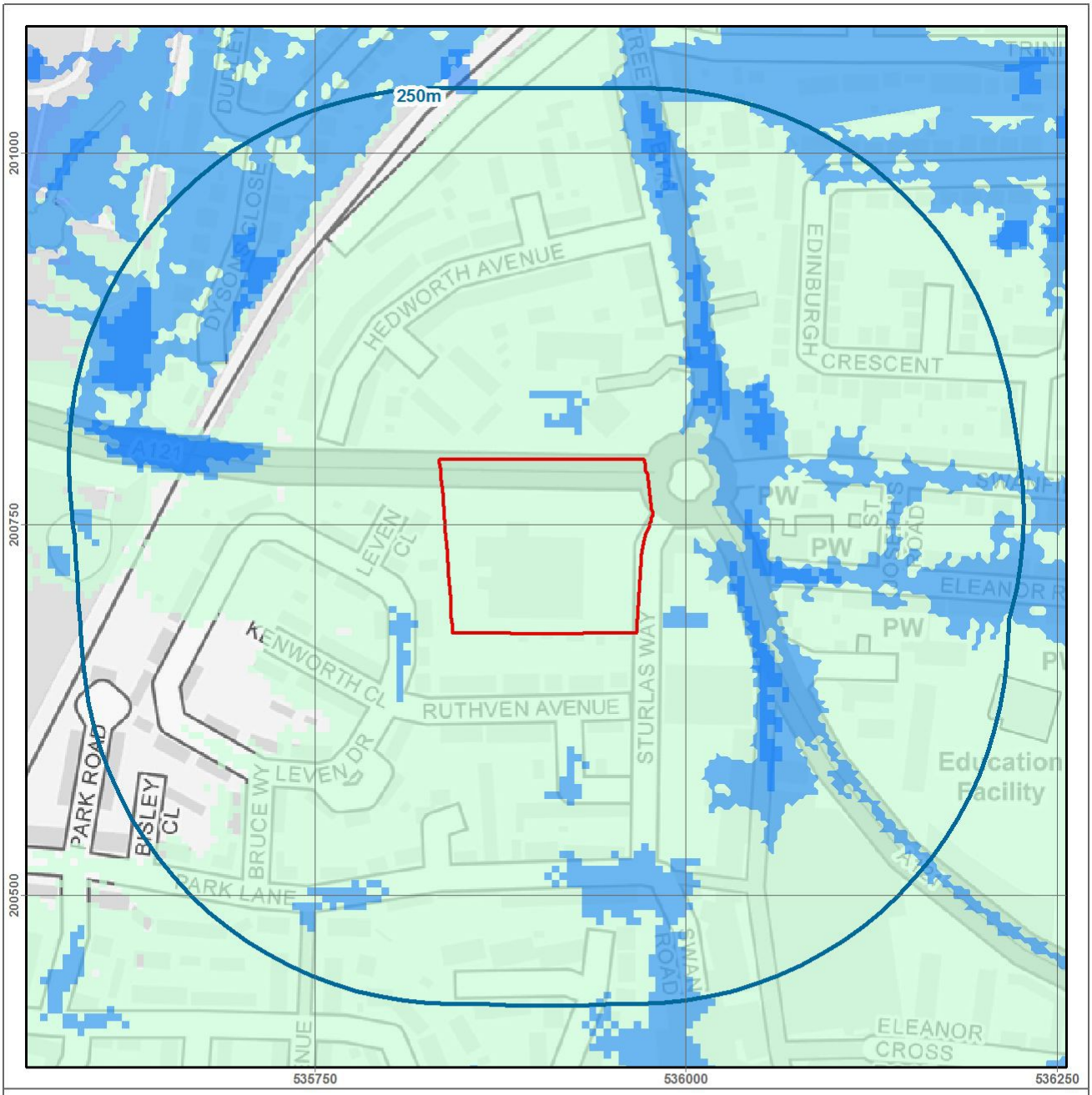
No commentary required.

Recommendations

1. Ask the seller whether flooding has occurred in the area before. If it has, please contact us for advice.
2. Establish the availability of buildings and contents insurance before exchanging contracts.

[1]Other factors influencing flood risk include historic flood events, geological indicators of flooding, proximate surface water features and elevation above sea level.

Current Flood Risk



Flood and Groundwater Risk

- Client Site
- Area at risk of flooding from one source
- Area at risk of flooding from more than one source
- Area at risk of groundwater flooding

metres
0 50 100 200

* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:4,250

Additional Flooding Considerations

Riparian Ownership	Is there a water feature located within or adjacent to the Site? **No**
Argyll's Comment	A riparian owner describes anyone who owns a property where there is a watercourse within or adjacent to the boundaries of their property. Under common law, a riparian owner has rights and responsibilities relating to the stretch of watercourse that falls within or beside the boundaries of their land. Their primary responsibility is to keep the watercourse free of any obstructions that could hinder normal water flow. If the riparian owner fails to carry out their responsibilities, this could result in civil action. A riparian owner should also check before carrying out any works near to the edge of a river, as such works may be subject to byelaws. If infringed, this could lead to enforcement action by the Environment Agency. There is a presumption that the boundary between properties abutting a watercourse is the centre line of that watercourse. To confirm whether this is the case, a solicitor should check the deeds or the Index Map. The Environment Agency has published useful guidance "Living on the edge" for owners of land or property alongside a watercourse. Sometimes, the Environment Agency or other organisations managing flood risk, may have statutory rights of access to properties which adjoin a watercourse. This may be for maintenance, repair or rebuilding of any part of the watercourse or for access to or repair of monitoring equipment.
Development Control	Is there a water feature located within 250m of the Site? **No**
Argyll's Comment	Sites which lie close to (but do not adjoin) a watercourse, may be subject to planning controls should redevelopment be considered. The Environment Agency are normally consulted regarding any development within 20m of a Main River and Internal Drainage Boards should be similarly contacted regarding developments close to drainage channels. Navigation authorities are normally consulted regarding any development within 250m of a canal, although this varies on a site by site basis. Please see The Environment Agency website to check if there is a Main River within 20m of your property. The Environment Agency should also be contacted with regards to development (other than minor development) in Flood Zones 2 and 3.
Sewer Flooding	In times of extreme rainfall events sewers can overflow and cause local flooding. Ofwat's 'DG5 - At Risk Registers' record properties that have flooded from sewers and are at risk of flooding again, with separate registers for internal and external flooding. The At Risk Registers are maintained by each of the ten water and sewerage companies in England and Wales and details of properties subject to sewer flooding are normally kept for between two and five years. These registers are not necessarily complete as not all episodes of past flooding may be recorded.
Dam and Reservoir Failure	Could the Site be affected by dam or reservoir failure? **No**
Argyll's Comment	The answer is based on detailed models provided by JBA Risk Management. These predict the areas liable to flood around approximately 1700 key dams and reservoirs across England and Wales (if that dam or reservoir were to fail).

Flood Risk Management Options

Flooding can usually be managed by the installation of flood protection measures either on/within the building(s) or across the Site. Flood protection measures can be divided into two categories; flood resistance and flood resilience.

Both flood resistance and flood resilience solutions can be integrated with design proposals for new build properties or retro-fitted to existing properties. Specific flood protection packages can often include both resistance and resilience measures. What is suitable will depend on a number of factors including flood source, likely flood depths, property design and age.

Research conducted by CLG Sustainable Buildings Division and The Environment Agency revealed that installing flood resistance measures may be inappropriate where likely flooding will be deep. Certain types of building construction are unable to resist the pressure load placed on the exterior skin of the building by retained flood waters. Generally a flood depth between 0.6m and 1.0m above ground level is used as a benchmark to decide whether to consider flood resilience measures rather than rely on flood resistance measures. This is dependent on the age and construction of the property.

Guideline Costs for Resistance Measure

Building Feature	Cost Estimate for Baffles (+ VAT)
Standard (900mm) single door	£750
Standard (1800mm) double entrance door	£950
Large roller shutter door (up to 2,745mm span)	£1,420 (inc channel)
Standard garage door	£1,400 - £1,575
Standard window (up to 1,240mm span)	£750
Large window (1,240mm to 2,150mm span)	£550 - £700
Single air brick	£60 / £90
Double air brick	£80 - £230
Building Feature	**Cost Estimate for Tanking (+ VAT)**
Tanking (of basement, walls or floors)	£25 - £50 per metre^2
System Component	**Cost Estimate for Plumbing (+ VAT)**
Simple non-return valve	£35 / £170
Sophisticated non-return valve	£670 / £900

The costs above are for indicative budget purposes only. They are based on installing components of a standard design and colour. If the Site requires bespoke products, these are likely to cost more (for example, if the Site is in a conservation area, different colours may be required). See our recommendation in the executive summary section for next steps.

Environmental Hazards

Risk	Recommendation
COMAH	No Control of Major Accident Hazards (COMAH) sites are located within 500m.

Argyll's Comment

This report is primarily a desktop assessment of potential soil and groundwater liabilities. We also comment whether the above Environmental Hazards are relevant. Contact details are provided at the end of this report.

Contents of the Data Section

Section	Description
Tabular Summary	This section presents a tabular summary of information found for the Site and surrounding area. The data is presented in three buffer zones for ease of reference: data found at the Site, from 1-250m and from 251-500m. If a database has been searched the number of records found will be displayed under the relevant search band. If a database is not available or has not been searched, this will be represented by the abbreviation N/A under the relevant search band.
Current Land Use Mapping	This section provides information on current land uses and is divided into three sections, statutory information, waste and current industrial uses. It is preceded by two maps.
Statutory Information	This section presents detailed statutory information for the Site and surrounding area (up to 500m depending upon dataset). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the Site. If no data is identified then the section will be omitted.
Waste	This section presents detailed information on waste and landfill sites for the Site and surrounding area (up to 500m depending upon dataset). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the Site. If no data is identified then the section will be omitted.
Current Industrial Land Use	This section presents detailed information on current land use for the Site and surrounding area (0-250m). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the Site. If no data is identified then the section will be omitted.
Historical Land Use Mapping	The Historical Land Use Map presents 1:10,000 scale and selected 1:2,500 scale (tanks and energy facilities) historical land use information within 250m of the Site boundary.
Historical Land Use	This section presents selected information on historical land use for the Site and surrounding area (0-250m). The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the Site. If no data is identified then the section will be omitted.
Aquifer Designations and Geology	This section is preceded by two maps that present information relating to the aquifer designations beneath the Site. The first of these maps indicates the designation of the Superficial geology. The second map presents the aquifer designation of the solid geology. These maps are followed by detailed information in relation to aquifer designations/groundwater vulnerability and geology at the Site and surrounding area (0-500m). If no data is identified then the section will be omitted.
Environmental Sensitivity	This section presents detailed information on the environmental sensitivity of the Site and surrounding area (up to 500m depending upon dataset) and is preceded by two maps. The first shows areas with statutory designations, the second shows source protection zones. The Map ID of each feature is indicated (where applicable) followed by specific information on each feature and its distance and direction from the Site. If no data is identified then the section will be omitted.
Natural and Mining Related Hazards	This section contains information on natural and mining related hazards which may affect the Site. These include subsidence, radon and mining.
Flooding	This section contains information on the risks associated with flooding. It includes maps and data associated with river, coastal, groundwater, and surface water flooding, as well as historical flooding and water features.

Tabular Summary

Statutory Information

Authorisations	On-site	1-250m	251-500m
Local Authority Pollution Prevention and Controls	0	2	3
Local Authority Integrated Pollution Prevention and Controls	0	0	0
Integrated Pollution Controls	0	0	0
Integrated Pollution Prevention And Control	0	0	0
Registered Radioactive Substances	0	0	0
Discharges	**On-site**	**1-250m**	**251-500m**
Discharge Consents	0	0	0
Water Industry Act Referrals	0	0	0
Hazardous Sites	**On-site**	**1-250m**	**251-500m**
Control of Major Accident Hazards Sites	0	0	0
Explosive Sites	0	0	0
Notification of Installations Handling Hazardous Substances	0	0	0
Planning Hazardous Substance Consents	0	0	0
Contraventions	**On-site**	**1-250m**	**251-500m**
Contaminated Land Register Entries and Notices	0	0	0
Local Authority Pollution Prevention and Control Enforcements	0	0	0
Enforcement and Prohibition Notices	0	0	0
Planning Hazardous Substance Enforcements	0	0	0
Substantiated Pollution Incident Register	0	0	0
Prosecutions Relating to Authorised Processes	0	0	0
Prosecutions Relating to Controlled Waters	0	0	0

Waste

Waste/Landfill Sites	On-site	1-250m	251-500m
BGS Recorded Landfill Sites	0	0	0
Integrated Pollution Control Registered Waste Sites	0	0	0
Licensed Waste Management Facilities (Landfill Boundaries)	0	0	0
Licensed Waste Management Facilities (Locations)	0	0	0
Local Authority Recorded Landfill Sites	0	0	1 (8) *
Registered Landfill Sites	0	0	0 (2) *
Registered Waste Transfer Sites	0	0	0
Registered Waste Treatment or Disposal Sites	0	0	0
Historical Landfill Sites	0	0	1

Current Land Use

Current Potentially Contaminative Uses	On-site	1-250m	251-500m
Contemporary Trade Directory Entries	0	22	33
Fuel Station Entries	0	1	1
Other Features	**On-site**	**1-250m**	**251-500m**
Overhead Transmission Lines	0	0	0
Gas Pipelines	0	0	0
Gas Feeders	0	0	0

Historical Land Use

Historical Potentially Contaminative Uses	On-site	1-250m	251-500m
Historical Tanks And Energy Facilities	2	3	21
Potentially Infilled Land	**On-site**	**1-250m**	**251-500m**
Former Marshes	0	0	0
Potentially Infilled Land (Non-Water)	0	0	1
Potentially Infilled Land (Water)	0	0	0

Groundwater Vulnerability

Hydrogeology	On-site	1-250m	251-500m
Superficial Aquifer Designations	1	0	1
Bedrock Aquifer Designations	1	0	0
Geology	**On-site**	**1-250m**	**251-500m**
BGS 1:50,000 Bedrock Geology	1	0	0
BGS 1:50,000 Superficial Deposits	1	0	1
BGS 1:50,000 Geological Mapping Coverage	1	0	0
BGS 1:625,000 Solid Geology	1	N/A	N/A
BGS Borehole Logs	1	1	N/A

Environmental Sensitivity

Environmental Sensitivity	On-site	1-250m	251-500m
Areas of Outstanding Natural Beauty	0	0	0
Environmentally Sensitive Areas	0	0	0
Forest Parks	0	0	0
Local Nature Reserves	0	0	0 (0) *
Marine Nature Reserves	0	0	0 (0) *
National Nature Reserves	0	0	0 (0) *
National Parks	0	0	0
National Scenic Areas	0	0	0
Nitrate Sensitive Areas	0	N/A	N/A
Nitrate Vulnerable Zones	1	N/A	N/A
Ramsar Sites	0	0	0 (1) *
River Quality Biology Sampling Points	0	0	0
River Quality Chemistry Sampling Points	0	0	0
Nearest Surface Water Feature	0	1	0
Sites of Special Scientific Interest	0	0	0 (1) *
Special Areas of Conservation	0	0	0 (0) *
Special Protection Areas	0	0	0 (1) *
Water Abstractions	0	0	0 (2)*
Source Protection Zones	1	0	0

Natural and Mining Related Hazards

Subsidence	On-site	1-250m	251-500m
Collapsible Ground Stability Hazards	1	0[2]	N/A
Compressible Ground Stability Hazards	1	0	N/A
Ground Dissolution Stability Hazards	1	0	N/A
Landslide Ground Stability Hazards	1	0	N/A
Running Sand Ground Stability Hazards	1	0	N/A
Shrinking or Swelling Clay Subsidence Hazards	1	1	N/A
Non-Coal Mining Hazards	0	0	N/A
Radon	**On-site**	**1-250m**	**251-500m**
Radon Potential	1	N/A	N/A
Radon Protection Measures	1	N/A	N/A
Mining	**On-site**	**1-250m**	**251-500m**
Brine Compensation Areas	0	N/A	N/A
Coal Mining Affected Areas	0	N/A	N/A
Natural and Mining Cavities	0	0	0
Mining Instability	0	0	N/A
BGS Recorded Mineral Sites	0	0	3

[2]Ground stability hazards are only searched to a radius of 50m from the Site boundary.

Flooding

Current Flood Risk	On-site	1-250m	251-500m
Flooding From Rivers or Sea	0	1	0
Flooding From Rivers or Sea (in an Extreme Flood)	0	3	0
Areas Benefiting from Flood Defences	0	1	0
Flood Storage Areas	0	0	0
Flood Defences	0	0	3
Risk of Flooding from Rivers and Sea	0	2	2
Groundwater Flood Risk	2	0	0
Surface Water Flooding (1:75 year rainfall event)	0	2	0
Surface Water Flooding (1:200 year rainfall event)	0	3	0
Surface Water Flooding (1:1,000 year rainfall event)	1	2	0

Historical Flooding	On-site	1-250m	251-500m
Historical Flood Events	0	1	1
Geological Indicators of Flooding	1	0	0

Other Flood Information	On-site	1-250m	251-500m
MasterMap Water Network	0	0	36
Surface Water Features	0	1	8
Dam or Reservoir Failure	0	0	0

Site Information	Response
Height of Site Above Sea Level	21.69m
Distance of Site Boundary to Nearest Water Feature	224.2m

Tabular Summary Explanation

Argyll has carefully selected a range of datasets which are considered appropriate for the intended use of this report. Each dataset is searched to a set radius from the Site boundary and the tabular summary is divided into different search bands accordingly. If a database is searched and information is found, then the number of records available are detailed in the table above. If the database was searched and no data was found, then a zero will be present. If a database was not searched then the abbreviation N/A will be found, indicating this information was not available at the radius searched.

Landfill Site Information

Registered landfill site boundaries (where available), are shown on the map as a red diagonal hatched polygon and referred to in the map legend as Registered Landfill Sites. At present no complete national dataset exists for landfill site boundaries, therefore a point grid reference provided by the data supplier is used for some landfill sites. The point grid references supplied provide only an approximate position, and can vary from the site entrance to the centre of the site. A point cannot properly define landfill boundaries therefore Landmark constructs a 250 metre or 100 metre "buffer" zone around the point to warn of the possible presence of landfill. The "buffer" zone is shown on the map as an orange crosshatched area and is referred to in the map legend as Potential Landfill Buffer.
Local Authority landfill data is sourced from individual local authorities that were able to provide information on sites operating prior to the introduction of the Control of Pollution Act (COPA) in 1974. Appropriate authorities are listed under Local Authority Landfill Coverage with an indication of whether or not they were able to make landfill data available. Details of any records identified are disclosed. You should be aware that if the local authority had landfill data but passed it to the relevant Environment Agency office, it does not necessarily mean that local authority landfill data is now included in our other Landfill datasets. In addition if no data has been made available for all or part of the search area, you should be aware that a negative response under 'Local Authority Recorded Landfill Sites' does not necessarily confirm that no local authority landfills exist.

Subsidence Hazards

Information on subsidence hazards is provided by the British Geological Survey (BGS). Information present within 250m of the Site is reported under Natural and Mining Related Hazards. Due to the level of detail of this data and the complexities of the real world, the BGS recommends a precautionary approach when using this information and advises taking the worst reading noted for each dataset within the vicinity of a property. Therefore, Argyll reports the presence of a ground stability or non-coal related mining hazard in the Risk Analysis section based on the highest reading found within 50m of the Site boundary.

Current Land Use within 250m
General
Site Boundary
Search Buffer
Bearing Reference Point
Grid Lines
Reference Number
N
Waste/Landfill Sites
BGS Recorded Landfill Site
Point Location of Registered Landfill Site
EA Historic Landfill (Polygon)
Point Location of BGS Recorded Landfill Site
EA Historic Landfill (Buffered Point)
Licenced Waste Management Facilities (Location)
Licenced Waste Management Facilities (Landfill)
Point Location of Local Authority Recorded Landfill Site
Local Authority Recorded Landfill Site
Point Location of Registered Waste Transfer Site
Registered Waste Transfer Site
Point Location of Registered Waste Treatment or Disposal Site
Registered Waste Treatment or Disposal Site
Registered Landfill Site Potential Landfill Buffer
Registered Landfill Site
Statutory Authorisations
Local Authority Pollution Prevention and Control
Contaminated Land Register Entry or Notice
Point Location of Contaminated Land Register Entry or Notice
Registered Radioactive Substance
Discharge Consents
Discharge Consent
Water Industry Act Referral
Industrial Processes
Integrated Pollution Control
Integrated Pollution Control Registered Waste Site
Integrated Pollution Prevention Control
Local Authority Integrated Pollution Prevention and Control
Storage of Hazardous Substances
COMAH
Explosive Site
Planning Hazardous Substance Consent
NIHHS
Contraventions
Local Authority Pollution Prevention and Control Enforcement
Enforcement and Prohibition Notice
Planning Hazardous Substance Enforcement
Substantiated Pollution Incident Register
Prosecution Relating to Authorised Processes
Prosecution Relating to Controlled Waters
Potentially Contaminative Use
Potentially Contaminative Use
Gas Pipeline
Fuel Station Entry
Gas Site
Miscellaneous
BGS Recorded Mineral Site
BGS Borehole
Telecommunication Base Station
TRINITY L
ROYAL AVENUE
EDINBURGH CRESCENT
B176
REET
SWANFIELD R
ELEANOR ROAD
JOSEPH'S ROAD
ST
PW
Education Facility
A121
ELEANOR
SWAN ROAD
STURLAS WAY
RUTHVEN AVENUE
HEDWORTH AVENUE
DYSONS CLOSE
DUDLE
LEVEN CL
KENWORTH CL
LEVEN DR
BRUCE WY
PARK LANE
BISLEY CL
PARK ROAD
250m
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Current Land Use within 500m
General
Site Boundary
Search Buffer
Bearing Reference Point
Grid Lines
Reference Number
N
Waste/Landfill Sites
BGS Recorded Landfill Site
Point Location of Registered Landfill Site
EA Historic Landfill (Polygon)
Point Location of BGS Recorded Landfill Site
EA Historic Landfill (Buffered Point)
Licenced Waste Management Facilities (Location)
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Registered Waste Transfer Site
Point Location of Registered Waste Treatment or Disposal Site
Registered Waste Treatment or Disposal Site
Registered Landfill Site Potential Landfill Buffer
Registered Landfill Site
Statutory Authorisations
Local Authority Pollution Prevention and Control
Contaminated Land Register Entry or Notice
Point Location of Contaminated Land Register Entry or Notice
Registered Radioactive Substance
Discharge Consents
Discharge Consent
Water Industry Act Referral
Industrial Processes
Integrated Pollution Control
Integrated Pollution Control Registered Waste Site
Integrated Pollution Prevention Control
Local Authority Integrated Pollution Prevention and Control
Storage of Hazardous Substances
COMAH
Explosive Site
Planning Hazardous Substance Consent
NIHHS
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Enforcement and Prohibition Notice
Planning Hazardous Substance Enforcement
Substantiated Pollution Incident Register
Prosecution Relating to Authorised Processes
Prosecution Relating to Controlled Waters
Potentially Contaminative Use
Potentially Contaminative Use
Gas Pipeline
Fuel Station Entry
Gas Site
Miscellaneous
BGS Recorded Mineral Site
BGS Borehole
Telecommunication Base Station
500m
250m
Theobalds Grove
Education Facility
Bus Station
A121
A1010
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Statutory Information

Local Authority Pollution Prevention and Controls

Map ID	Details	Distance	Direction
1	Name: Waltham Cross Service Station, Location: 246 High Street, WALTHAM CROSS, Herts, EN8 7DZ, Authority: Broxbourne Borough Council, Environmental Health Department, Permit Ref: 36, Dated: Not Supplied, Process Type: Local Authority Air Pollution Control, Description: PG1/13 Processes for the storage, loading and unloading of petrol at terminals, Status: Authorisation revoked, Positional Accuracy: Manually positioned to the address or location.	127m	NE
2	Name: Uptown Dry Cleaners, Location: 247 High Street, Waltham Cross, En8 7be, Authority: Broxbourne Borough Council, Environmental Health Department, Permit Ref: EPR/DC/007, Dated: 9th 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.	191m	N
3	Name: The Cleaning Point, Location: 91 High Street, Waltham Cross, En8 7aq, Authority: Broxbourne Borough Council, Environmental Health Department, Permit Ref: EPR/DC/006, Dated: 9th 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.	366m	S
4	Name: Old Tesco House Service Station, Location: Delamere Road, CHESHUNT, Hertfordshire, EN8 9SL, Authority: Broxbourne Borough Council, Environmental Health Department, Permit Ref: EPR/012/SS, Dated: 31st July 2001, Process Type: Local Authority Air Pollution Control, Description: PG1/14 Petrol filling station, Status: Authorised, Positional Accuracy: Located by supplier to within 10m.	418m	SE
5	Name: Waltham Cross Service Station, Location: Crossbrook Street, WALTHAM CROSS, Herts, EN8 8LR, Authority: Broxbourne Borough Council, Environmental Health Department, Permit Ref: 35, Dated: Not Supplied, Process Type: Local Authority Air Pollution Control, Description: PG1/13 Processes for the storage, loading and unloading of petrol at terminals, Status: Authorisation revoked, Positional Accuracy: Manually positioned to the address or location.	455m	N

Waste

Waste/Landfill Sites

Local Authority Landfill Coverage

Broxbourne Borough Council - Has supplied landfill data
Hertfordshire County Council - Has supplied landfill data

Licensed Waste Management Facilities (Locations)

Map ID	Details	Distance	Direction
	Licence Number: 80666, Location: Unit 23, Monro Industrial Estate, Station Approach, Waltham Cross, Hertfordshire, EN8 7LX, Operator: Neo Brothers Limited, Operator Location: Not Supplied, Authority: Environment Agency - Thames Region, North East Area, Site Category: Metal Recycling Sites (Vehicle Dismantlers), Licence Status: Surrendered, Issued Date: 25th July 2005, Last Modified: Not Supplied, Expiry Date: Not Supplied, Suspended Date: Not Supplied, Revoked Date: Not Supplied, Surrendered Date: 24th May 2018, IPPC Reference: Not Supplied, Positional Accuracy: Located by supplier to within 10m.	714m	SE

Local Authority Recorded Landfill Sites

Map ID	Details	Distance	Direction
11	Location: Not Supplied, Reference: 2629, Authority: Broxbourne Borough Council, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Good, Positional Accuracy: Positioned by the supplier.	343m	W

Local Authority Recorded Landfill Sites

Map ID	Details	Distance	Direction
12	Location: Theobolds Grove, Cheshunt, Reference: 114, Authority: Broxbourne Borough Council, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Good, Positional Accuracy: Positioned by the supplier.	505m	NW
13	Location: Not Supplied, Reference: 2627, Authority: Broxbourne Borough Council, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Good, Positional Accuracy: Positioned by the supplier.	583m	NW
14	Location: Theobalds Lane, Cheshunt, Reference: 243, Authority: Hertfordshire County Council, Spatial Planning and Economy Unit, Last Reported Status: Unknown, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Moderate, Positional Accuracy: Positioned by the supplier.	589m	NW
15	Location: Park Lane, Reference: 186, Authority: Hertfordshire County Council, Spatial Planning and Economy Unit, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Not Applicable, Positional Accuracy: Located by supplier to within 100m.	594m	NW
16	Location: Not Supplied, Reference: 2632, Authority: Broxbourne Borough Council, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Good, Positional Accuracy: Positioned by the supplier.	624m	E
	Location: Not Supplied, Reference: 2634, Authority: Broxbourne Borough Council, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Good, Positional Accuracy: Positioned by the supplier.	663m	E
17	Location: Not Supplied, Reference: 2635, Authority: Broxbourne Borough Council, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Good, Positional Accuracy: Positioned by the supplier.	681m	SE
	Location: Not Supplied, Reference: 2630, Authority: Broxbourne Borough Council, Last Reported Status: Not Supplied, Types of Waste: Not Supplied, Date of Closure: Not Supplied, Boundary Quality: Good, Positional Accuracy: Positioned by the supplier.	711m	E

Registered Landfill Sites

Map ID	Details	Distance	Direction
18	Licence Holder: Broxbourne B.C., Licence Reference: 82/144, Site Location: Gravel Pit Off Theobalds Lane And A10, Cheshunt, Waltham Cross, Hertfordshire, Easting: Not Supplied, Northing: Not Supplied, Operator Location: Council Offices, High Street, Hoddesdon, Hertfordshire, Authority: Environment Agency - Thames Region, North East Area, Site Category: Landfill, Maximum Input Rate: Undefined, Waste Source Restrictions: No known restriction on source of waste, Dated: 21st October 1982, Preceded By Licence: Not Given, Superseded By Licence: Not Given, Positional Accuracy: Positioned by the supplier, Boundary Accuracy: Moderate, Authorised Waste: 1. constr'n/demol. inert/non-haz/non-tox, 2. herts class q -non-haz. com./ind., 3. non-haz, inert waste, Prohibited Waste: 1.Animal And Food Wastes.	585m	NW
	Licence Holder: Arc Ltd, Licence Reference: 89/237, Site Location: Trinity Lane, South Allotments, Waltham Cross, Hertfordshire, Easting: 536630, Northing: 200900, Operator Location: The Ridge, Chipping Sodbury, BRISTOL, Avon, BS17 6AY, Authority: Environment Agency - Thames Region, North East Area, Site Category: Landfill, Maximum Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year), Waste Source Restrictions: No known restriction on source of waste, Dated: 1st October 1989, Preceded By Licence: Not Given, Superseded By Licence: Not Given, Positional Accuracy: Manually positioned to the address or location, Boundary Accuracy: Not Applicable, Authorised Waste: 1. bonded asbestos, 2. clean non-haz. rubble, 3. clean non-haz. spoil, 4. similar inert waste, Prohibited Waste: 1.Asbestos, 2.Chemical Contamination, 3.Empty Containers, 4.Liable To Cause Environmental Hazards, 5.Paper, 6.Plasterboard, 7.Plastic, 8.Similar Waste, 9.Timber, 10.Waste Liable To Cause A Nuisance.	667m	E

Historical Landfill Sites

Map ID	Details	Distance	Direction
6	Licence Holder: Hoveringham Gravels Limited, Location: Waltham Cross, Hertfordshire, Name: Park Lane, Operator Location: Not Supplied, Boundary Accuracy: As Supplied, Provider Reference: EAHLD12335, First Input Date: 22nd March 1963, Last Input Date: 26th August 1971, Specified Waste Type: Deposited Waste included Inert, Commercial, Household and Special Waste, EA Waste Ref: 0, Regis Ref: Not Supplied, WRC Ref: 1900/0183, BGS Ref: Not Supplied, Other Ref: HCC/119, 143	341m	W
7	Licence Holder: Lea Valley Sand and Ballast Pits Limited, Location: Cheshunt, Hertfordshire, Name: Theobolds Grove, Operator Location: Not Supplied, Boundary Accuracy: As Supplied, Provider Reference: EAHLD10064, First Input Date: 26th April 1938, Last Input Date: Not Supplied, Specified Waste Type: Deposited Waste included Inert Waste, EA Waste Ref: 0, Regis Ref: Not Supplied, WRC Ref: 1900/0189, BGS Ref: Not Supplied, Other Ref: HCC/003	503m	NW
8	Licence Holder: Broxbourne Borough Council, Location: Welwyn Garden City, Hertfordshire, Name: Theobalds Lane-A10, Operator Location: Not Supplied, Boundary Accuracy: As Supplied, Provider Reference: EAHLD12333, First Input Date: 21st October 1982, Last Input Date: 28th October 1985, Specified Waste Type: Deposited Waste included Industrial Waste, EA Waste Ref: 0, Regis Ref: Not Supplied, WRC Ref: 1900/0181, BGS Ref: Not Supplied, Other Ref: 82/144	580m	NW
9	Licence Holder: ARC Limited, Location: Trinity Lane, Waltham Cross, Name: Trinity Lane South Allotments, Operator Location: Not Supplied, Boundary Accuracy: As Supplied, Provider Reference: EAHLD12338, First Input Date: 30th October 1989, Last Input Date: 1st March 1992, Specified Waste Type: Deposited Waste included Inert Waste, EA Waste Ref: 0, Regis Ref: Not Supplied, WRC Ref: 1900/0373, BGS Ref: Not Supplied, Other Ref: 89/237	627m	E
10	Licence Holder: Twickenham Sand and Gravel Company Limited, Location: Waltham Cross, Hertfordshire, Name: Eleanor Cross Road, Operator Location: Not Supplied, Boundary Accuracy: As Supplied, Provider Reference: EAHLD12341, First Input Date: 1st January 1939, Last Input Date: 31st December 1956, Specified Waste Type: Deposited Waste included Inert Waste, EA Waste Ref: 80225, Regis Ref: TE1/L/POR001, WRC Ref: 1900/0202, BGS Ref: Not Supplied, Other Ref: HCC/006, 93/313	661m	SE
	Licence Holder: Not Supplied, Location: Trinity Lane, Waltham Cross, Name: Trinity Lane South Allotments, Operator Location: Not Supplied, Boundary Accuracy: As Supplied, Provider Reference: EAHLD12340, First Input Date: Not Supplied, Last Input Date: Not Supplied, Specified Waste Type: Not Supplied, EA Waste Ref: 0, Regis Ref: Not Supplied, WRC Ref: Not Supplied, BGS Ref: Not Supplied, Other Ref: 87/210	665m	E
	Licence Holder: ARC Limited, Location: Bryanstone Road, Waltham Cross, Hertfordshire, Name: Britannia Nurseries, Operator Location: Not Supplied, Boundary Accuracy: As Supplied, Provider Reference: EAHLD12336, First Input Date: 31st January 1987, Last Input Date: 1st March 1992, Specified Waste Type: Deposited Waste included Inert Waste, EA Waste Ref: 0, Regis Ref: Not Supplied, WRC Ref: 1900/0374, BGS Ref: Not Supplied, Other Ref: 87/210	713m	E

Current Land Use

Current Potentially Contaminative Uses

Contemporary Trade Directory Entries

Map ID	Details	Distance	Direction
24	Blinds, Awnings & Canopies, Name: Whites Blinds Of Waltham Cross, Status: Inactive, Location: Acorn Court, High Street, Waltham Cross, Hertfordshire, EN8 7GB, Positional Accuracy: Manually positioned to the address or location.	72m	N
25	Tyre Dealers, Name: Kwik Fit, Status: Active, Location: 206-212, High Street, Waltham Cross, EN8 7DP, Positional Accuracy: Automatically positioned to the address.	97m	E
26	Petrol Filling Stations, Name: Total, Status: Inactive, Location: 246, High Street, Waltham Cross, Hertfordshire, EN8 7DZ, Positional Accuracy: Automatically positioned to the address.	133m	NE

Contemporary Trade Directory Entries

Map ID	Details	Distance	Direction
27	Laundries & Launderettes, Name: B Hemmati, Status: Inactive, Location: 250, High Street, Waltham Cross, Hertfordshire, EN8 7DZ, Positional Accuracy: Automatically positioned to the address.	143m	NE
28	Pest & Vermin Control, Name: D P C, Status: Inactive, Location: 26, Hedworth Avenue, Waltham Cross, EN8 8AP, Positional Accuracy: Automatically positioned to the address.	144m	N
29	Ironing & Home Laundry Services, Name: P & P Ironing, Status: Active, Location: 248, High Street, WALTHAM CROSS, Hertfordshire, EN8 7DZ, Positional Accuracy: Automatically positioned to the address.	145m	NE
30	Pest & Vermin Control, Name: D P C, Status: Inactive, Location: 26, Hedworth Avenue, Waltham Cross, Hertfordshire, EN8 8AP, Positional Accuracy: Automatically positioned to the address.	145m	N
31	Garage Services, Name: Dolphin Sea Angling Club, Status: Inactive, Location: 40, Park Lane, Waltham Cross, Hertfordshire, EN8 8BE, Positional Accuracy: Automatically positioned to the address.	155m	S
32	Asphalt & Coated Macadam Laying Contractors, Name: Nedburn Properties Ltd, Status: Active, Location: 254a, High Street, Waltham Cross, Hertfordshire, EN8 7DZ, Positional Accuracy: Automatically positioned to the address.	171m	NE
33	Furniture Manufacturers - Home & Office, Name: The Colonial, Status: Inactive, Location: 258-260, High Street, Waltham Cross, Hertfordshire, EN8 7EA, Positional Accuracy: Manually positioned to the address or location.	171m	NE
34	Car Engine Tuning & Diagnostic Services, Name: Tuneright Motors, Status: Inactive, Location: 1, Park Lane, Waltham Cross, Hertfordshire, EN8 8BQ, Positional Accuracy: Automatically positioned to the address.	175m	S
35	Garage Services, Name: Taxi Tyre Stop, Status: Inactive, Location: Arch 3, Theobald Grove, Waltham Cross, Hertfordshire, EN8 7BG, Positional Accuracy: Manually positioned within the geographical locality.	184m	N
36	Dry Cleaners, Name: Uptown Dry Cleaners, Status: Active, Location: 245, High Street, Waltham Cross, Hertfordshire, EN8 7BE, Positional Accuracy: Automatically positioned to the address.	184m	N
37	Electrical Goods Sales, Manufacturers & Wholesalers, Name: Dixons, Status: Inactive, Location: 127-129, High Street, Waltham Cross, Hertfordshire, EN8 7AN, Positional Accuracy: Automatically positioned to the address.	193m	SE
38	Vacuum Cleaners - Sales & Service, Name: A1 Electrics (Enfield) Ltd, Status: Inactive, Location: 268, High Street, Waltham Cross, Hertfordshire, EN8 7EA, Positional Accuracy: Automatically positioned to the address.	196m	N
39	Washing Machines - Servicing & Repairs, Name: A1 Electrics Ltd, Status: Inactive, Location: 268, High Street, Waltham Cross, Hertfordshire, EN8 7EA, Positional Accuracy: Automatically positioned to the address.	196m	N
40	Engineering Services, Name: Tec-Rec, Status: Inactive, Location: High St, Waltham Cross, Hertfordshire, EN8 7BE, Positional Accuracy: Manually positioned within the geographical locality.	197m	N
41	Car Body Repairs, Name: Dee'S Crash Repair, Status: Active, Location: Arch 5 Theobalds Grove, High Street, Waltham Cross, Hertfordshire, EN8 7BG, Positional Accuracy: Manually positioned within the geographical locality.	197m	N
42	Car Body Repairs, Name: Rides Car Repair, Status: Inactive, Location: 272, High Street, Waltham Cross, Hertfordshire, EN8 7EA, Positional Accuracy: Manually positioned to the address or location.	206m	N
43	Blinds, Awnings & Canopies, Name: Sunblock Blinds, Status: Inactive, Location: Unit 1, 270, High Street, Waltham Cross, Hertfordshire, EN8 7EA, Positional Accuracy: Automatically positioned to the address.	208m	N
44	Metal Spinners, Name: King & Rawlings, Status: Inactive, Location: 276a, High Street, Waltham Cross, Hertfordshire, EN8 7EA, Positional Accuracy: Automatically positioned to the address.	222m	N
45	Fuel Injection Services, Name: Lucosch Fuel Injection & Services, Status: Inactive, Location: 1, British Rail Goods Yard Theobalds Grove, High Street, Waltham Cross, Hertfordshire, EN8 7BQ, Positional Accuracy: Automatically positioned in the proximity of the address.	244m	N
46	Photographic Processors, Name: Supasnaps, Status: Inactive, Location: 12, The Pavilion, High Street, Waltham Cross, Hertfordshire, EN8 7BY, Positional Accuracy: Automatically positioned to the address.	255m	SE

Contemporary Trade Directory Entries

Map ID	Details	Distance	Direction
47	Electrical Goods Sales, Manufacturers & Wholesalers, Name: Gadcet, Status: Active, Location: 9, The Pavilion, High Street, Waltham Cross, EN8 7BY, Positional Accuracy: Automatically positioned to the address.	256m	SE
48	Photographic Processors, Name: Bywaters, Status: Inactive, Location: 76, The Pavilion, High Street, Waltham Cross, Hertfordshire, EN8 7BZ, Positional Accuracy: Automatically positioned to the address.	261m	SE
49	Car Body Repairs, Name: C G S Body Repair Centre, Status: Inactive, Location: 15, British Rail Goods Yard Theobalds Grove Station, High Street, Waltham Cross, EN8 7BQ, Positional Accuracy: Automatically positioned to the address.	269m	N
50	Garage Services, Name: P C M Motors Ltd, Status: Active, Location: 2, British Rail Goods Yard Theobalds Grove Station, High Street, Waltham Cross, EN8 7BQ, Positional Accuracy: Automatically positioned to the address.	271m	N
51	Classic Car Specialists, Name: Picton Sports Cars, Status: Inactive, Location: 4, British Rail Goods Yard Theobalds Grove Station, High Street, Waltham Cross, EN8 7BQ, Positional Accuracy: Automatically positioned to the address.	273m	N
52	Garage Services, Name: Expert Volkswagen Audi Ltd, Status: Active, Location: 12, British Rail Goods Yard Theobalds Grove Station, High Street, Waltham Cross, EN8 7BQ, Positional Accuracy: Automatically positioned to the address.	273m	N
53	Garage Services, Name: Peasam Motors Ltd, Status: Active, Location: 17, British Rail Goods Yard Theobalds Grove Station, High Street, Waltham Cross, EN8 7BQ, Positional Accuracy: Automatically positioned to the address.	273m	N
54	Garage Services, Name: Pem Cars, Status: Inactive, Location: Theobalds Grove Railway Station, High Street, Waltham Cross, Hertfordshire, EN8 7BG, Positional Accuracy: Automatically positioned to the address.	277m	N
55	Garage Services, Name: Pesam Motors Ltd Within Theobalds Grove Station, Status: Inactive, Location: Unit 17 The Arches, High Street, Waltham Cross, Hertfordshire, EN8 7BG, Positional Accuracy: Manually positioned to the address or location.	277m	N
56	Car Body Repairs, Name: J B Autos, Status: Active, Location: Theobalds Grove Railway Station, High Street, Waltham Cross, EN8 7BG, Positional Accuracy: Automatically positioned to the address.	277m	N
57	Garage Services, Name: Moto Psycho, Status: Inactive, Location: Unit 14 Theobalds Grove Station, High Street, Waltham Cross, Hertfordshire, EN8 7BG, Positional Accuracy: Manually positioned to the address or location.	277m	N
58	Medical & Dental Laboratories, Name: Chinese Medicine Centre, Status: Active, Location: 88, The Pavilion, High Street, Waltham Cross, EN8 7BZ, Positional Accuracy: Automatically positioned to the address.	300m	SE
59	Scrap Metal Merchants, Name: Cobury Ltd, Status: Inactive, Location: 9-12 British Rail Goods Yard, Theobalds Grove Station, High S, Waltham Cross, Hertfordshire, EN8 7BJ, Positional Accuracy: Manually positioned to the address or location.	316m	N
60	Tyre Dealers, Name: Station Tyres Waltham Cross, Status: Inactive, Location: Theobalds Grove Railway Station, High Street, Waltham Cross, Hertfordshire, EN8 7BG, Positional Accuracy: Automatically positioned to the address.	316m	N
61	Electrical Goods Sales, Manufacturers & Wholesalers, Name: New Sale Electronics, Status: Inactive, Location: 101, High Street, Waltham Cross, Hertfordshire, EN8 7AN, Positional Accuracy: Automatically positioned to the address.	321m	S
62	Car Dealers, Name: The Abbey Car Centre, Status: Inactive, Location: Unit 2, 8, Eleanor Cross Road, Waltham Cross, Hertfordshire, EN8 7LA, Positional Accuracy: Automatically positioned to the address.	333m	SE
63	Ice Cream Manufacturers & Suppliers, Name: Moretto, Status: Inactive, Location: Unit 2, 8, Eleanor Cross Road, Waltham Cross, Hertfordshire, EN8 7LA, Positional Accuracy: Automatically positioned to the address.	333m	SE
64	Ice Cream Manufacturers & Suppliers, Name: Moretto Bros Ltd, Status: Inactive, Location: Unit 2, 8, Eleanor Cross Road, Waltham Cross, Hertfordshire, EN8 7LA, Positional Accuracy: Automatically positioned to the address.	333m	SE
65	Garage Services, Name: Moretto Bros Ltd, Status: Inactive, Location: 2 Eleanor Cross Rd, Waltham Cross, Hertfordshire, EN8 7LA, Positional Accuracy: Manually positioned to the address or location.	333m	SE
66	Chemicals & Allied Products, Name: Cognis Uk Ltd, Status: Inactive, Location: Third Floor, Eleanor House, 33-35, Eleanor Cross Road, Waltham Cross, Hertfordshire, EN8 7LE, Positional Accuracy: Automatically positioned to the address.	345m	SE

Contemporary Trade Directory Entries

Map ID	Details	Distance	Direction
67	Car Body Repairs, Name: Kar Kraft, Status: Inactive, Location: Unit 5-6, 304, High Street, Waltham Cross, Hertfordshire, EN8 7ED, Positional Accuracy: Automatically positioned to the address.	357m	N
68	Dry Cleaners, Name: Cleaning Point, Status: Inactive, Location: 91, High Street, WALTHAM CROSS, Hertfordshire, EN8 7AQ, Positional Accuracy: Automatically positioned to the address.	365m	S
69	Cleaning Services - Commercial, Name: Top Marks, Status: Inactive, Location: 64, Hurst Drive, Waltham Cross, Hertfordshire, EN8 8DQ, Positional Accuracy: Automatically positioned to the address.	370m	SW
70	Air Compressors, Name: A1 Compressor Services, Status: Inactive, Location: 14, Cross Road, Waltham Cross, Hertfordshire, EN8 7HU, Positional Accuracy: Automatically positioned to the address.	374m	SE
71	Road Haulage Services, Name: Daladale, Status: Inactive, Location: 73, Hurst Drive, Waltham Cross, Hertfordshire, EN8 8DH, Positional Accuracy: Automatically positioned to the address.	387m	SW
72	Chemists' & Pharmacists' Suppliers & Wholesalers, Name: Fittleworth Medical Ltd, Status: Active, Location: 10 Regent Gate, 83 High Street, Waltham Cross, Hertfordshire, EN8 7AF, Positional Accuracy: Automatically positioned to the address.	413m	S
73	Photo & Digital Imaging Bureaus, Name: Everleaf, Status: Inactive, Location: 20, Queens Road, Waltham Cross, Hertfordshire, EN8 7HT, Positional Accuracy: Automatically positioned to the address.	421m	E
74	Printers, Name: Inkhive Printers, Status: Active, Location: Waltham Cross, EN8 7AF, Positional Accuracy: Automatically positioned to the address.	433m	S
75	Garage Services, Name: Autospeed, Status: Inactive, Location: 21, Central Avenue, Waltham Cross, Hertfordshire, EN8 7JH, Positional Accuracy: Automatically positioned to the address.	434m	E
76	Abrasive Products - Manufacturers & Distributors, Name: Delaney & Co Solicitors, Status: Inactive, Location: Harold House, 73, High Street, Waltham Cross, Hertfordshire, EN8 7AF, Positional Accuracy: Automatically positioned to the address.	451m	S
77	Boilers - Servicing, Replacements & Repairs, Name: Davis & Gold Ltd, Status: Active, Location: 3 Killarney Court, Lodge Crescent, Waltham Cross, Hertfordshire, EN8 8EW, Positional Accuracy: Automatically positioned to the address.	479m	S
78	Oven cleaning, Name: Ovenu, Status: Inactive, Location: 56, Central Avenue, Waltham Cross, EN8 7JJ, Positional Accuracy: Automatically positioned to the address.	494m	E

Fuel Station Entries

Map ID	Details	Distance	Direction
79	Name: Waltham Cross Service Station, Location: 246, High Street , , Waltham Cross, Hertfordshire, EN8 7DZ, Brand: Obsolete, Premises Type: Not Applicable, Status: Obsolete, Positional Accuracy: Automatically positioned to the address.	132m	NE
80	Name: Waltham Cross Service Station, Location: Crossbrook Street , , Waltham Cross, Hertfordshire, EN8 8JY, Brand: Esso, Premises Type: Not Applicable, Status: Obsolete, Positional Accuracy: Automatically positioned to the address.	454m	N

Historical Land Use

Historical Potentially Contaminative Uses

Historical Tanks and Energy Facilities

Map ID	Details	Distance	Direction
	Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1972.	On Site	S
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967 - 1972.	On Site	S
	Electrical Sub Station Facilities, Scale of Mapping: 1:1,250, Date of Mapping: 1972.	153m	W
	Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1972.	243m	N
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	244m	N
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	263m	W
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	275m	S
	Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1972.	280m	S
	Electrical Sub Station Facilities, Scale of Mapping: 1:1,250, Date of Mapping: 1974.	282m	SE
	Electrical Sub Station Facilities, Scale of Mapping: 1:1,250, Date of Mapping: 1974.	308m	S
	Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1972.	325m	N
	Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1972.	325m	N
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	325m	N
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	325m	N
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	330m	W
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	332m	W
	Potential Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1968.	360m	E
	Potential Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	361m	E
	Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1968.	433m	SE
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	435m	SE
	Potential Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1972.	452m	N
	Potential Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967.	454m	N
	Tanks, Scale of Mapping: 1:2,500, Date of Mapping: 1968.	467m	SE
	Tanks, Scale of Mapping: 1:1,250, Date of Mapping: 1967 - 1974.	467m	SE
	Electrical Sub Station Facilities, Scale of Mapping: 1:1,250, Date of Mapping: 1974.	473m	SE
	Electrical Sub Station Facilities, Scale of Mapping: 1:1,250, Date of Mapping: 1974.	496m	S

Potentially Contaminative Industrial Uses (Past Land Use)

Map ID	Details	Distance	Direction
	Sawmilling, planing & impregnation [i.e. treatment of timber], Date of Mapping: 1897-1935.	On Site	-
	Road haulage, Date of Mapping: 1960.	On Site	-
	Road haulage, Date of Mapping: 1987.	2m	N
	Railways, Date of Mapping: 1897-1987.	151m	NW
	Railways, Date of Mapping: 1920-1935.	151m	NW
	Quarrying of sand & clay, operation of sand & gravel pits, Date of Mapping: 1920.	456m	NE
	Gas manufacture & distribution, Date of Mapping: 1920.	465m	E

Potentially Infilled Land

Potentially Infilled Land (Non-Water)

Map ID	Details	Distance	Direction
	Unknown Filled Ground (Pit, quarry etc), Date of Mapping: 1996.	454m	NE

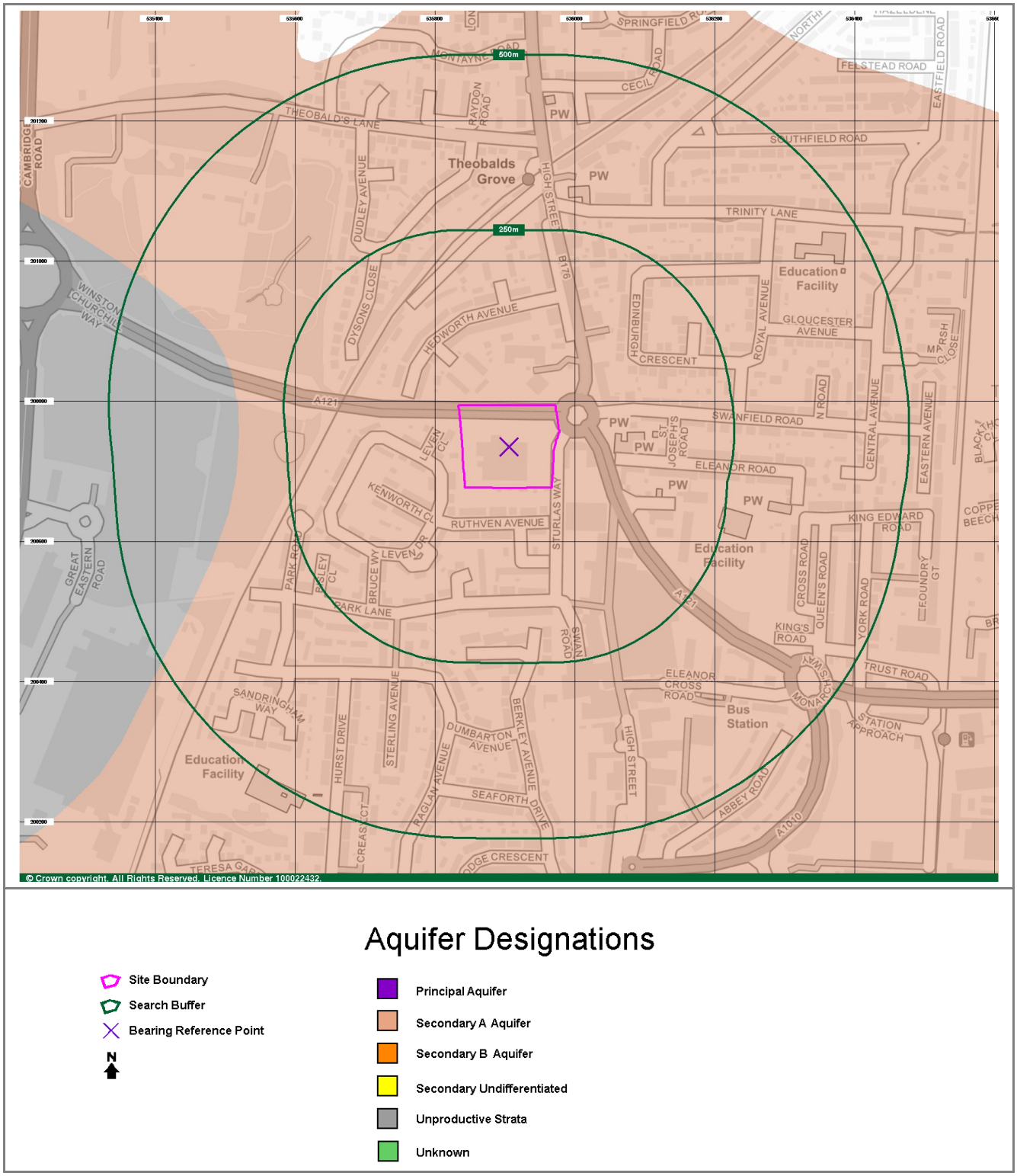
Historical Maps

The following maps have been manually reviewed by a consultant and presented in the Risk Analysis section at the front of this report:

Scale	Map Sheet	Published Date
1:2,500	Middlesex 002_12	1864
1:2,500	Hertfordshire 041_12	1872
1:2,500	Middlesex 002_12	1896
1:2,500	Hertfordshire 041_12	1898
1:2,500	Middlesex 002_12	1913
1:2,500	Hertfordshire 041_12	1914
1:2,500	Hertfordshire 041_12	1935
1:2,500	National Grid TL3600	1968
1:2,500	National Grid TL3500	1972
1:2,500	National Grid TL3501	1972
1:2,500	National Grid TL3601	1972
1:10,560	Essex 057_00	1882
1:10,560	Hertfordshire 041_00	1882
1:10,560	Middlesex 002_00	1882
1:10,560	Middlesex 003_00	1882
1:10,560	Essex 049_00	1883
1:10,560	Hertfordshire 041_SE	1897
1:10,560	Middlesex 002_SE	1897
1:10,560	Essex 057_NW	1898
1:10,560	Essex 049_SW	1899
1:10,560	Hertfordshire 041_NE	1899
1:10,560	Hertfordshire 042_SW	1899
1:10,560	Middlesex 003_SW	1899
1:10,560	Hertfordshire 041_SE	1920
1:10,560	Hertfordshire 042_SW	1920
1:10,560	Middlesex 002_SE	1920
1:10,560	Middlesex 003_SW	1920
1:10,560	Hertfordshire 041_NE	1921
1:10,560	Essex 060_SW	1923
1:10,560	Essex 060_SW	1935
1:10,560	Hertfordshire 041_SE	1935
1:10,560	Middlesex 002_SE	1935
1:10,560	Hertfordshire 041_NE	1938
1:10,560	Hertfordshire 042_SW	1938
1:10,560	Middlesex 003_SW	1938
1:10,560	National Grid TL30SE	1960
1:10,560	National Grid TL30SW	1960
1:10,560	National Grid TQ39NE	1960
1:10,560	National Grid TL30SE	1968
1:10,000	National Grid TL30SW	1974
1:10,000	National Grid TQ39NE	1974
1:10,000	National Grid TL30SE	1975
1:10,000	National Grid TL30SW	1980
1:10,000	National Grid TQ39NE	1980
1:10,000	National Grid TL30SE	1987
1:10,000	National Grid TL30SW	1988
1:10,000	National Grid TQ39NE	1991
1:10,000	National Grid TL30SE	2014
1:10,000	National Grid TL30SW	2014
1:10,000	National Grid TQ39NE	2014
1:1,250	National Grid TL3500NE	1967
1:1,250	National Grid TL3500SE	1967
1:1,250	National Grid TL3501SE	1967

Scale	Map Sheet	Published Date
1:1,250	National Grid TL3600NW	1967
1:1,250	National Grid TL3600SW	1967
1:1,250	National Grid TL3601SW	1967
1:1,250	National Grid TL3500NE	1972
1:1,250	National Grid TL3600SW	1974
1:1,250	National Grid TL3501SE	1973
1:1,250	National Grid TL3600SW	1973
1:1,250	National Grid TL3500NE	1992
1:1,250	National Grid TL3501SE	1992
1:1,250	National Grid TL3600NW	1992
1:1,250	National Grid TL3501SE	1978
1:1,250	National Grid TL3600NW	1982
1:1,250	National Grid TL3500NE	1983
1:1,250	National Grid TL3600SW	1983
1:1,250	National Grid TL3500SE	1985
1:1,250	National Grid TL3601SW	1985
1:1,250	National Grid TL3500SE	1989
1:1,250	National Grid TL3600SW	1989

Aquifer Designation (Superficial)

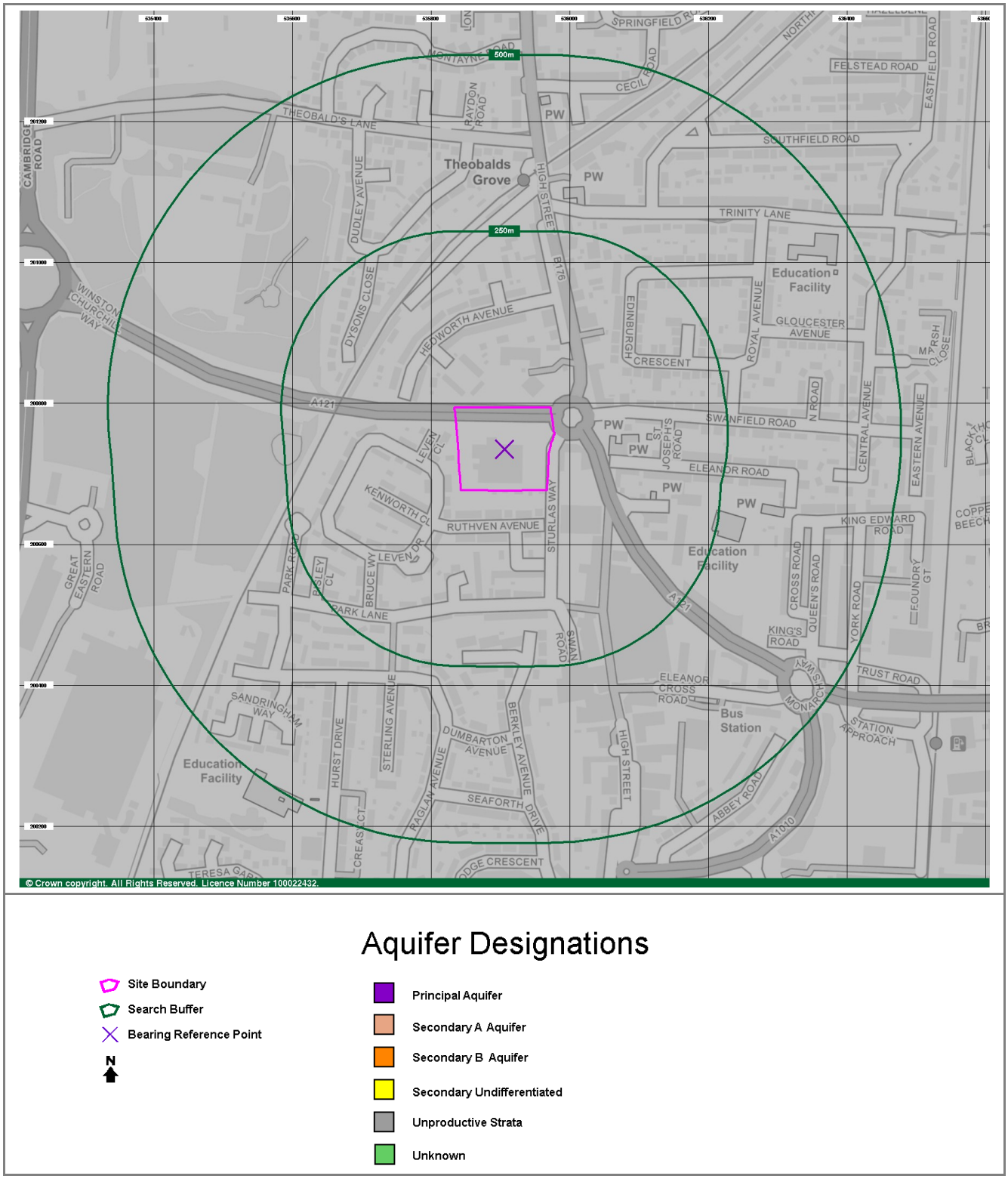


Aquifer Designations

- Site Boundary
- Search Buffer
- Bearing Reference Point
- N

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

Aquifer Designation (Bedrock)



Aquifer Designations

- Site Boundary
- Search Buffer
- Bearing Reference Point
- N

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

Groundwater Vulnerability

Hydrogeology

Superficial Aquifer Designations

Map ID	Details	Distance	Direction
	Secondary Aquifer - A These aquifers are formed of moderately permeable layers capable of supporting water supplies at a local scale, and in some cases forming an important source of base flow to rivers.	On Site	-
	Unproductive Strata The rock layers or drift deposits have a low permeability that have negligible significance for water supply or river base flow.	315m	W

Bedrock Aquifer Designations

Map ID	Details	Distance	Direction
	Unproductive Strata The rock layers or drift deposits have a low permeability that have negligible significance for water supply or river base flow.	On Site	-

Geology

BGS 1:50,000 Bedrock Geology

Map ID	Details	Distance	Direction
	LEX Code: LC, Rock Name: London Clay Formation, Rock Type: Clay, Silt and Sand, Min Age: Not Supplied, Max Age: Ypresian.	On Site	-

BGS 1:50,000 Superficial Deposits

Map ID	Details	Distance	Direction
	LEX Code: KPGR, Rock Name: KEMPTON PARK GRAVEL MEMBER, Rock Type: Sand and Gravel, Min Age: Not Supplied, Max Age: Devensian.	On Site	-
	LEX Code: ESI, Rock Name: Enfield Silt Member, Rock Type: Clay and Silt, Min Age: Not Supplied, Max Age: Devensian.	315m	W

BGS 1:50,000 Geological Mapping Coverage

Map ID	Details	Distance	Direction
	Map Sheet No: 239, Map Name: Hertford, Map Date: 1923, Bedrock Geology: Available, Superficial Geology: Available, Artificial Geology: Available, Faults: Not Supplied, Landslip: Not Available, Rock Segments: Not Supplied.	On Site	-

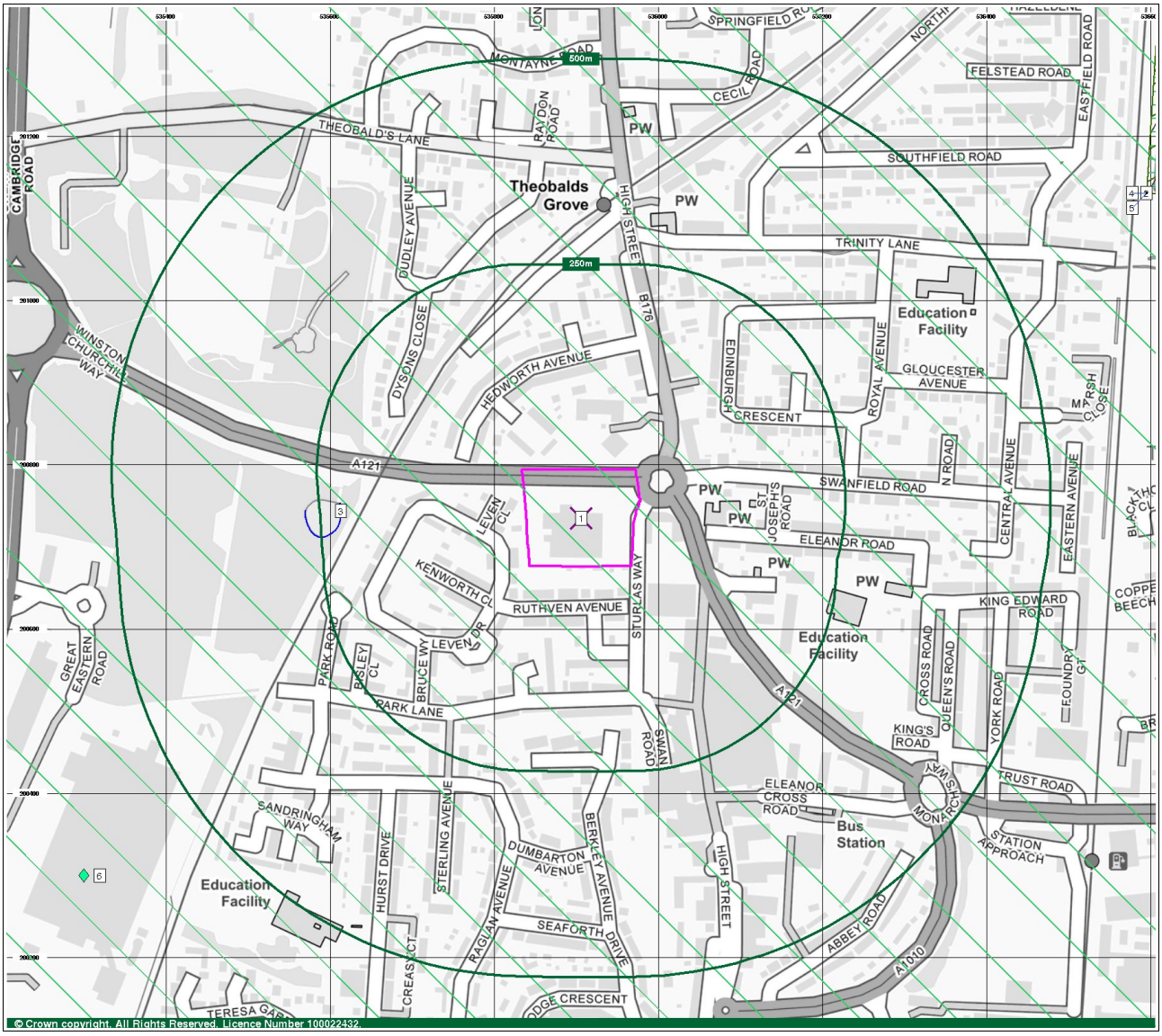
BGS 1:625,000 Solid Geology

Map ID	Details	Distance	Direction
	Thames Group.	On Site	-

BGS Boreholes

Map ID	Details	Distance	Direction
19	BGS Reference: Tl30se45, Drilled Length (m): 5.8, Borehole Name: Link Road Cheshunt 10.	On Site	NE
20	BGS Reference: Tl30se44, Drilled Length (m): 8, Borehole Name: Link Road Cheshunt 9.	5m	NW

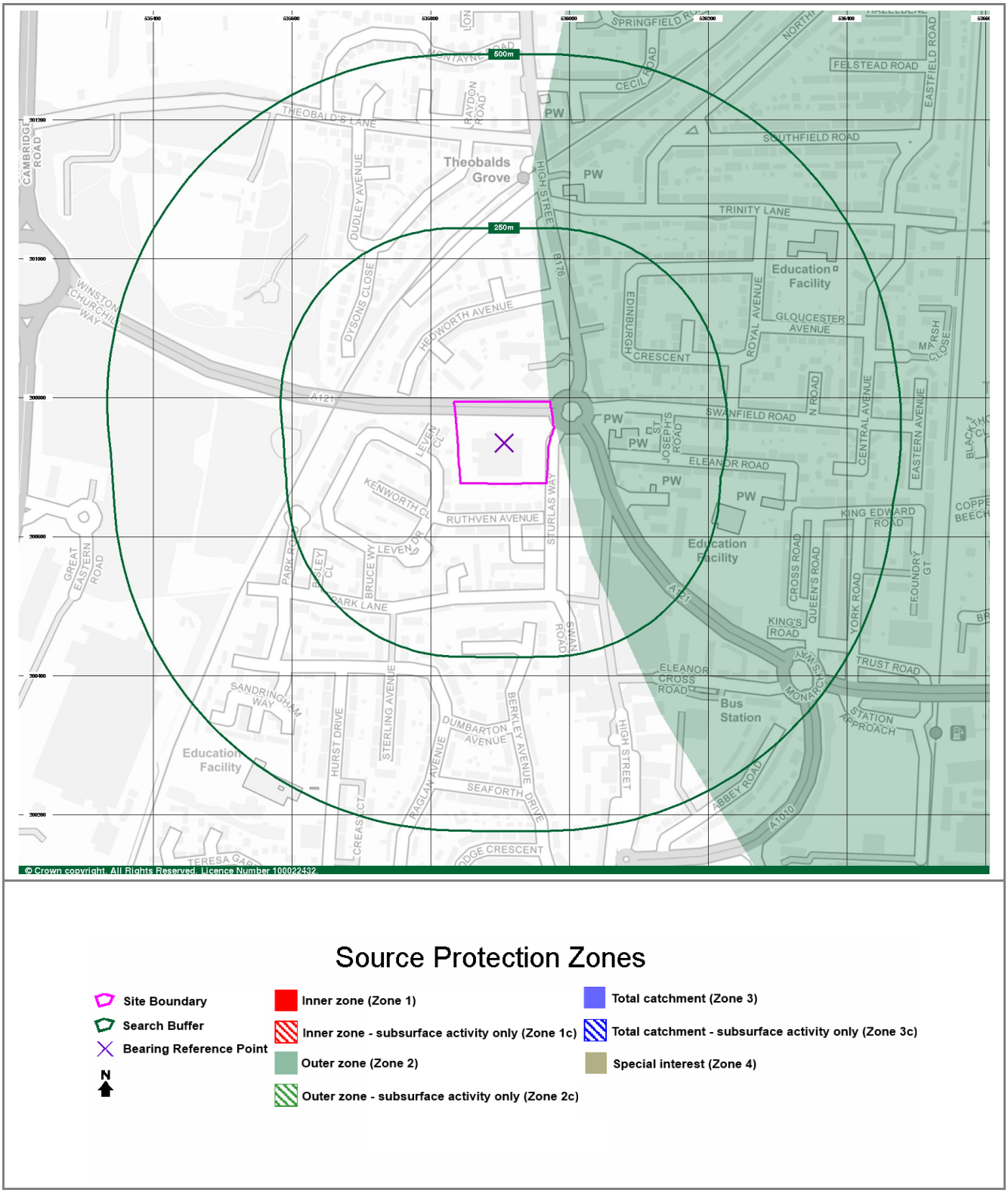
Environmentally Sensitive Features



Sensitive Land Uses

- Site Boundary
- Search Buffer
- Bearing Reference Point
- N
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- National Scenic Area
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Nearest Surface Water Feature
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- Water Abstraction
- Historical Flood Liability

Source Protection Zones



Source Protection Zones

- Site Boundary
- Search Buffer
- Bearing Reference Point
- N
- 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)

Environmentally Sensitive Features

Nitrate Vulnerable Zones

Map ID	Details	Distance	Direction
1	Name: Lee Nvz, Description: Surface Water, Source: Environment Agency, Head Office.	On Site	-

Ramsar Sites

Map ID	Details	Distance	Direction
	Name: Lee Valley, Multiple Area: Y, Area (m^2): 4512962.2700000005, Source: Natural England, Reference: UK11034, Designation Date: Not Supplied.	708m	NE

Nearest Surface Water Feature

Map ID	Details	Distance	Direction
3	Surface water feature identified in proximity.	225m	W

Sites of Special Scientific Interest

Map ID	Details	Distance	Direction
4	Name: Turnford & Cheshunt Pits, Multiple Area: Y, Area (m^2): 1744095.25, Source: Natural England, Reference: 2000066, Designation Date: 20th April 1995, Date Type: Notified, Designation Details: Country Park.	708m	NE

Special Protection Areas

Map ID	Details	Distance	Direction
5	Name: Lee Valley, Multiple Area: Y, Area (m^2): 4512962.26, Source: Natural England, Reference: UK9012111, Designation Date: Not Supplied.	708m	NE

Water Abstractions

Map ID	Details	Distance	Direction
6	Operator: South Villa Nursery, Licence Number: 29/38/08/0119, Permit Version: 100, Location: South Villa Nursery, Authority: Environment Agency, Thames Region, Abstraction: Agriculture: Horticultural Watering, Abstraction Type: Water may be abstracted from a single point, Source: Groundwater, Daily Rate(m^3): 182, Yearly Rate (m^3): 20457, South Villa Nursery, Waltham Cross, Authorised Start: 01 January, Authorised End: 31 December, Permit Start Date: 14th November 1969, Permit End Date: Not Supplied, Positional Accuracy: Located by supplier to within 100m.	662m	SW
	Operator: Britannia Nurseries, Licence Number: 29/38/08/0211, Permit Version: 100, Location: Britannia Nurseries, Authority: Environment Agency, Thames Region, Abstraction: Agriculture: Horticultural Watering, Abstraction Type: Water may be abstracted from a single point, Source: Groundwater, Daily Rate(m^3): 546, Yearly Rate (m^3): 9092, Britannia Nurseries, Bryanstone Road, Waltham Cross, Herts., Authorised Start: 01 January, Authorised End: 31 December, Permit Start Date: 1st January 1997, Permit End Date: Not Supplied, Positional Accuracy: Located by supplier to within 100m.	755m	E

Source Protection Zones

Map ID	Details	Distance	Direction
	Name: , 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.	On Site	E

Natural and Mining Related Hazards

Subsidence

Collapsible Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: Very Low, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Compressible Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: No Hazard, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Ground Dissolution Stability Hazards

Map ID	Details	Distance	Direction
	Risk: No Hazard, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Landslide Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: Very Low, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Running Sand Ground Stability Hazards

Map ID	Details	Distance	Direction
	Risk: Very Low, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Shrinking or Swelling Clay Subsidence Hazards

Map ID	Details	Distance	Direction
	Risk: Moderate, Source: British Geological Survey, National Geoscience Information Service.	On Site	NW
	Risk: Moderate, Source: British Geological Survey, National Geoscience Information Service.	64m	S

Radon

Radon Potential

Map ID	Details	Distance	Direction
	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.	On Site	-

Radon Protective Measures

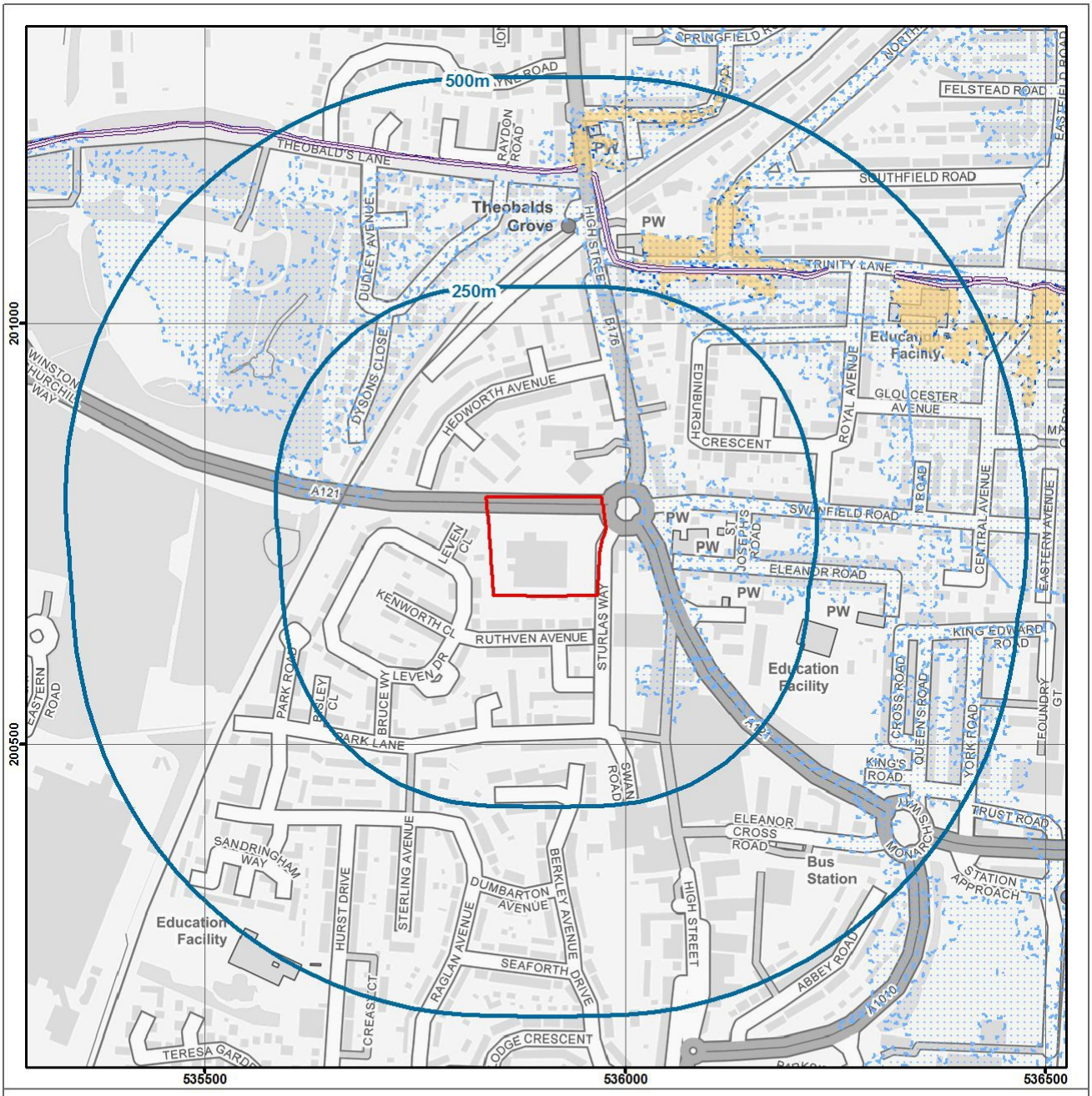
Map ID	Details	Distance	Direction
	None, Source: British Geological Survey, National Geoscience Information Service.	On Site	-

Mining

BGS Recorded Mineral Sites

Map ID	Details	Distance	Direction
21	Site Name: Waltham Cross Gravel Pit, Site Location: Waltham Cross, Hertfordshire, Source: British Geological Survey, National Geoscience Information Service, Reference: 169748, Type: Opencast, Status: Ceased, Operator: Unknown Operator, Operator Location: Not Supplied, Periodic Type: Quaternary, Geology: Kempton Park Gravel Formation, Commodity: Sand and Gravel, Positional Accuracy: Located by supplier to within 10m.	456m	NE
22	Site Name: Park Lane Gravel Pit, Site Location: Waltham Cross, Hertfordshire, Source: British Geological Survey, National Geoscience Information Service, Reference: 18385, Type: Opencast, Status: Ceased, Operator: Hoveringham Gravels Ltd., Operator Location: Not Supplied, Periodic Type: Quaternary, Geology: Kempton Park Gravel Formation, Commodity: Sand and Gravel, Positional Accuracy: Located by supplier to within 10m.	488m	W
23	Site Name: Waltham Cross Gravel Pit, Site Location: Waltham Cross, Hertfordshire, Source: British Geological Survey, National Geoscience Information Service, Reference: 169747, Type: Opencast, Status: Ceased, Operator: Unknown Operator, Operator Location: Not Supplied, Periodic Type: Quaternary, Geology: Kempton Park Gravel Formation, Commodity: Sand and Gravel, Positional Accuracy: Located by supplier to within 10m.	492m	NE

Flooding from Rivers or Sea



Environment Agency

- Client Site
- Flood Defences
- Flood Storage
- Defended Areas
- Flood Zone 2
- Flood Zone 3

meters
0 50 100 200

* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:7,500

Current Flood Risk

Flooding from River or Sea (Flood Zone 3)

Details	Distance	Reply or Direction
Are there any flood plains within 500m?	<501m	YES
Type: Fluvial Models, Source: The Environment Agency, Boundary Accuracy: As Supplied.	238.8m	N

Flooding from River or Sea in an Extreme Flood (Flood Zone 2)

Details	Distance	Reply or Direction
Are there any flood plains (extreme floods) within 500m?	<501m	YES
Type: Fluvial Models, Source: The Environment Agency, Boundary Accuracy: As Supplied.	30.5m	NE
Type: Fluvial Models and Fluvial Events, Source: The Environment Agency, Boundary Accuracy: As Supplied.	240.4m	N
Type: Fluvial Events, Source: The Environment Agency, Boundary Accuracy: As Supplied.	240.7m	N

The Site is at a low risk of flooding from rivers or the sea, as defined by the regulatory body's Flood Map. If the Site area is greater than one hectare, any planning application for development would need to be accompanied by a Flood Risk Assessment in accordance with NPPF.

Flood Defences

Details	Distance	Reply or Direction
Are there any flood defences within 500m?	<501m	YES

There are flood defences within 500m of the Site. There may therefore be a small residual risk of flooding should the protection standard of the defences be exceeded (and the defences overtopped) or should the defences fail.

Areas Benefiting from Flood Defences

Details	Distance	Reply or Direction
Does the Site or any areas within 500m benefit from flood defences?	<501m	YES

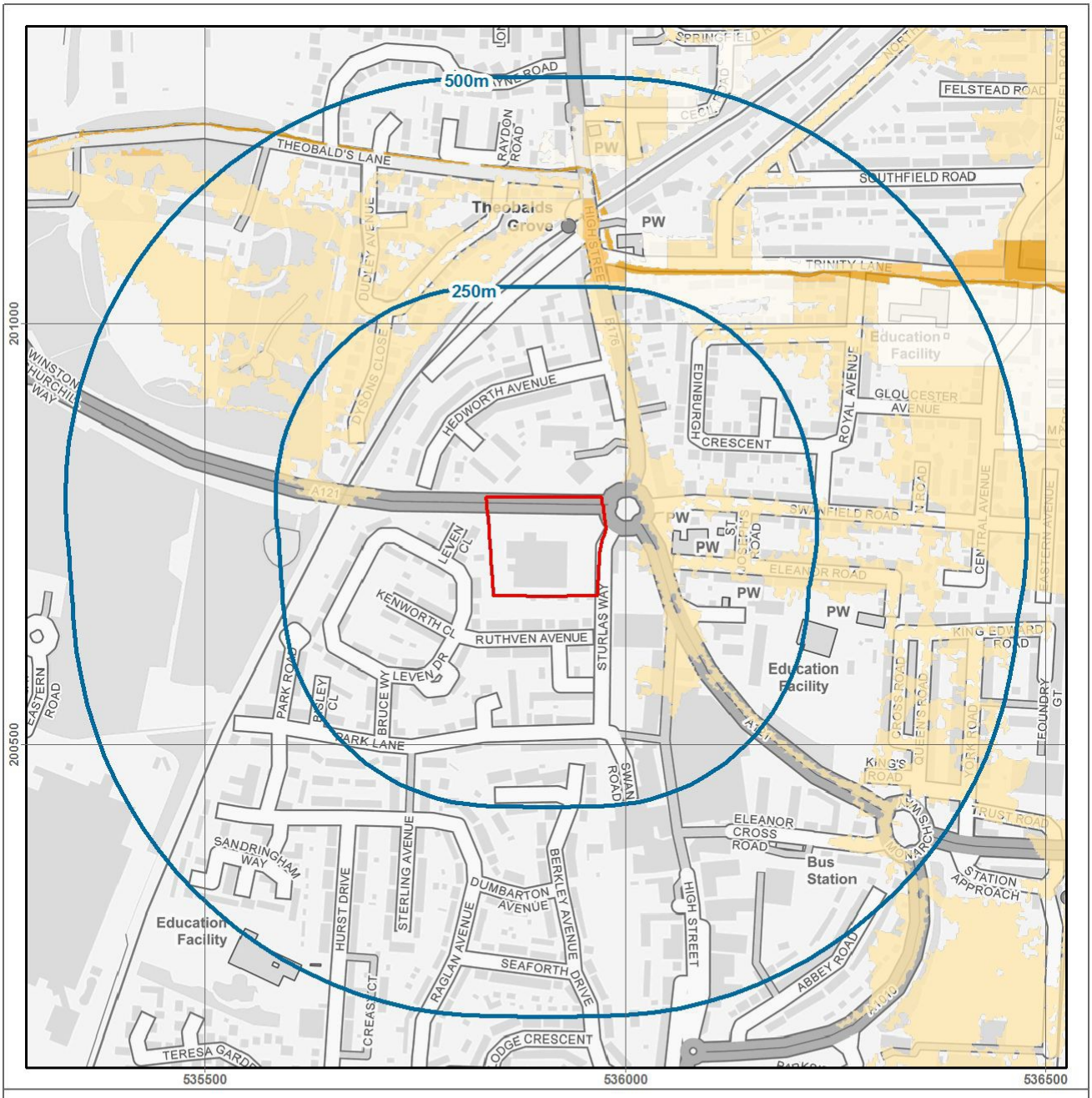
The Site is within 250m of an Area Benefiting from a Flood Defence, as defined by the regulatory body. However, not all areas benefiting from a flood defence are mapped by the EA so the Site may fall within such an area after all. If so, then there is a small residual risk that the Site may flood if the protection standard of these defences is exceeded, or if the defences fail. Further investigations could be undertaken into the standard of these defences. Please contact us for further information.

Flood Storage Areas

Details	Distance	Reply or Direction
Are there any flood storage areas within 500m?	<501m	NO

The Site is over 500m from a Flood Storage Area (FSA) as defined by the regulatory body. These areas store flood water during flood events. It is unlikely that any FSA presents any associated flood risk to the Site.

The Environment Agency Risk of Flooding from Rivers and Sea



Risk of Flooding from Rivers and Sea (RoFRS)

Client Site

High

Medium

Low

Very Low

metres

0 50 100 200

* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:7,500

Risk of Flooding from Rivers and Sea

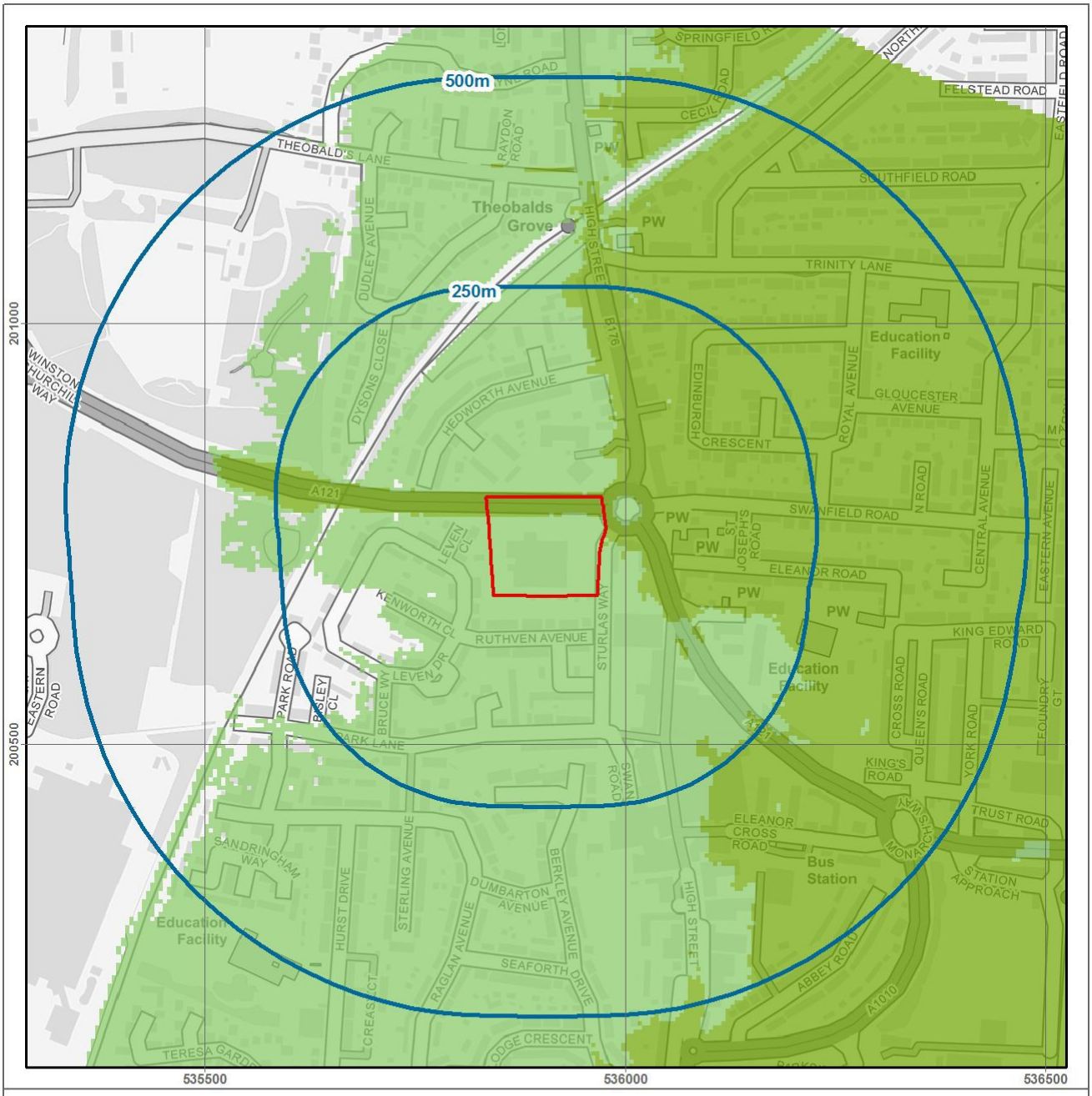
Details	Distance	Reply or Direction
What is the flood likelihood category for the Site?	On Site	-

Some areas may be classified as having no result. This occurs where there is no output data from the regulatory body's risk assessment, but the area falls within the extreme flood outline (with a 0.1% or 1 in 1000 chance of flooding in any year).

The Environment Agency Data

The data in the Property Flood Likelihood Database is sourced from The Environment Agency's National Receptor Dataset (NRD). The information provided includes the flood likelihood category low, moderate, or significant according to the flood likelihood analysis. Some areas may be classified as having no result. This occurs where there is no output data from the analysis, but the area falls within the extreme flood outline (with a 0.1% or 1 in 1000 chance of flooding in any year).

Groundwater Flooding Risk



Groundwater Flooding Risk Rating

Client Site

High Risk

Moderate Risk

Low Risk

metres

0 50 100 200

* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:7,500

Groundwater Flooding Risk

	Details	Distance	Reply or Direction
	What is the risk of groundwater flooding at the Site?	On Site	moderate

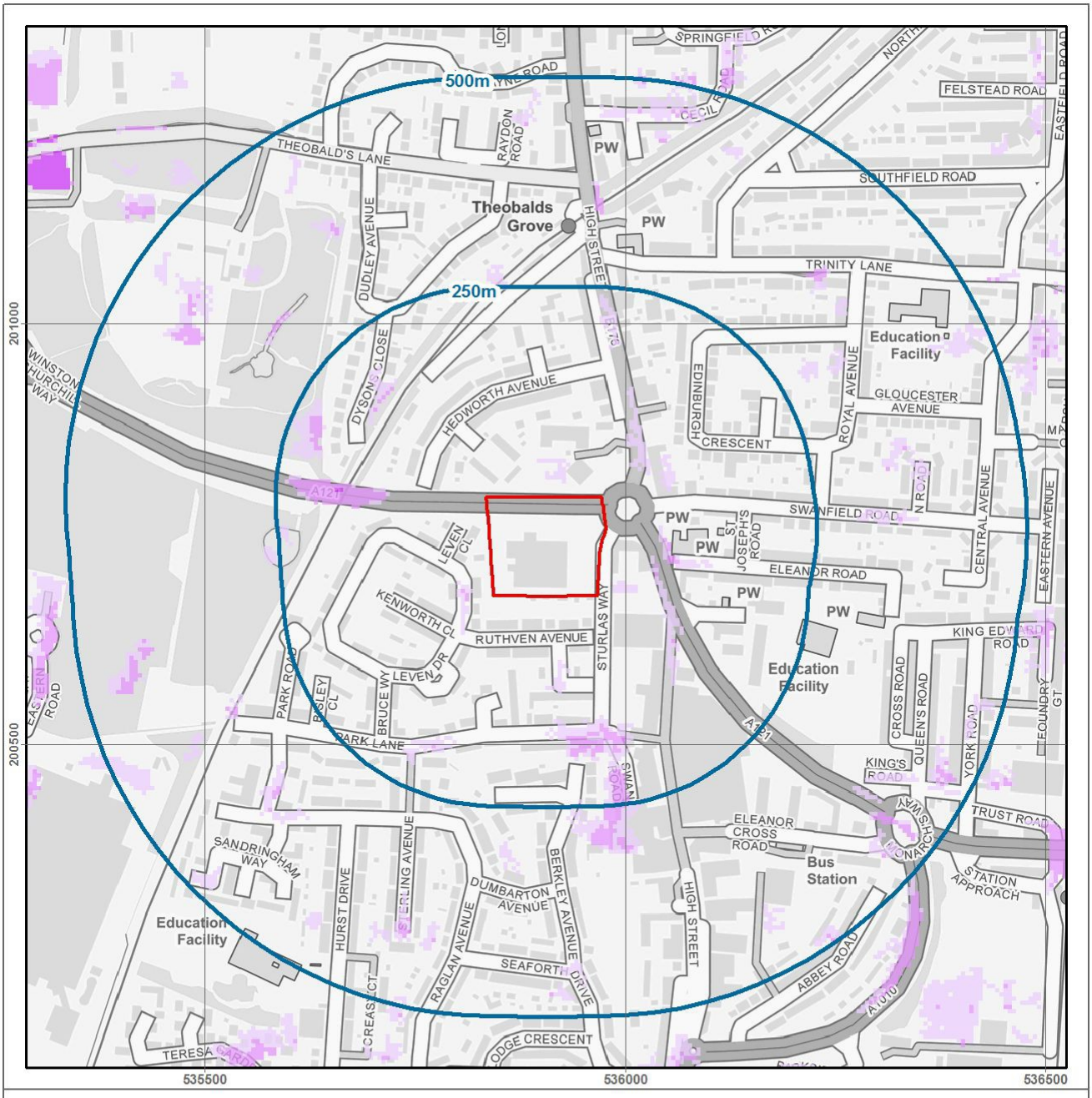
Information from GeoSmart Information Ltd indicates that there is a moderate risk of groundwater flooding in this area with a return period of 1 in 100 years.There will be a possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location. Where flooding occurs it is likely to be in the form of shallow pools or streams. There may be basement flooding, but road or rail closures should not be needed and flooding should pose no significant risk to life. Surface water flooding may be exacerbated when groundwater levels are high. Further consideration of the level of risk and mitigation, by a suitably qualified professional, is recommended.

GeoSmart Information Ltd Data

GeoSmart Information Ltd provides data to Argyll in relation to groundwater flooding. Through research and development, building on their expertise in addressing groundwater flooding issues for The Environment Agency and other clients in the UK, GeoSmart Information Ltd has developed algorithms and calibrated predictions of the risk of groundwater flooding occurring in England and Wales. This differs from other suppliers of data regarding groundwater flooding which only report on the susceptibility of groundwater flooding. Susceptibility merely has to be identified, whereas risk must be quantified. The resulting map is a 5x5m classification of groundwater flooding risk into four categories (Negligible, Low, Moderate and High). GeoSmart Information Ltd's classifications are based on the level of risk, combining severity and uncertainty that a site will suffer groundwater flooding within a return period of about 100 years.

The map is a general purpose indicative screening tool, and is intended to provide a useful initial view for a wide variety of applications. However, it does not provide an alternative to a site specific assessment, and a detailed risk assessment should be used for any site where the impact of groundwater flooding would have significant adverse consequences.

Surface Water Flooding (1:200 year rainfall event)



Surface Water Risk

Client Site

10cm - 30cm depth

30cm - 1m depth

1m + depth

metres

0 50 100 200

* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:7,500

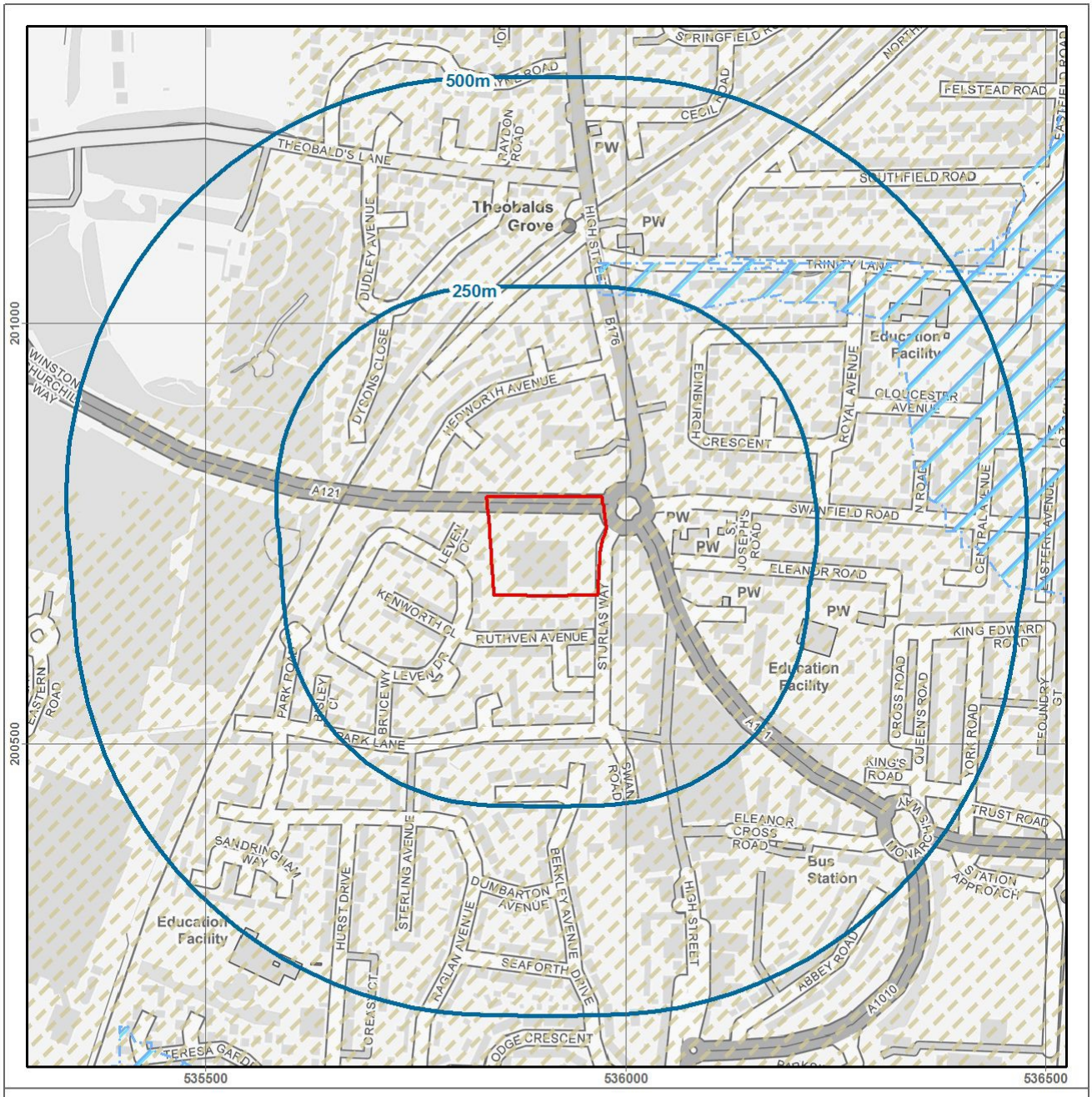
Surface Water Flooding

	Details	Distance	Reply or Direction
	What is the risk of surface water flooding at the Site following a 1 in 75 year rainfall event?	On Site	negligible
	What is the risk of surface water flooding at the Site following a 1 in 200 year rainfall event?	On Site	negligible
	What is the risk of surface water flooding at the Site following a 1 in 1,000 year rainfall event?	On Site	low

JBA Risk Management Data

Surface Water Flooding - Information regarding the risk of natural surface water or pluvial flooding. The risk is classified by JBA into four categories, low (equal to 10cm), low to medium (more than 10cm), medium (more than 30cm) and high (more than 1m) which reflect varying depths of potential surface water flooding during a range of rainfall events including 1:75 year, 1:200 year, and 1:1000 year.

Historical Flooding



Historical Flooding

Client Site
Historic Floods
Geo Indicators

metres
0 50 100 200

* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:7,500

Historical Flood Events

	Details	Distance	Reply or Direction
	Have any historic flood events occurred at the Site or within 500m?	<501m	YES

The Site is less than 2m above a historical flood event, as recorded by the regulatory body. It is recommended that a FLOODSOLUTIONS Consult Report is undertaken to further define the flood risk to the Site.

The Environment Agency Data

The Environment Agency has collated extensive records (including outlines) of flooding from rivers, the sea, or groundwater which have occurred in England and Wales since c.1950. This information comes from various sources including maps, aerial photographs, and private records. It is not necessarily comprehensive.

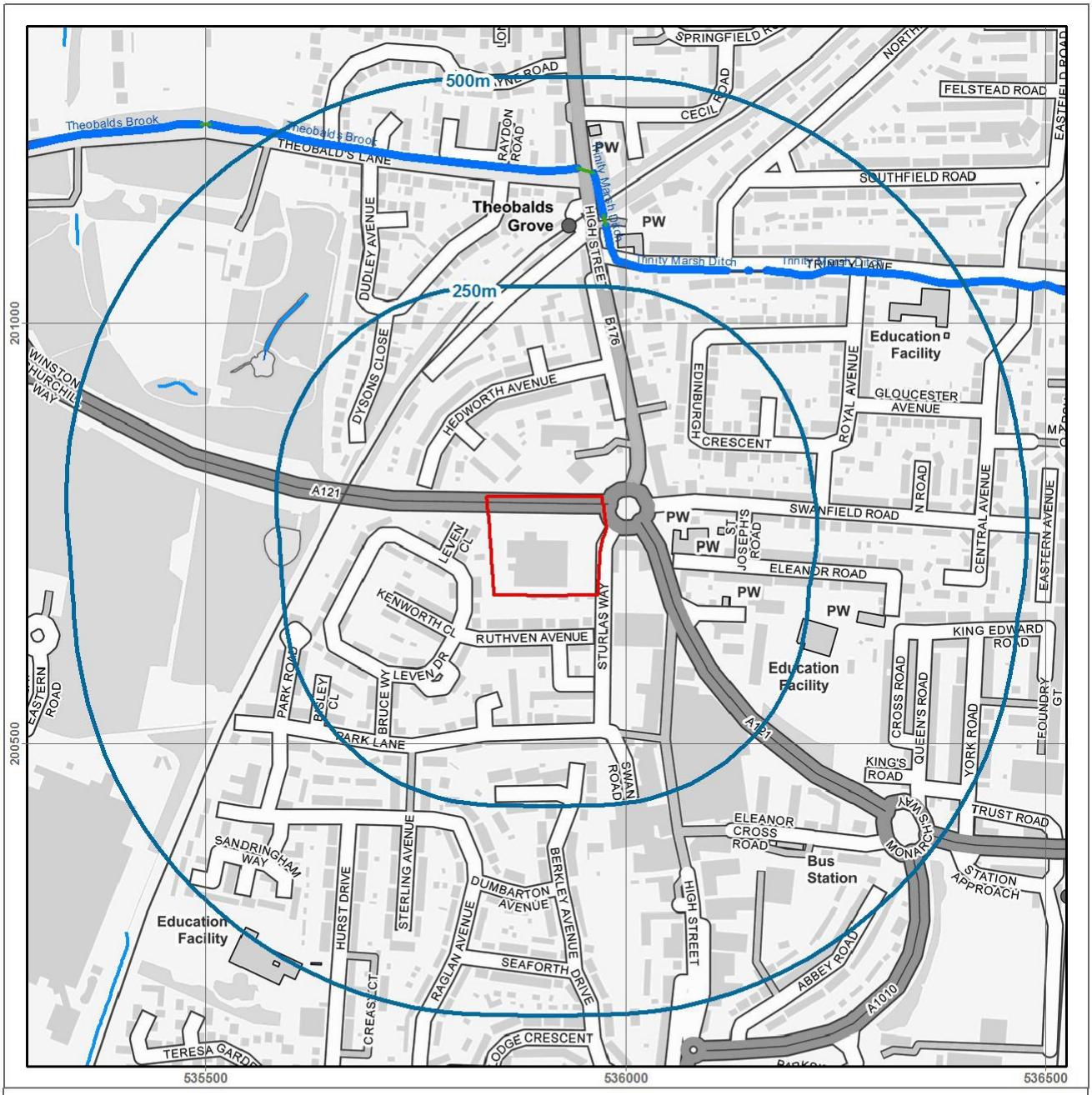
Geological Indicators of Flooding

	Details	Distance	Reply or Direction
	Are there any geological deposits which indicate the Site may have been flooded in the past?	<26m	YES
	Fluvial flooding indicators, Lower flood potential from rivers: areas affected by secondary flooding in extreme cases as a result of a prolonged flood event.	On Site	-

British Geological Survey Data

Geological Indicators of Flooding – The BGS Geological Indicators of Flooding (GIF) data set is a digital map based on the BGS Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising Superficial (Drift) Deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow and reflects areas which may have flooded in the recent geological past. This normally relates to flooding which happened many thousands of years ago.

OS MasterMap Water Network



OS MasterMap Water Network

- Client Site
- Primary Flow (named)
- Primary Flow (un-named)
- Secondary Flow
- Tidal River
- Lake or Reservoir
- Foreshore and Sea
- Underground River
- Marsh
- Canal, Lock or Transfer

metres
0 50 100 200

* - Not all features in legend may be present in above map

Nominal scale at A4 paper size - 1:7,500

Other Information

OS MasterMap Water Network

Details	Distance	Reply or Direction
Is there any information from the OS's MasterMap Water Network within 500m?	<501m	YES
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	276.4m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	276.4m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	276.8m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	289.0m	N
Watercourse Type: Primary Flow (un-named)	289.1m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	290.6m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	294.4m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	296.0m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	297.7m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	298.5m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	300.9m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	304.5m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	307.1m	NE
Trinity Marsh Ditch Watercourse Type: Lake or Reservoir	307.6m	NE
Watercourse Type: Lake or Reservoir	310.7m	NW
Watercourse Type: Primary Flow (un-named)	315.1m	NW
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	319.7m	NE
Trinity Marsh Ditch Watercourse Type: Lake or Reservoir	321.1m	NE
Trinity Marsh Ditch Watercourse Type: Underground River	323.3m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	332.5m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	334.7m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	337.5m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	339.0m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	344.5m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	349.1m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	350.4m	NE
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	353.2m	N
Watercourse Type: Primary Flow (un-named)	366.1m	W
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	381.6m	NE
Theobalds Brook Watercourse Type: Underground River	385.5m	N
Theobalds Brook Watercourse Type: Primary Flow (named)	387.7m	N
Trinity Marsh Ditch Watercourse Type: Primary Flow (named)	439.2m	NE
Theobalds Brook Watercourse Type: Primary Flow (named)	471.8m	NW
Theobalds Brook Watercourse Type: Primary Flow (named)	473.4m	NW
Theobalds Brook Watercourse Type: Primary Flow (named)	493.3m	NW
Theobalds Brook Watercourse Type: Primary Flow (named)	494.4m	NW

No water features have been identified within 250m of the Site.

OS Data

OS MasterMap Water Network is a three-dimensional digital representation of the watercourses in Great Britain. It includes rivers, streams, lakes, lochs and canals as a series of watercourse network lines. The network lines (links) are attributed to provide a range of information about the section of watercourse they depict. The OS MasterMap Water Network will significantly enhance systems used to manage waterways, river and the flood risk they pose.

Height Above Sea Level

Details	Distance	Reply or Direction
Maximum height of the Site above sea level	On Site	22.20m
Minimum height of the Site above sea level	On Site	21.30m
Average height of the Site above sea level	On Site	21.69m

The Site is at a relatively high elevation above sea level. However, this is not in itself indicative of the absence of flood risk and reference should be made to other assessments within this report.

Distance to Water Features

Details	Distance	Reply or Direction
Are there any water features within 500m?	<501m	YES
Nearest water feature	224.2m	W
Nearest water feature	274.8m	N
Nearest water feature	293.3m	NW
Nearest water feature	311.5m	NE
Nearest water feature	342.5m	NE
Nearest water feature	386.8m	N
Nearest water feature	395.7m	N
Nearest water feature	429.5m	N
Nearest water feature	458.4m	NW

The Site is less than 2m above a water feature (as shown on the Ordnance Survey maps). This does not represent a flood risk in itself, but other assessments of risk within this report should be consulted.

Dam or Reservoir Failure

Details	Distance	Reply or Direction
Is there a risk of the Site being affected by the failure of a nearby dam or reservoir?	On Site	NO

Neither the Site nor areas near to it will be likely to flood if a dam or reservoir in the surrounding area failed.

JBA Risk Management Data

Dam or Reservoir Failure – JBA has modelled approximately 1700 dams and reservoirs across the UK which are considered to pose the greatest risks to people and property. These models are able to predict the areas likely to flood on all sides of a feature, should an element of it fail e.g. a wall, dam or earth bund.

Useful Contacts

Name and Address	Telephone/Fax/Email
Argyll Environmental Limited 1st Floor 98 – 99 Queens Road Brighton BN1 3XF www.argyllenvironmental.com	General enquiries 0330 036 6115 orders@argyllenviro.com
Broxbourne Borough Council Environmental Health Department Bishop's College www.broxbourne.gov.uk	Telephone 01992 631921 Fax: 01992 639391
Environment Agency National Customer Contact Centre (NCCC) PO Box 544	Telephone 03708 506 506
Broxbourne Borough Council Bishop's College www.broxbourne.gov.uk	Telephone 01992 631921 Fax: 01992 639391
Hertfordshire County Council Spatial Planning and Economy Unit County Hall www.hertsdirect.org	Telephone 01992 556266 Fax: 01992 556015 spatialplanning@hertfordshire.gov.uk
British Geological Survey Enquiry Service British Geological Survey www.bgs.ac.uk	Telephone 0115 936 3143 Fax: 0115 936 3276 enquiries@bgs.ac.uk
Environment Agency Head Office Rio House	Telephone 01454 624400 Fax: 01454 624409
Natural England County Hall www.naturalengland.org.uk	Telephone 0300 060 3900 enquiries@naturalengland.org.uk
Environment Agency National Customer Contact Centre (NCCC) PO Box 544 Templeborough Rotherham S60 1BY www.environment-agency.gov.uk	General enquiries 08708 506 506 Floodline 0845 988 1188 enquiries@environment-agency.gov.uk
British Geological Survey Enquiry Service British Geological Survey Kingsley Dunham Centre Keyworth Nottingham NG12 5GG www.bgs.ac.uk	General enquiries 0115 936 3143 Fax 0115 936 3276
(For advice on flood insurance) British Insurance Brokers' Association 8th Floor John Stow House 8 Bevis Marks London EC3A 7JB	Consumer helpline 0870 950 1790
JBA Risk Management - Head Office South Barn Broughton Hall Skipton North Yorkshire BD23 3AE	General enquiries 01756 799 919 Fax 01756 799 449 info@jbarisk.com

Name and Address	Telephone/Fax/Email
Please note that the Environment Agency / SEPA have a charging policy in place for enquiries. When contacting these agencies please mention that this data has been received from the Landmark database, alternatively Argyll Environmental Limited would be pleased to assist with consultation to the above bodies. Please contact us for a quotation.	

Contamination Land Risk Analysis Methodology

The SITESOLUTIONS reports have been designed to assist in making informed decisions during property transactions. This section of the Report is a desktop assessment of direct liabilities (Liabilities) which could affect the owner /occupier of the Site and arise under Part 2A of the Environmental Protection Act 1990 and/or equivalent requirements under the planning regime and/or the Water Resources Act 1991[3]. (Relevant Legislation). If a risk is identified, then a number of options for finding out more about the risk, managing it or transferring it are proposed.

The assessment of environmental liability under the Relevant Legislation is based upon the principle of determining the presence of a plausible contaminant-pathway-receptor relationship (a contaminant linkage). A 'contaminant' is a source of contamination, a 'pathway' is a medium through which the contamination can mobilise and 'a receptor' is a person or entity that could be detrimentally affected by the contamination. If all three are identified, then a 'plausible contaminant-pathway-receptor relationship' may be present. By definition, this is one which Argyll believes could result in significant harm, a significant possibility of significant harm or significant pollution or the possibility of significant pollution to Controlled Waters.

In our assessment we use the following test to decide if there is a potential liability affecting the Site. For the purpose of this assessment a site where a potential Liability has been identified is defined as follows:

A Site which, from the information assessed by Argyll, is considered to have the potential of being affected by contaminative substances present in or under the Site (but excluding potential sources of contamination on or above the land) such that, on the basis of its current or proposed use, there is a reasonable likelihood of a UK regulatory authority, acting in accordance with Relevant Legislation, requiring that remedial measures are taken in order to remedy or mitigate the contaminative substances that are present in or under the land that forms all or part of the Site.

The term Liabilities is defined within the scope of this assessment to mean, remedial works under Part 2A of the Environmental Protection Act 1990 (or where appropriate, equivalent requirements under the planning regime) and/or the Water Resources Act 1991 which may result in direct liability for the site owner/occupier.

The assessment within this section of the Report has been produced and quality checked by a team of qualified environmental professionals. The assessment is based upon a manual review of the data contained within the Data Section of this Report and of 1:2500 and 1:1250 (where available) scale historical mapping.

Ecological Risk Assessment

The evaluation of ecological risk is becoming an increasingly important input when making risk management decisions. In the Site Solutions Commercial report, Argyll assesses two different drivers for risks and liabilities driven by ecological receptors;

1. The Contaminated Land Regime; and
2. The Environmental Damage Regulations 2009, as amended (EDR).

The Environment Agency has designed a generic framework for conducting ecological risk assessment (see Assessing Risk to Ecosystems from Land Contamination, R&D Technical Report P299, EA 2002). This recommends a tiered approach in line with best practice for human health and controlled water risk assessment and defines Relevant Ecological Receptors as any of the Relevant Types of Receptor as set out in Table 1 of Defra Statutory Guidance on Contaminated Land dated April 2012.

Argyll assesses Relevant Ecological Receptors as part of its assessment process. To do so it uses the Argyll EcoRisk model which was developed and tested in consultation with leading experts and is based on the Environment Agency framework.

The Environmental Damage (Prevention and Remediation) Regulations 2009, as amended, were introduced on 1 March 2009 to implement the provisions of the European Union's Environmental Liability Directive into law in England[4]. The aim of EDR is to prevent and remedy damage to protected species or natural habitats or a site of special scientific interest, surface water, groundwater, coastal water or to land. 'Environmental damage' has a specific meaning in the Regulations, and must meet key criteria. Existing legislation with provisions for environmental

[3] Water Environment (Controlled Activities)(Scotland) Regulations 2005 where appropriate.
[4] Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009 or Environmental Liability (Scotland) Regulations 2009 where appropriate.

liability remains in place. The Regulations apply on land in England and on the seabed around the UK up to the limits set out in the Continental Shelf Act 1964, and to waters out to the Renewable Energy Zone, which extends approximately 200 miles out to sea.

Argyll will apply due consideration to the nature of any activities likely to be occurring on Site and review EDR Receptors surrounding the Site. However, Argyll are unable to consider the standard of current operations or instances where environmental damage arises either intentionally or as a result of negligence on behalf of the Site operator.

The assessment excludes the identification of potential liabilities arising as a result of genetically modified organisms and the transportation or delivery of polluting goods which may occur at locations off Site. In addition, not all EDR Receptors can be identified in this assessment including protected species/natural habitats such as nesting bats, nesting birds or migratory bird routes which are not officially designated.

When conducting either assessment, Argyll will primarily assess information provided in the Data section of the Report. However, in some cases Argyll may choose to supplement this with freely available public information such as that provided by Natural England and/or information provided by the Argyll Europa System.

Liability Assessment

In this section Argyll will report on any potential soil and groundwater liabilities which it considers are associated with the Site. Our assessment of Liability is based upon the proposed and current use of the Site(as supplied by the client)in line with current Government guidance.

There will be one of the following three responses:

Assessment	Liability Statement & explanation	Defra Category*
PASSED 	**Within the scope of this assessment no Liabilities have been identified. No further action is required.** This statement indicates that within the scope of this assessment, no issues have been identified that are likely to result in significant cost liabilities under Relevant Legislation.	3 or 4
PASSED 	**Within the scope of this assessment no Liabilities have been identified. However, your attention is drawn to the prudent enquiries suggested below.** This statement indicates that within the scope of this assessment, no issues have been identified that are likely to result in significant cost liabilities under Relevant Legislation. However, a client may wish to obtain further information about other issues disclosed in the Report, which could be material.	3 or 4
FURTHER ACTION 	**Potential Liabilities have been identified under Part 2A of the Environmental Protection Act 1990 (or where appropriate, equivalent requirements under the planning regime) and/or the Water Resources Act 1991[5]. To quantify these you may decide to undertake a more detailed assessment through the recommendation(s) set out below.** This statement indicates that within the scope of this assessment, an issue or a number of issues have been identified that are likely to result in significant cost liabilities under Relevant Legislation. In this event, recommendations are made, in order that additional information is collected so that the liabilities may be more accurately assessed.	Potentially 1 or 2

* According to Defra's updated Statutory Guidance on Contaminated Land, Regulators have a four-stage test to decide when land is and is not contaminated. Category 1 and Category 2 sites would encompass land which is capable of being determined as contaminated land, whereas Category 3 and Category 4 sites would encompass land which is not capable of being determined as contaminated land.

[5]Water Environment (Controlled Activities)(Scotland) Regulations 2005 where appropriate.

Limitations of the Report

The **SITE**SOLUTIONS reports have been designed to satisfy standard environmental due-diligence enquiries, as recommended by the Law Society's contaminated land warning card. It is a 'remote' investigation and reviews only information provided by the client and from the databases of publicly available information that have been chosen to enable a desk based environmental assessment of the Site. The Report does not include a site investigation, nor does Argyll make specific information requests of the regulatory authorities for any relevant information they may hold. Therefore, Argyll cannot guarantee that all land uses or factors of concern will have been identified by the Report.

The information in the Data Section of the Report is derived from a number of statutory and non-statutory sources. While every effort is made to ensure accuracy, Argyll cannot guarantee the accuracy or completeness of such information or data. Argyll will not accept responsibility for inaccurate data provided by external data providers.

Further information regarding our risk assessment methodology is provided in the Products and Services User Manual which is available free of charge from the client area of our website www.argyllenvironmental.com. For further information regarding the datasets reviewed within our assessment, please contact one of our technical team on 0330 036 6115. This report is provided under The Argyll Environmental Limited Conditions of Contract for **SITE**SOLUTIONS and **FLOOD**SOLUTIONS Reports (May 2011), a copy of which is available on our website.

Flood Risk Screening Methodology

This section of the report is a desktop flood risk screening report, designed to enable property professionals to assess the risk of flooding at commercial sites. It examines three areas; how flood risk affects the availability of insurance for a site; how flood risk affects the potential to redevelop a site; and the overall risk of flooding at a site (taking into account any flood defences present). The report considers current Government guidance including the National Planning Policy Framework (NPPF). The report has been produced and quality-checked by a qualified consultantusing the data contained in this report.

Executive Summary and Consultants Comment

In this section Argyll will summarise in a statement whether any significant flood risks have been identified and whether insurance is likely to be available at Standard Terms.

There will be one of the following three responses:

Assessment	Risk Statement
PASSED	Low and Low to Moderate - The site is not considered to be at significant risk of flooding. No further action is considered necessary.
PASSED	Moderate - Data suggest that there are features which may present a flood risk to the site and its occupants during an extreme flood event. However, buildings and contents insurance should easily be available in most cases.
FURTHER ACTION	Moderate to High and High - This report reveals significant flood risk issues which should be addressed. Further assessment is recommended in order to clarify the risk of flooding at the site and to determine appropriate flood protection measures.

Insurance Availability

Argyll provides an indication of whether the Site is likely to be insurable for flood risk at standard terms. The answer to Question1 (on page 3) is based on consideration of Risk of Flooding from Rivers and Sea data supplied by The Environment Agency and surface water flooding data supplied by JBA Risk Management. This data is used by a significant proportion of the insurance industry to help determine the suitability of a Site for insurance, although they may access additional information which could affect their assessment.

Under the Association of British Insurers' Revised Statement of Principles on the Provision of Flooding Insurance (July 2008), the general policy of member companies is that flood insurance for domestic properties and small businesses should continue to be available for as many customers as possible until 1st July 2013, by which time a longer term solution should be implemented. The premiums charged and other terms will reflect the risk of flooding but insurance will be available:

1. for properties where the flood risk is not significant (generally defined as no worse than 1.33% or 1–in-75 years annual probability of flooding); and
2. to existing domestic property and small business customers at significant risk, providing the Environment Agency has announced plans to reduce that risk within five years, such as improving flood defences. (The commitment to offer cover will extend to the new owner of any applicable property subject to satisfactory information about the new owner).

However, for significant risk areas where no improvements in flood defences are planned, and in all cases other than domestic properties and small businesses, insurers cannot guarantee to provide cover, but will examine the risks on a case-by-case basis. The implementation of the revised Statement of Principles depends on action from the Government and is continually reviewed by insurers. In addition, the revised Statement of Principles does not apply to properties built after 1st January 2009. Different guidance applies to these (see Climate Change – Guidance on Insurance Issues for New Developments from www.abi.org.uk).

The responses to the question 'Is the Site likely to be insurable at standard terms?' assume the Site is an existing domestic property or small business and makes no allowance for previous claims arising from any type of flooding, nor for non-flood related risks such as subsidence.

Response	Meaning
Yes	The Site is likely to be considered acceptable by insurance companies at standard terms and flood insurance should not be difficult to obtain. No further action required.
No	The Site is not likely to be considered acceptable by insurance companies at standard terms, on the basis of current information. Further work may be required in order to obtain acceptable insurance terms for the flood risk. This could include a more detailed risk assessment or the use of accredited products, flood resilient materials and temporary defences to defend the property.

Development Risk

Argyll comments on whether a full or partial Flood Risk Assessment (FRA) would be required in accordance with National Planning Policy Framework (NPPF). The answer to Question 1 is indicative only and is based on the size of the Site (as supplied by the client) and the information in the data section of this report.

NPPF sets out Government policy on development and flood risk. Its aims are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas of highest risk. Where new development is exceptionally necessary, NPPF aims to make it safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall.

A separate Drainage Impact Assessment may be required in addition to an FRA to demonstrate that development of the Site will not adversely affect flood risk elsewhere.

Response	Meaning
Yes (Full)	If the Site was redeveloped, a full Flood Risk Assessment is likely to be required which should include a Drainage Impact Assessment.
Yes (Drainage)	If the Site was redeveloped, a full Flood Risk Assessment may not be required however, given the size of the Site, a Drainage Impact Assessment may be necessary.
No	If the Site was to be redeveloped, no further flood assessment is likely to be required.

Flood Risk Rating

Argyll provides an overall flood risk rating based on an assessment of the data provided within this report. It does so by asking two questions:

2. What is the overall risk of flooding, assuming flood defence fail or are absent or overtopped?

The answer to Question 2 provides a worst case scenario assuming there are either no defences in the area, that any defences in the area could fail, primarily as a result of river or coastal flooding, or are overtopped by excessive flood volumes.

3. Are there existing flood defences which might benefit the Site?

The answer to Question 3 is based on the presence of any flood defences in the dataset provided by the Environment Agency within 500m of the Site. It should be noted that a residual risk of flooding may be present if such defences failed. Flood defences do not generally protect the Site against groundwater and surface water flooding.

If defences are present within 250m, a further question is asked:

4. What is the risk of flooding when these defences are operational?

This assesses the risk from flooding, assuming these defences work as intended and neither fail nor are overtopped.

Questions 2 and 3 are answered by one of six standard responses:

Response	Meaning
Negligible	The overall flood risk rating for the Site is assessed to be 'Negligible'. Existing datasets do not indicate any risk at the Site itself, or any feature within the locality of the Site, which would be expected to pose a threat of flooding. It is not considered that any further investigations are necessary in regard to flood risk.
Low	The overall flood risk rating for the Site is assessed to be 'Low'. Although large sites (over 1 ha) would require a Drainage Impact Assessment to accompany any planning application, it is not considered necessary to undertake any other further investigations into the flood risk to the Site.
Low to Moderate	The overall flood risk rating for the Site is assessed to be 'Low to Moderate'. The presence of such features as flood defences, flood storage areas and watercourses within the locality of the Site suggests that there may be a risk of flooding to the Site itself. Further investigations could be undertaken to further assess this risk.
Moderate	The overall flood risk rating for the Site is assessed to be 'Moderate'. Information from existing datasets suggests that there are certain features which may present a risk to the Site and its occupants. Further assessment would normally be suggested as a prudent measure to clarify the risk of flooding at the Site.
Moderate to High	The overall flood risk rating for Site is assessed to be 'Moderate to High'. Information from existing datasets suggests that there are certain features which may present a significant risk to the Site and its occupants. Further assessment is usually recommended in order to clarify the risk of flooding at the Site.
High	The overall flood risk rating for Site is assessed to be 'High', with a consequent risk to life and property. This means that existing datasets reveal significant flood risk issues which need to be addressed. Further assessment is usually recommended in order to clarify the risk of flooding at the Site.

Flood Analysis

The flood risk gauges provide a more detailed analysis of the risk from each of the four main types of flooding – river, coastal, groundwater and surface water. In addition, a fifth gauge provides an analysis of other factors (i.e. historic flood events, geological deposits which are indicative of past flooding, proximity to surface water features and elevation above sea level) that may affect the overall flood risk. For surface water flooding, only the risk rating generated from the 1:200 year rainfall event data is included in the overall risk assessment. The data on 1:75 year and 1:1,000 year rainfall events is provided for information only. For further information on each of these types of flooding, please refer to the Argyll FloodSolutions User Guide.

This analysis takes into account any existing flood defences that are intended to protect the Site and assumes that these work as designed. The analysis also takes into account the other information contained in those data sections of the report which are relevant to that particular type of flooding. The assessment of the risk as shown in the flood gauge should therefore take priority over the information in the individual data sections of the report.

Limitations of the Report

The report has been designed to satisfy basic flood-related environmental due-diligence enquiries for commercial properties. It is a desktop review of information provided by the client and from selected private and public databases. It does not include a site investigation, nor are specific information requests made of the regulatory authorities for any relevant information (other than local water and sewerage providers). Therefore, Argyll cannot guarantee that all issues of concern will be identified by this report, or that the data and information supplied to it by third parties is accurate and complete.

This report includes an assessment of surface water flooding which examines the risk of the general drainage network overflowing during periods of extreme rainfall. This report does not make a detailed site-specific assessment of the suitability of the existing drainage on the Site. If this is required, then a site survey should be considered. The assessment of pluvial flooding does not take into account particular local or temporary factors that may cause surface water flooding such as the blockage or failure of structures on or within watercourses, drains,

foul sewers, water mains, canals and other water infrastructure; and any history of drains flooding at the Site or in the locality. Surface water flooding can occur before surface water reaches the general drainage network, for example on hills and inclines.

The Risk of Flooding from Rivers and Sea dataset provided by The Environment Agency does take account of failure of flood defences but does not take into account particular local or temporary factors such as blockage. Environment Agency data does not include flood risk from very small catchments as models of such small scale catchments are not considered to be reliable for UK-wide flood risk assessments. The potential impact of climate change on flood risk to the Site would require further study.

When answering any questions within this report, current applicable legislation is taken into account.

The data used in this report may have inherent limitations and qualifications. Further details are set out in the FloodSolutions User Guide which is available free of charge from our website www.argyllenvironmental.com , or by calling one of our technical team on 0330 036 6115.

This report is provided under The Argyll Environmental Limited Conditions of Contract for SITESOLUTIONS and FLOODSOLUTIONS Reports (July 2013), a copy of which is available on our website, www.argyllenvironmental.com or by calling one of our technical team on 0330 036 6115.

Flood Glossary

Business Continuity Plan
A business continuity plan is a strategic plan of action for a business to implement in an emergency (i.e. flood event). This plan ensures a business can continue to operate during emergency situations and reduces the risk of suffering avoidable losses. For example, it may cover such items as emergency accommodation and computer back up off site.

Flood Evacuation Plan
A flood evacuation plan sets out clear steps to ensure the safe evacuation of staff during a flood. It will form part of the Business Continuity Plan.

Coastal Flooding
Coastal flooding is the inundation of land areas along the coast caused by sea water rising above normal tidal conditions. Coastal flooding can arise from a combination of high tides, wind induced tidal surge, storm surge created by low pressure and wave action.

Flood Resistance Measures
These measures are designed to prevent flood water from entering the buildings on Site.

Flood Resilience Measures
These measures are intended to make buildings more resilient to flood damage so that they recover more quickly from flooding. They are not designed to prevent flood water entering the property.

Flood Risk Assessment
A full Flood Risk Assessment (FRA) Report is a bespoke report required under NPPF for any development site within Environment Agency Flood Zones 2 or 3 and/or any development site larger than 1 hectare. These reports are generally prepared following liaison with the Local Planning Authority and the application of the sequential test.

Flood Zone 1
An area of low probability of flooding as defined by the Environment Agency – a flood return period of 1 in 1,000 or more.

Flood Zone 2
An area of medium probability of flooding as defined by the Environment Agency – a flood return period between 1 in 100 to 1 in 1,000 for river flooding and 1 in 200 to 1 in 1,000 for coastal flooding.

Flood Zone 3a
An area of high probability of flooding as defined by the Environment Agency – a flood return period between 1 in 20 to 1 in 100 for river flooding and 1 in 200 for coastal flooding.

Flood Zone 3b
This area is a functional floodplain as defined by the Environment Agency. It is an area which is designed to flood – a flood return period of 1 in 20 or less.

Groundwater Flooding
Groundwater flooding occurs when ground water levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys and in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels.

NPPF
This relates to the National Planning Policy Framework and the associated Technical Guidance.

Pluvial (Surface Water) Flooding
Pluvial flooding results from rainfall running over ground before entering a watercourse or sewer. It is usually associated with high intensity rainfall events (typically greater than 30mm per hour) but can also occur with lower intensity rainfall or melting snow where the ground is already saturated, frozen, developed (for example in an urban setting) or otherwise has low permeability.

Return Period
Return periods are a measure of how likely flooding is to occur. They are commonly expressed as a ratio (for example 1 in 75 or 1:75). This means that this level of flooding is expected once in every 75 years.

River Flooding
River flooding mainly happens when the river catchment (that is the area of land that feeds water into the river and the streams that flow into the main river) receives greater than usual amounts of water (for example through rainfall or melting of snow). The amount of runoff depends on the soil type, catchment steepness, drainage characteristics, agriculture and urbanisation as well as the saturation of the catchment. The extra water causes the level of the water in the river to rise above its banks or retaining structures.

Important Consumer Protection Information

This search has been produced by Argyll Environmental Ltd, 1st Floor, 98 – 99 Queens Road, Brighton, BN1 3XF. Telephone: 0330 036 6115, e-mail: orders@argyllenviro.com which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details:

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Web site: www.tpos.co.uk
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk.

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

Complaints procedure

If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

Complaints should be sent to:

Legal Director
Argyll Environmental Ltd
1st Floor
98 - 99 Queens Road
Brighton
BN1 3XF

Telephone: 0330 036 6115
Email: orders@argyllenviro.com

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision.