

CCG-C-22-13413

**FLOOD RISK ASSESSMENT REPORT
FOR LAND AT THE FORMER
PRESCOT POLICE STATION
DERBY STREET
PRESCOT
MERSEYSIDE
L34**

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1.0 INTRODUCTION

1.1 Purpose & Aims of the Assessment

CC GEOTECHNICAL LIMITED (CCG) was commissioned by **PRIMA GROUP** (the *Client*) to prepare a Flood Risk Assessment (FRA) in connection with the proposed redevelopment of land located immediately to the north of Derby Street, Prescott, L34 3LG.

It is understood that an existing Police Station fronting on to Derby Street is to be retained and modified / converted for residential use.

It is further proposed that the land to the rear of the Police Station is to be developed by the construction of 6nr x 2.5-storey town houses constructed of traditional brick elevations under pitched roofing materials together with associated newly created hard paved access / egress roadway, off-road car parking facilities and front and rear private gardens.

The existing and proposed site layouts are as annotated on **PRIMA GROUP** architectural drawings contained herein.

A Flood Risk Assessment (FRA) was required by the *Client* to submit in support of an existing planning application.

The site is situated within the administrative jurisdiction of **KNOWSLEY METROPOLITAN BOURGH COUNCIL (MBC)**.

This FRA was undertaken in accordance with the requirements of **KNOWSLEY MBC 'Local Flood Risk Management Strategy: 2017 (LFRMS)**, the **National Planning Policy Framework (NPPF): 2019**, **KNOWSLEY MBC 'Level 2 Strategic Flood Risk Assessment: 2012 (L2SFRA)**, **KNOWSLEY MBC 'Sustainable Drainage and Surface Water Management – Technical Guidance for Developers' (Version 06, August 2016 - 2020)**, and the **Planning Practice Guidance' (PPG: 2014)**.

The principal objectives of the FRA were:

- To assess the potential for flooding on and within the vicinity of the site, following the proposed redevelopment
- To calculate the effects of climate change on likely future run off rates at the site
- If appropriate, to propose conceptual flood amelioration measures which can be practicably incorporated in the development infrastructure, to accommodate the 1 in 100-yr (+ Climate Change (CC)) flood event.

2.0 SITE DATA

2.1 Site Location & Description

The site is located immediately to the north of Derby Street, Prescott, L34 3LG as shown on **CCG** Drawing No. CCG-C-22-13413-1 contained herein. The **ORDNANCE SURVEY** coordinates for the approximate site centre are 346312 392867. It stands at an approximate elevation of c.72maOrdnance Datum.

It comprises an irregular shaped parcel of land which extends to the approximate dimensions of c. 68m x 48m (c. 2240m²), its long axis being on a north – south alignment.

It is bound to the south by public pavements extending along Derby Street (A57), and to the west by an un-named roadway. Its south-eastern boundary is adjoined by commercial premises (Bridal Storey), with its northern and eastern boundaries being adjoined by a series of private gardens associated with residential properties fronting on to Egerton Road and Stanley Crescent respectively.

Existing structures occupying the site comprise a well-maintained 2-storey property fronting on to Derby Street with associated single storey out-buildings to the rear, each constructed of traditional brick and dressed sandstone elevations under pitched roofing materials with a terrace of prefabricated flat roofed garages extending along its northern boundary.

The external topography across the site was seen to be sensibly flat with surface cover comprising generally full hard standing, with lesser areas of soft landscaping to the northeast.

Environmental data contained herein, confirms that the site and its immediate environs have been continually utilised for mixed commercial / residential land uses since the late-1800's through to the present day.

2.2 Access and Egress

Access to the site is currently proposed from the Derby Street frontage to the south, which lies entirely within Flood Zone I and therefore safe dry access above the 1 in 100-year flood level is available.

2.3 Existing and Proposed Development & PPG Classification

By virtue of the proposed land use as residential, the development is classified as '*More Vulnerable*', according to Table 3 of PPG (presented in Appendix C).

3.0 BACKGROUND AND APPLICATION OF PPS25

3.1 Introduction

The aim of PPG is to ensure that flood risk is taken into account at all stages in the planning process and, where relevant, that development is directed away from areas at highest risk of flooding. Where new development is planned in risk areas, then current policy aims are:

- To make the development safe from flooding
- To avoid increasing flood risk elsewhere as a consequence of the development
- To contribute to reducing flood risk overall

3.2 Sequential Test

The proposed development was subjected to the Sequential Test as set out in Table 3 of PPG. For assessment in accordance with the Test, the site was determined by reference to the **ENVIRONMENT AGENCY (EA)** Flood Map to be in Flood Zone I, as defined by PPG. Since the proposed development is residential in a brownfield regeneration area, a "*More Vulnerable*" classification was assigned to it.

Inputting these parameters into the Sequential Test matrix indicated that the development proposal is '*appropriate*' and as such the development satisfies the Sequential Test as required by Table 3 of PPG.

4.0 SITE HYDROLOGY AND HYDROGEOLOGY

4.1 Watercourses & Bodies of Standing Water

EA mapping data indicates the site is situated within a designated Zone I and hence it is concluded that there is a '*Very Low*' Risk of flooding associated with surface water features.

There are no records pertaining to the presence of Surface Water Features and/or Surface Water Bodies within, or within 1km of, the study site. Hence, the risk of flooding associated with these features impacting the site is considered to be '*Insignificant*'.

There are no records relating to the presence of Water Networks (OS MasterMap) within 220m of the study site, the nearest record relating to an inland river / stream being located c.229m northwest of the study site, hence the risk of flooding associated with such features is considered to be '*Insignificant*'.

The **EA** does not have any flood modelling flood data at this site, nor does the **EA** have records pertaining to historical flood events on, or within a 250m radius of, the study site.

There are no areas which are utilised for flood storage and/or flood defences within 250m of the study site.

There are no areas within 250m of the study site which benefit from the presence of flood defences for a 1: 100 plus Climate Change event.

The site is not located within 500m of an area which is identified as being at potential risk of a canal failure.

4.2 Geology, Hydrogeology and Groundwater Flooding

The geology of the site is summarised on **BRITISH GEOLOGICAL SURVEY (BGS)** Sheet No.097 Runcorn (2007): 1:50000 Scale: Solid and Drift Editions. These indicate the site is devoid of natural drift cover. However, given the presence of natural drift deposits comprising impermeable diamicton (boulder clay) of glacial origin (*Late-Quaternary Epoch - Devensian Age*), there is a potential for the presence of unrecorded drift deposits to be present.

The documented solid geology comprises the Pennine Lower Coal Measures Formation (*formerly the Lower Coal Measures*) of the Pennine Coal Measures Group comprising interbedded argillaceous mudstone, siltstones, fluvial sandstones and productive coal measure, of the Upper Carboniferous Period (*Silesian: Westphalian A: Langsettian Age*).

An intrusive ground investigation undertaken by CCG (prepared under Report Reference No. CCG-C-21-12518, dated September 2021) within the curtilage of the study site during August 2018, comprising the sinking of 6nr light dynamic boreholes confirmed the underlying ground conditions to comprise:

Bituminous paving and associated sub-base overlying made ground deposits generally comprising grey / brown clayey sands and gravel extending to depths varying between 0.15m - 0.7mbgl. The sequence thereafter continues in natural drift deposits comprising loose silty, locally gravelly, sands and soft becoming firm brown / grey clay deposits extending to depths varying between 1.5m – 2mbgl. Thereafter, the sequence continued in grey weathered mudstone locally interbedded with thin intact coal, recovered as firm becoming stiff clay and locally as dense sands and gravel.

Slight seepages were reported at some borehole positions during the intrusive investigation, with monitored standing water levels being in the order of 2.21m - 2.32mbgl.

There was no visual and/or olfactory evidence of contamination and/or biodegradable materials affecting the made ground mass at any sampling position.

The underlying made ground deposits classify as an Unproductive Aquifer

The underlying natural drift deposits (Diamicton) classify as a Secondary A Undifferentiated Aquifer

The underlying bed rock formation (Pennine Lower Coal Measures Formation) is classified as a Secondary A Aquifer

The site is not located within a Source Protection Zone

The highest risk of Surface Water Flooding within and/or within 50m of the study site is classified as being '*Negligible*'.

4.3 Surface Water (Pluvial) Flooding

The flood risk data discussed in the GroundSure Report (Report Reference No. CMAPS-AAG-980046-4165-280721, dated July 2021) presented in Appendix B shows a '*Negligible*' risk (*0.1m - 0.3m in a 1: 30 Return Period*) of pluvial flooding affecting the western section of the study site.

4.4 Groundwater Flooding

The flood risk data presented in Appendix B states that there is a '*Negligible Risk*' of groundwater flooding affecting the study site.

4.5 Coastal Flooding

The western site boundary is located c.11km northeast of the River Mersey Estuary, hence there is a '*Very Low Risk*' of flooding from the sea.

5.0 SURFACE WATER RUNOFF

5.1 Requirements for Surface Water Drainage at the Site

PPG requires that surface water arising from a developed site should, as far as is practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to development. Opportunities to reduce surface runoff, and the associated flood risk, should be identified and future effects of climate change should be considered. The relevant calculations are described in this section of the report.

5.2 Surface Water Runoff Rate at the Development Site

This section of the report quantifies the impermeable and permeable areas of the site prior to, and following, the development. As shown on the appended historical environmental data, given that the site has historically been developed as a police station complete with full hard standing, the surface water run-off calculations presented hereunder are based on pre- and post-construction site configurations.

It was calculated that the proportion of impermeable surface cover will decrease significantly following completion of the redevelopment of the site since the post development configuration will incorporate significantly larger areas of newly created landscaping. Notwithstanding this reduction, PPG now requires that climate change be considered in predicting future run-off.

The changes to proportions of permeable/impermeable surfaces from the proposed development are summarised in Table 1 hereunder:

Table 1: Changes to Permeable/Impermeable Areas Post Development

	Prior to development site	Developed Site
Buildings/Roofs Hardstanding	2105m ²	1905m ²
Permeable areas	135m ²	335m ²
Total	2240m²	2240m²

Using the Wallingford Procedure Runoff Equation, and the values contained in Volume 3 of the Wallingford procedure, a percentage runoff can be calculated for the current, and proposed site configurations.

$$PR (\%) = 0.829 \times PIMP (\%) + 25 \times SOIL + 0.078 \times UCWI - 20.7$$

$$SOIL = 0.45$$

$$UCWI = 138$$

$$PIMP \text{ Current site} = 94\%$$

$$PIMP \text{ Proposed Development} = 85\%$$

$$PR (\%) \text{ Current Site} = 79\%$$

$$PR (\%) \text{ Proposed development} = 72\%$$

It can be seen that the post-development percentage run-off (PR-%) rates will decrease by 7% since the post construction impermeable surface cover will decrease from c.2105m² to c.1905m².

Using the Modified Rational Method, the run-off rate was calculated for a range of return periods. A time of concentration of 7.5 minutes was used, comprising a time of entry of 4 minutes and a time of flow of 3.5 minutes. A rainfall estimation calculation was also undertaken for 1, 5, 20 and 100year return period events. The calculated rainfall intensities are 34.3mm/hr, 55.2mm/hr, 77.7mm/hr, and 109mm/hr, respectively. The runoff rates given by the Modified Rational method are as follows:

$$Q = 2.78 \times C_v \times C_r \times \text{rainfall intensity} \times PIMP \times A$$

Table 2: Flow rates given by Modified Rational Method

Return Period	Runoff Rate (Q) Pre-Development	Runoff Rate (Q) Post Development	KMBC SFRA Target Discharge Rate (= -50% Q)	-50% (Q) Pre-Construction Reduction for 1:2yr Critical Events	Greenfield Runoff Rates (Q)
1 in 1 Year	23.75l/s	21.49l/s	10.75l/s	-	0..47/s
1 in 2 Year	27.57l/s	24.95l/s		12.50l/s	-
1 in 5 Year	38.22l/s	34.59l/s	17.30l/s	-	-
1 in 20 Year	53.81l/s	48.70l/s	24.35l/s	-	-
1 in 30 Year	57.15l/s	51.72l/s	25.86l/s	-	0.91l/s
1 in 100 Year	75.12l/s	68.10l/s	34.05l/s	-	1.12l/s
1 in 100 Year + Climate Change (+40%)	105.16l/s	95.34l/s	47.67l/s	-	-

For the 1 in 100year plus climate change (set at 1:100yr + 40%), a post development surface water run-off rate of 95.34l/s was calculated.

This compares with the target value of 12.50l/s calculated for a 1:2-year critical rainfall event (-50%), to provide betterment over existing runoff in accordance with **KNOWSLEY MBC** “Sustainable Drainage and Surface Water Management – Technical Guidance for Developers” (Version 06, August 2016, 2020). However, it is understood that the Lead Local Flood Authority (LLFA) in advising **KNOWSLEY MBC** planning department will only consider the 50% betterment flow rate as an acceptable discharge rate if the entirety of the existing drainage network is utilised without modification.

Given the current and proposed site configurations, it is assumed that this will not be a feasible option, and hence the LLFA will require the

rate of Discharge to Sewer to be either the calculated Qbar value or the generally accepted rate of 5l/sec whichever is the greater (the rate of 5l/sec being the minimum flow to maintain efficient flow through an attenuation outlet valve). Since there is a potential for blockages in Vortex Flow Control systems arising from an intake of vegetation and other detritus, it is recommended that rates of discharge from attenuation systems are set at no less than 5l/s rather than adopting the calculated Qbar values for the 'Greenfield Run-off Rate' to maintain their integrity. It is advised that the drainage design engineers propose these parameters to **UU**. The developer must consider that these are their options unless they can prove that extraordinary circumstances apply. Taking account of these constraints, surface water SUD's measures and/or attenuation will be required.

Subject to agreement with **UNITED UTILITIES**, surface water runoff may be discharged to the drainage network, if present, extending along Derby Street to the south. However, as stated above it is likely that **UU** will not accept any of the Return Period run-off rates calculated for the site and will require the rate to be limited to 5l/sec. In such circumstances, it will be necessary that the developer considers incorporation of supplementary SUDS measures to attenuate runoff in storm conditions.

Calculations for preliminary attenuation design based on 5l/sec discharge rate are presented hereunder:

Table 3: Post Development & Greenfield Run-off / Attenuation Calculations for 1:100^{yr} +CC Event

Unit	Post Development Run-off
Discharge to sewer rate l/sec	5l/s
Runoff rate 1;100yr + CC l/sec	95.34l/s
Accumulation rate l/sec	90.34l/s
Volume per 15m Storm Duration (m ³)	81.30
Length of Attenuation Storage facility based on 2m Ø chamber	25.89

Based on the generally accepted rate of 5l/s, to accommodate the 1:100yr + CC runoff rate for a 15 min' storm duration, a storage volume of 81.3m³ would be needed. This could be accommodated in a 2m diameter pipe of c.28m length (*where: $V = \pi r^2 h = \pi \cdot 1^2 \cdot 25.89 \approx 81.33m^3$*) incorporating a hydro-brake chamber or with discharge regulated by Vortex Flow Control or similar flow-controlled device.

As an alternative to the oversize pipe attenuation, consideration may be given to the construction of a c. 10m x 11m x 0.8m deep (total storage = 88m³) modular cell storage reservoir and associated works (*i.e., sediment catchpit etc.*), which slightly surpasses the calculated 81.30m³ as shown in Table 3 above. Thereafter, the attenuated surface water run-off should be designed to pass through a 'SPEL Stormceptor 300' Series Model 308 Class 1 oil/fuel separator as recommended in Gov.UK: 'Guidance: Discharges to surface water and groundwater: environmental permits' (2016, Revised April 2021) to provide an appropriate level of pollution treatment before being allowed to discharge into the nearby drainage network.

With regards the potential for soakaways, as discussed in Section 4.2 above, an intrusive ground investigation, undertaken by **CCG**, confirmed the prevailing ground conditions to comprise hard paved surfaces and associated sub-base overlying made ground deposits generally comprising grey / brown clayey sands and gravel extending to depths varying between 0.15m - 0.7mbgl. Thereafter the sequence continued in natural drift deposits comprising loose silty, locally gravelly, sands and soft becoming firm brown / grey clay deposits extending to depths varying between 1.5m – 2mbgl where the sequence continued in grey weathered mudstone locally interbedded with thin intact coal, proven to 3mbgl.

Notwithstanding the above, it is recommended that the *Client* commissions the undertaking of *in-situ* soil permeability test in accordance with 'BRE Digest 365 (2016)' at 2nr locations to determine if the underlying ground conditions are suitable for the adoption of natural soakaway drainage systems.

Should the underlying drift deposits be unsuitable for the adoption of soakaway systems, then subject to agreement with **United Utilities** (**UU**), surplus surface water runoff may be accommodated in the nearby drainage network extending along Derby Street to the south, discharging at the generally accepted rate of 5l/sec.

Other SUDS methods may be considered where they are appropriate, and an overview of the common SUDS options is presented below, with those most likely to be appropriate for this site identified in Section 6.13 hereunder.

6.0 SUDS OPTIONS

6.1 Approach to Selection of SUDS Techniques

The underlying ground conditions of a development site will often determine the type of SUDS approach used at development sites for the disposal of surface water runoff, the prevailing conditions being determined through ground investigations carried out on-site. However, in the absence of this information an initial assessment of the site suitability to the use of SUDS can be obtained from the review of the available soils/geological mapping.

The detailed design of any drainage system and SUDS approach, consideration should be given to site specific characteristics and where possible should be based on primary data from site investigations.

Further advice must also be sought in terms of water resources contaminated land, archaeology, ecology etc.

The initial appraisal of SUDS viability will help inform the developer/owner of the various options available for the development and may influence the final layout of the site.

6.2 Alternative SUDS Techniques Background

Traditionally, built developments have utilised piped drainage systems to manage storm water and convey surface water run-off away from developed areas as quickly as possible. Typically, these systems connect to the public sewer system for treatment and/or disposal to local watercourses. Whilst this approach rapidly transfers storm water from developed areas, the alteration of natural drainage processes can potentially impact on downstream areas by increasing flood risk and reducing water quality. Receiving watercourses are therefore much more sensitive to rainfall intensity, volume and catchment land uses after a catchment or areas of a catchment have been developed.

Due to the difficulties associated with upgrading sewer systems it is uncommon for sewer and drainage systems to keep pace with the rate of development/redevelopment and the increasingly stringent controls placed on discharges to watercourses. As development progresses and/or urban areas expand, these systems become inadequate for the volumes and rates of storm water they receive, resulting in increased flood risk and/or pollution of watercourses. Allied to this are the implications of climate change on rainfall intensities, overwhelming catchment responses and surcharging piped systems.

In addition, as flood risk has increased in importance within planning, a disparity has emerged between the design of conventional sewer systems (1 in 30yr) and the typical design event (1 in 100yr). This often results in drainage inadequacies for the flood return period developments need to consider, often resulting in potential flood risk from surface water sewers and combined sewer systems.

A sustainable solution to these issues is to reduce the volume and/or rate of water entering the sewer system and watercourses.

6.3 What are Sustainable Drainage Systems

Sustainable Drainage Systems (SUDS) are the preferred method (as set by the Environment Agency, Government and Building Regulations) for managing the surface water runoff generated by developed sites. SUDS seek to manage surface water runoff as close to the source as possible. Typically, this approach involves a move away from piped systems to softer engineering solutions inspired by natural drainage processes, where adoptable drainage criteria allow.

In addition, they should be designed to consider the surface water run-off quantity, rates and also water quality ensuring their effective operation up to and including the 1 in 100year design event.

Where possible a SUDS technique should seek to contribute to each of the three goals identified below with the favoured system contributing significantly to each objective:

- Reduce flood risk (to the site and to neighbouring areas)
- Reduce pollution
- Provide landscape and biodiversity benefit

In keeping with the guidance of Planning Policy Statement 25, Local Planning Authorities encourage the application of SUDS techniques.

Typically, the application of SUDS techniques is not limited to one technique per site. Often a successful SUDS solution will utilise several techniques in combination, providing flood risk, pollution, and biodiversity benefits. In addition, SUDS can be employed on a strategic scale, for example with several sites contributing to large scale jointly funded and managed SUDS.

6.4 SUDS Techniques

SUDS techniques can be used to reduce the rate and volume and improve the water quality of surface water discharges from sites to the receiving environment (*i.e.*, *natural watercourse or public sewer etc*). Various SUDS techniques are available; however, the techniques operate on two main principles:

- Infiltration
- Attenuation

All systems generally fall into one of these categories, or a combination of the two.

The design of SUDS measures should be undertaken as part of the drainage strategy and design for a development site. A ground investigation is normally required to assess the suitability of using infiltration measures, with this information being used to assess the required volume on site storage. Hydrological analysis is undertaken using industry approved methods.

The viability of alternative SUDS techniques needs to be robustly assessed on an individual site basis as part of this Flood Risk Assessment taking account of the following:

- Underlying geology and the results of on site Geo-Environmental Investigations
- Proximity of groundwater table
- Long term maintenance and management of the SUDS asset
- Sewerage undertakers' criteria relating to any public sewer systems that would rely upon the function of the SUDS asset
- Environment Agency criteria relating to the protection of underlying groundwater and water resources
- Contaminated land issues

During the detailed design process of the SUDS liaison should take place with the Local Planning Authority, the Environment Agency, and United Utilities in order to establish that the design methodology is satisfactory and to also agree a permitted rate of discharge from the site.

Building regulations advise that a SUDS hierarchy be followed to select the appropriate solution for a development site, with preference given to infiltration techniques over attenuation systems, provided that underlying conditions allow.

6.5 Infiltration SUDS

This type of Sustainable Drainage System relies on discharges to ground, where suitable ground conditions allow. Therefore, infiltration SUDS are reliant on the local ground conditions (*i.e.*, permeability of soils and geology, the groundwater table depth, and the importance of underlying aquifers as water resources etc) for their successful operation.

Various infiltration SUDS techniques are available from directing the surface water run-off to ground. However, development pressures and a desire to maximise development potential often result in typically small land areas available for infiltration systems. Small areas allied to the rapid rates of run-off generation often require some form of supplementary attenuation as part of the infiltration system. The storage may be provided in the sub-base of a permeable surface, within the chamber of a soakaway, as a pond/water feature, or within underground storage pipes

Infiltration measures include the use of permeable surfaces and other systems that are generally located below ground.

6.6 Permeable Surfaces

Permeable surfaces are designed to allow water to drain through to a sub-base at a rate greater than the rain that falls to the surface. Permeable surfaces act by directly intercepting the rain that falls and are therefore true source controls. In theory, this system would prevent

any surface water running off the site. However, it is impractical to design permeable surfaces to directly infiltrate intense rainfall events. The permeable sub-base can be used to temporarily store infiltrated run-off underground allowing it to percolate into the ground below. Alternatively, stored water within sub-base can be discharged from the site.

Maintenance programmes will need to ensure that the surface is kept clear of silt and voids are clear. The use of grit and salt during the winter months will adversely affect the drainage potential of paved surfaces, however this should not be required often as ice is less likely to form on these types of surfaces.

Grass/Landscaped Areas: Grassed or landscaped areas provide a permeable surface that allows for the infiltration of rain falling onto these areas, and potentially also run-off from adjacent impermeable areas. Grassed or landscaped areas are some relatively inexpensive SUDS measure however they are likely to be restricted to where vehicles are not present.

Reinforced Grass: Techniques are available that allow grass to be incorporated into a pavement type surface. These provide varying ratios of hard pavement to grass dependant on the site requirements. These range from concrete block arrangements to plastic meshes and can be utilised in those areas where the hard permanence of typical pavement might be undesirable, such as in conservation areas, roadside verges, emergency services access, canal towpaths, farm tracks, rural settings etc. In the past, these systems have been typically adopted for situations where a load bearing surface is required to fit into the surrounding environment, however these systems are often now installed for surface water management purposes. The grass: hard pavement ratio is one of the dominant factors that determine the rate of infiltration through to sub-surface.

Gravel: A bed of gravel with a high void space on a permeable sub-base offers a cost-effective solution for trafficked areas. Rain falling directly onto the area is able to infiltrate through to the subbase.

Solid paving with Void Spaces: Solid paving can be installed in such a way that voids are present that can be in-filled with a permeable material such as grass or gravel etc. If this is to be used as a SUDS measure, a permeable sub-base is required to allow infiltration into the underlying ground and/or temporary storage to attenuate discharges.

Permeable Pavements: Permeable pavements allow the rain falling directly onto the area to infiltrate through into a sub-base and where suitable, through into the underlying strata. Permeable pavements are constructed using porous concrete blocks. Small projects of less than 100m² (depending on sub-grade permeability can often be managed using 100% infiltration, whereas larger schemes will often require a combined system, with some form of attenuation as back up for periods of exceptional flows. The use of geo-membranes can trap pollutants and prevent them being carried into the environment. The use of geo-membranes can trap pollutants and prevent them being carried into the receiving environment. The use of an impermeable membrane beneath the subbase will work to contain any pollutants within the sub-base. One major advantage of tanked permeable paving systems is that any significant contamination, for example a diesel spillage, will be restricted to the immediate area and not transported into local sewers or watercourses. The performance of permeable pavements will dramatically decrease over a period of time with the clogging of voids, and this should be taken into consideration during the design process and maintenance.

6.7 Sub Surface Infiltration

Where permeable surfaces are not a practical option, more defined infiltration systems are available. In order to infiltrate run-off into the ground, a storage system is provided that allows the infiltration of the stored water into the surrounding ground through both the sides and bottom of the storage. These systems are constructed below ground and therefore may be advantageous with regards to the developable area of the site, however consideration needs to be given of construction methods and maintenance access to any development that takes place over an underground infiltration system. Consideration is also needed of the depth to the groundwater table. The provision of large volumes of infiltration /storage underground has potential cost implications and infiltration devices should not generally be built within 5m of a building, under a road or on soil that may dissolve or be washed away, in line with Building Regulations advice.

Geocellular Systems: Modular block systems can be used to provide an underground infiltration facility. The modular structures are usually made of plastic and can be stacked side by side or on top of each other to construct an infiltration/storage unit of the required size. The

modular blocks are usually sited upon a highly permeable sub-base through which the surface water run-off is discharged (usually through perforated pipes). The outlet from the pipes is restricted which causes the run-off to rise up through the sub-base into a geocellular storage system. The storage systems are usually tanked with a geomembrane. These types of systems are quick and easy to install, flexible in their configuration, and have minimal maintenance requirements (providing the inflow of silt is limited). While many manufacturers claim that their products are suitable for installation beneath roadways or car parks, their use in these areas should be taken with caution. Geocellular systems can also be utilised for providing storage without infiltration to attenuate discharge rates. In these situations, the system is tanked with a geomembrane or similar.

Filter Drain: A filter drain is a trench that contains a perforated or porous pipe that runs along its bottom. The trench is filled with a suitable filler material, granular material, or lightweight aggregate fill, all with high void space. The fill may be exposed at the ground surface or capped with turf, topsoil etc that allow the trench to flood (i.e., not an impermeable surface that could pressurise the trench). Surface water run-off generated by the site is directed through the perforated pipe which then flows into the trench and infiltrates into the surrounding ground. Filter drains have been used extensively for highways and car parking areas, where they generally been constructed in the verge and median strip.

Soakaway (Chamber): Surface water run-off is directed to a chamber set in the ground with holes in the sides and base. This allows the stored water to soak into the ground. The storage capacities of soakaway chambers are limited and therefore they are more suitable for dwellings than large, developed areas. The chambers are prone to silting up over time and therefore, need regular maintenance

Soakaway (Trench): Where the liner space is available, soakaways that use a trench rather than a chamber may be used to manage the runoff from larger areas.

Soakaway (Granular Soakaway): Similar to a filter drain, a soakaway (either chamber or trench) filled with a high percentage void, granular material can be used to store surface water runoff as it is infiltrated into the surrounding ground. The granular fill will offer structural strength to the soakaway although the storage volume will be substantially reduced.

6.8 Attenuation SUDS

Where site ground conditions are deemed unsuitable for the widespread implementation of infiltration techniques, the surface water runoff discharged from a site will need to be attenuated utilising on site attenuation storage. While this is a SUDS technique that will reduce the rate of discharge from the site, the overall volume will not be minimised using on site storage alone. An important factor that needs to be taken into consideration when assessing the suitability of on-site storage as part of a proposed development is the volume required and the associated impacts the storage will impose on development proposals and risks to neighbouring properties.

Should the use of infiltration to either partially or fully dispose of the water runoff from a developed site be found to be unfeasible, on-site storage will be required to attenuate the discharge from the site. An allowable rate of discharge will need to be agreed with the Environment Agency, United Utilities, and the Planning Authority. This can have significant implications to the proposed development with regard to the large volume of storage that may be required. On site storage can be constructed above ground or below ground, the above ground systems usually being cheaper on a cost per m³ of storage basis. It should be noted, however, that below ground systems may pose less constraints on the developable area of the site.

6.9 Basins

Basins are areas that have been re-profiled (or alternatively embanked) to allow for the temporary storage of runoff from a developed site. Basins are drained in such a way that ensures that they are free from water in dry weather. Therefore, between periods of rainfall they can be used for other purposes such as open public space, recreation etc. Basins treat run-off in a variety of ways i.e., settlement of solids in still water, absorption by aquatic vegetation by aquatic vegetation or biological activity etc. the construction of basins uses relatively simple techniques. Local varieties of vegetation should be used wherever possible and should be fully established before the basins are used. Access to the basin should be provided such that a maintenance programme can be implemented. This would include inspections, regular cutting of grass, annual clearance of aquatic vegetation and silt removal as required.

Detention Basins: A detention basin is designed and constructed to store surface water run-off temporarily in order to attenuate flows over a minimal period of time. Detention basins provide better flow attenuation than floodplains as they store water until the flood has passed. The stored water is then released at a controlled rate after the storm to avoid flooding downstream. If the runoff is held back for long enough, solids start to settle out of the water, which improves water quality.

Extended Detention Basin: If the period of detention increases to approximately 24hrs, the basin is referred to as an extended detention basin. This results in surface water runoff being stored beyond the time normally required for attenuation which provides extra time for natural processes to remove some of the pollutants in the water.

6.10 Ponds

Ponds are similar to basins except that the outflow is configured such that a volume of water is contained during dry weather, usually for amenity, recreational or agricultural purposes. Ponds are designed to hold the additional surface water runoff generated by the site during rainfall events. Like basins, ponds are designed to control discharge rates by storing the collected runoff and releasing it slowly once the risk of flooding has passed. Ponds can provide wildlife habitats, water features to enhance the urban landscape and where quality and flooding risks are acceptable, they can be used for recreation. It may be possible to integrate ponds and wetlands into public area to create new community ponds. Ponds and wetlands trap silt which may need to be removed periodically. Ideally, the contaminants should be removed at source to prevent silt from reaching the pond or wetland in the first place. In situations where this is not possible, consideration should be given to a small detention basin placed at the inlet to the pond in order to trap and subsequently remove the silt. Depending on the setting of a pond, health and safety issues may be important issues that need to be taken into consideration. The design of the pond can help minimise any health and safety issues (i.e., shallower margins to the pond to reduce the danger of falling in). A fence may also be required for keeping children and wildlife out.

Balancing/Attenuating Ponds: A balancing or attenuation pond is designed only to store surface water run-off and attenuate discharge until the flood/storm peak has passed. Therefore, storage periods may not be long enough to significantly improve water quality capacity compared with ponds with longer retention times. They contain some water at all times with the water level fluctuating as the runoff passes through the device.

Flood Storage Reservoirs: Flood storage reservoirs are very similar to balancing/attenuation ponds except that they are usually much larger. They are generally used to attenuate fluvial flood flows rather than the surface water run-off from developed areas and are therefore likely to be utilised as a SUDS measure. Should an existing flood storage reservoir in the vicinity of the proposed development be identified to offer spare capacity, then depending on ownership and agreement, it may be possible to utilise the spare capacity for storm water management of development areas.

Lagoons: Should the surface water run-off have high suspended solids content; a lagoon could be a suitable method for attenuating its discharge to the receiving environment. Lagoons are similar to balancing /attenuation ponds except that they are also designed for the settlement of suspended solids. Usually, they are long and narrow in shape to ensure the longest retention time and therefore an efficient removal of suspended solids. However, lagoons are usually free of vegetation and therefore do not provide any biological treatment.

Retention ponds: Retention ponds are designed to detain the surface water run-off for periods between several days and two weeks. This allows for a higher level of settlement, biological treatment, and limited attenuation of flows. Retention ponds provide a greater degree of treatment than extended detention basins.

Wetlands: A wetland is similar to a pond except that it has a high proportion of emergent vegetation in relation to open water. Wetlands use plants to make the treatment of surface water run-off more efficient and can allow detention times required to fully treat the run-off to be reduced to a couple of weeks. Constructed wetlands are ponds with irregular perimeters and undulating bottom contours into which the wetland vegetation is purposely placed to enhance pollutant removal from surface water runoff. Surface water run-off enters a constructed wetland through a forebay where larger solids and coarse organic material settle out. The run-off discharged from the forebay passes through emergent vegetation which acts to filter organic materials and soluble nutrients. The use of constructed wetlands can be looked at

from two perspectives. The first is that the wetland is primarily used to maximise pollutant removal from storm water flows. Alternatively, it may be used primarily to control storm water flows, with increased pollutant removal capabilities.

6.11 Alternative forms of Attenuation

In many situations the development of a site may involve proposals that would inhibit the use of basins or ponds as a means of managing surface water run-off discharged from the site. This may be due to land take, economic feasibility, or other issues such as health and safety etc. In these situations, it may be appropriate to use a storage option that is viewed as being more 'engineered' than an open basin or pond. Most of these methods involve the provision of storage beneath the ground surface, which may be advantageous with regards to the developable area of the site; however, consideration needs to be given to construction methods, maintenance access and to any development that takes place over an underground storage facility. The provision of large volumes of storage underground also has potential cost implications.

Deep Shafts: Deep shafts can be utilised in areas with low groundwater tables. Shafts have small footprints and are therefore useful on sites with low land availability. However, pumping from the shaft into the receiving drainage network may be required. Therefore, substantial mechanical and electrical works may be required as potentially would major civil engineering requirements. With a relatively small cross-sectional area, a shaft would be prone to siltation at a rapid rate depending on the quality of the run-off. Therefore, a maintenance programme would be required as would regular servicing of any pump works.

Oversized pipes: Over sizing the pipes that make up the on-site drainage network is a cost-effective method that is often used for providing attenuation storage within the network. The main drawback with using this method is that it can be very difficult to obtain the required level of storage as the pipe diameters are often restricted by depth of cover (vertical distance between top of pipe work and ground surface) available and the need to gravity drain into an existing network. A solution to this is to lay multiple pipes side by side; however, this increases the excavation areas and may also place restrictions on the development footprint. The use of oversized pipes is not an effective method of providing on site storage if the network is at a relatively steep gradient. This is because the storage at the upstream end of the pipe is unlikely to be utilised.

Rainwater Harvesting: Rainwater harvesting is the process of collecting rain that falls directly onto roofs (and in some cases hardstanding areas) such that it can be re used for non-potable uses around the home or business (typically flushing toilets, car washing and irrigation etc). The simplest form of rainwater harvesting involves the collection of run-offs from a roof via a water butt situated at the bottom of a down pipe. This water can then be used for irrigation. For systems where the collected run-off is to be used for toilet flushing, washing machines etc, it is likely that the water would be pumped from a storage tank installed on the grounds of the property. Packaged systems are available although the costs (including ongoing maintenance) may outweigh the payback in terms of reduced water supply charges. The use of rainwater harvesting fits well with the overall water cycle, as it may assist with a minor reduction in volumes of off-site run-off 'post development' together with reducing overall demand for potable water.

Tanks: The use of tanks for the provision of storage to attenuate surface water runoff is varied in the number of options available. While most storage tanks are installed beneath the ground surface, above ground storage tanks may be feasible as part of industrial or commercial type developments where amenity issues or space are not significant restrictions. Tanks are likely to be prefabricated but could also be constructed in-situ for below ground concrete tanks. Plastic and Glass Reinforced Plastic Tanks are also often utilised with sizes up to 25m² being available off the shelf (although larger tanks used above ground may have additional reinforcing requirements). Consideration must be given to below ground tanks with regards to cover depths, load bearings, and also invert depths should the tank be drained by gravity. The storage requirements need to be based on a sound hydrological assessment as under-sizing the tank would be costly to remediate.

Green Roofs: A roof area that is used for growing appropriate types of vegetation which provides a degree of retention and attenuation, it also promotes evapotranspiration. In addition, vegetation and substrate can absorb a range of pollutants. Green roofs are more suitable for public and institutional buildings that have good maintenance programmes and support. Green roofs are available in both prefabricated and in-situ construction; however, they are heavy systems and can have major structural implications for buildings and are usually impractical to retrofit.

6.12 Combined Infiltration/Attenuation Systems

In most situations, SUDS systems include both infiltration and storage, and most of the techniques identified above can be used in combination. Dedicated infiltration and attenuation systems may also include swales and filter strips.

Swales: A swale is a grass lined channel designed to control both the flow rate and quality of the surface water run-off that is generated by the adjacent site. Not only does the water run down the sides of the swale at reduced speed, but it can also be slowed further as it flows along the channel before being discharged from the site. This detention of the runoff also increases the infiltration from the swale.

Filter strips: A filter strip runs along the edge of a permeable area and is sloped to allow the sheet flow across the vegetated strip. Unlike a swale however, no storage is offered other than what is held back by the vegetation. The overland flow across the filter strip is likely to run into a water course at some point rather than being formally collected and discharged at a controlled rate from the site.

6.13 SUDS Options Appraisal

Taking account of the context setting of the site, it is strongly preferred that surface water runoff be wholly directed into the **UNITED UTILITIES (UU)** drainage system, and consultations should be made with UU to determine the feasibility of this. However, should supplementary SUDS be required by **UU**, or for conformity with design accreditations *e.g.*, **BREAM**, then the following comments are made:

- Natural rainwater infiltration *via* natural soak-a-ways should always be the prime objective wherever this may be feasible.

With regard to the adoption of soakaways, the above referenced intrusive ground investigation report confirm the prevailing ground conditions at this site to comprise hard paved surfaces and associated sub-base overlying made ground deposits generally comprising grey / brown clayey sands and gravel extending to depths varying between 0.15m - 0.7mbgl. Thereafter the sequence continued in natural drift deposits comprising loose silty, locally gravelly, sands and soft becoming firm brown / grey clay deposits extending to depths varying between 1.5m – 2mbgl, thereafter the sequence continued in grey weathered mudstone locally interbedded with thin intact coal, proven to 3mbgl.

Notwithstanding this, the *Client* is advised to undertake determinations of soil infiltration rates in accordance with 'BRE Digest 365' to confirm if the overlying deposits are suitable for the adoption of soak-a-way drainage.

- Should the underlying made ground deposits be unsuitable for the adoption of soakaway systems, then subject to agreement with **UU**, the surface water runoff rate may be accommodated in the drainage network extending along Derby Street to the south, although in keeping with current policy objectives, it is unlikely that **UU** will accept the calculated unregulated run-off rates, and taking account of the strategic discharge target set by **KNOWSLEY MBC**, it is highly likely that attenuation measures will be required.

In considering the foregoing recommendations, it should be borne in mind that the purpose of this FRA is to demonstrate that simple practical measures can be adopted to achieve the objectives of PPG. Detailed design of the adopted systems is outside the scope of this assessment.

7.0 CONCLUSIONS AND RECOMMENDATIONS

- It is concluded that the site is situated within an **EA** designated Flood Zone I as defined by PPG
- Since the proposed development is residential in a brownfield regeneration area, a "*More Vulnerable*" classification is assigned
- Inputting these parameters into the Sequential Test matrix indicated that the development proposals satisfy the Sequential Test
- It is concluded that the site is not located within an **EA** designated Source Protection Zone
- **OS** mapping illustrates that the western site boundary is located c.11km northeast of the River Mersey Estuary, hence there is a '*Very Low Risk*' of flooding from the sea.
- There are no records pertaining to the presence of Surface Water Features and/or Surface Water Bodies within, or within 1km of, the study site. Hence, the risk of flooding associated with these features impacting the site is considered to be

insignificant.

- There are no records relating to the presence of Water Networks (OS MasterMap) within 220m of the study site, the nearest record relating to an inland river / stream being located c.229m northwest of the study site, hence the risk of flooding associated with such features is considered to be '*Insignificant*'.
- The **EA** does not have any flood modelling flood data at this site, nor does the **EA** have records pertaining to historical flood events on, or within a 250m radius of, the study site.
- There are no areas which are utilised for flood storage and/or flood defences within 250m of the study site
- There are no areas within 250m of the study site which benefit from the presence of flood defences for a 1: 100 plus Climate Change event.
- The site is not located within 500m of an area which is identified as being at potential risk of a canal failure
- The flood risk data discussed in the GroundSure Report presented in Appendix B shows a '*Negligible*' risk (*0.1m - 0.3m in a 1: 30 Return Period*) of pluvial flooding affecting the study site
- The flood risk data presented in Appendix B states that there is a '*Negligible Risk*' of groundwater flooding affecting the study site.
- It is calculated that post-construction impermeable surface cover will alter decrease from c.2105m² to c.1905m²
- For the 1 in 100year plus climate change (set at 1:100yr + 40%), a post development surface water run-off rate of 95.34l/s was calculated
- The appended calculations (presented in Appendix D) confirm greenfield runoff rates for the overall site to be 0.47l/s for a 1:1yr event, 0.91l/s for a 1:30yr event and 1.12l/s for a 1:100yr event respectively, with Qbar (l/s) (mean annual greenfield peak flow) being in the order of 0.54l/s.
- Natural rainwater infiltration *via* soakaways should be a prime objective wherever this may be feasible. With regard to the adoption of soakaways on this site, since the natural drift geology comprises clayey sand overlying impermeable boulder clay underlain with grey weathered mudstone it is likely that the site is not suitable for the adoption of soakaways. Notwithstanding this, it is recommended that the *Client* commissions the undertaking of *in-situ* soil permeability test in accordance with 'BRE Digest 365 (2016)' at 2nr locations to determine if the underlying ground conditions are suitable for the adoption of natural soakaway drainage systems.
- Since the underlying ground conditions may not be suitable for the adoption of soakaway systems, then subject to agreement with **UU**, the surface water runoff rate may be accommodated in the existing drainage network extending along Derby Street to the south, although in keeping with current policy objectives, it is unlikely that **UU** will accept the calculated unregulated run-off rates, and taking account of the strategic discharge target set by **KNOWSLEY MBC**, it is highly likely that attenuation measures will be required. – see Section 6.13 above

7.1 Surface Water Run-off Attenuation

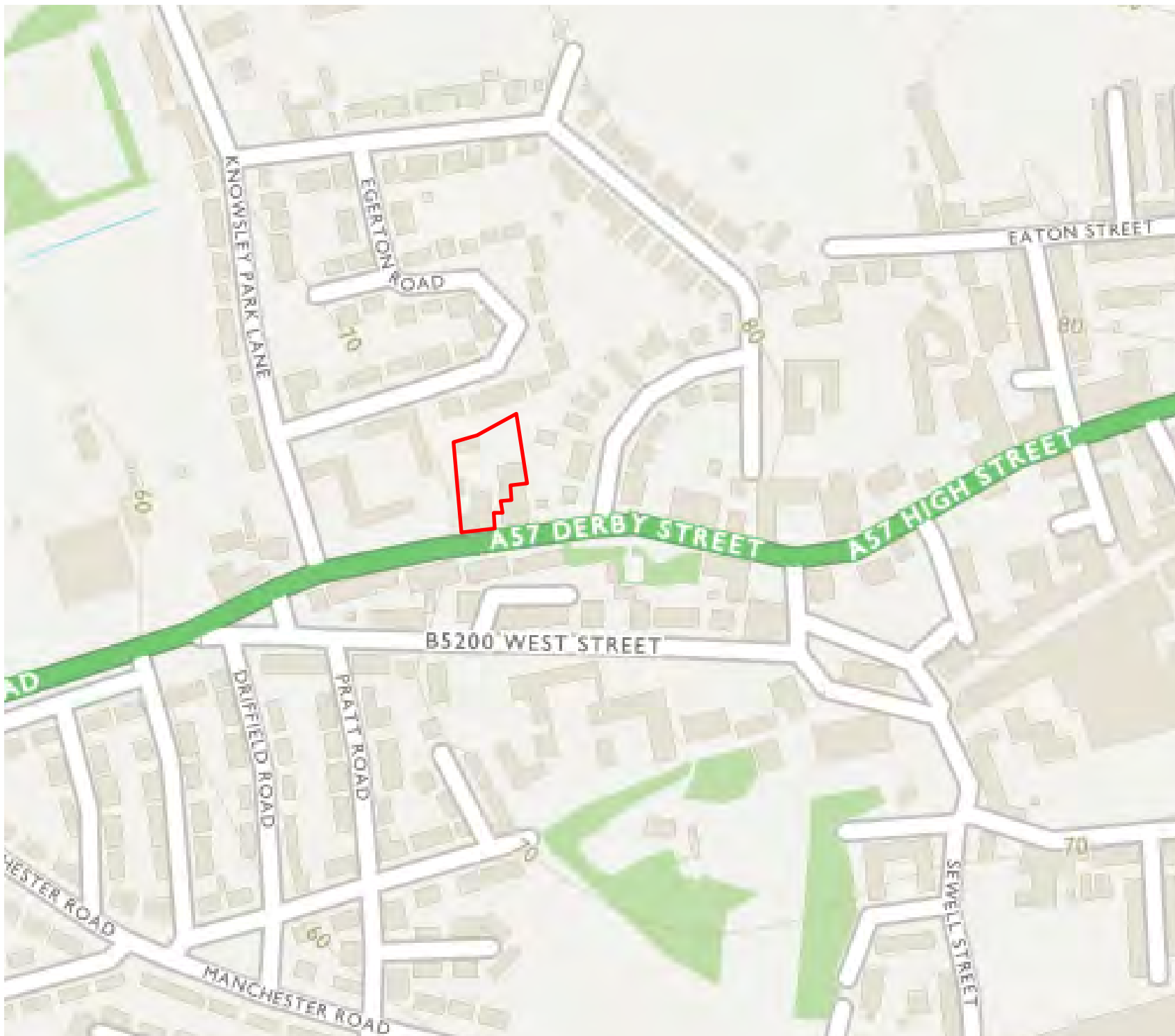
- Based on the calculated post construction impermeable surface covering the proposed development will induce calculated run-off rate of c.95.34l/s for a 1-100yr event + Climate Change
- This compares with the target value of 12.50l/s calculated for a 1:2-year critical rainfall event (-50%), to provide betterment over existing runoff in accordance with **KNOWSLEY MBC** '*Sustainable Drainage and Surface Water Management – Technical Guidance for Developers*' (Version 06, August 2016, 2020). However, it is understood that the Lead Local Flood Authority (LLFA) in advising **KNOWSLEY MBC** planning department will only consider the 50% betterment flow rate as an acceptable discharge rate if the entirety of the existing drainage network is utilised without modification.
- Based on the generally accepted rate of 5l/s, to accommodate the 1:100yr + CC runoff rate for a 15 min' storm duration, a storage volume of 81.3m³ would be needed. This could be accommodated in a 2m diameter pipe of c.25.89m length (where: $V = \pi r^2 h = \pi \cdot 1^2 \cdot 25.89 \approx 81.33m^3$) incorporating a hydro-brake chamber or with discharge regulated by Vortex Flow

Control or similar flow-controlled device.

- As an alternative to the oversize pipe attenuation, consideration may be given to the construction of a c. 10m x 11m x 0.8m deep (total storage = 88m³) modular cell storage reservoir and associated works (*i.e., sediment catchpit etc.*), which slightly surpasses the calculated 81.30m³ as shown in Table 3 above. Thereafter, the attenuated surface water run-off should be designed to pass through a 'SPEL Stormceptor 300' Series Model 308 Class 1 oil/fuel separator as recommended in Gov.UK: 'Guidance: Discharges to surface water and groundwater: environmental permits' (2016, Revised April 2021) to provide an appropriate level of pollution treatment before being allowed to discharge into the nearby drainage network.
- Notwithstanding the above calculations and notwithstanding the fact the site and its immediate environs have been historically developed for commercial land uses since Late 1800's, for drainage purposes, the site classifies as 'Greenfield' in a 'Brownfield' setting and therefore operation of the attenuation system should take account of the **LLFA** and **KNOWSLEY MBC 'Sustainable Drainage and Surface Water Management'** (2016) requirement that the 'Greenfield' discharge rate of 5l/s be adopted as the basis of discussion with **UU**

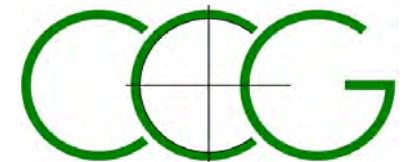
DRAWINGS:

22-13413-1 – SITE LOCATION PLAN
22-13413-2 – AERIAL PHOTOGRAPH



DO NOT SCALE

Notes: Study Site



CC GEOTECHNICAL LIMITED
UNIT 1 DELTIC WAY
KNOWSLEY INDUSTRIAL ESTATE
LIVERPOOL
L33 7BA
0151 545 2750

Client:
Prima Group

Project:
Former Prescott Police Station, Derby Road

Title:
Aerial Photograph

Scale:
NTS

Issue:
01

Drawn by:
DG

Date:
September 2022

Project No.
CCG-C-22-13413

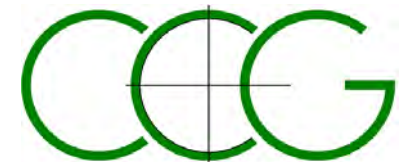
Drawing No.
01

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Notes: Study Site



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UNIT 1 DELTIC WAY
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0151 545 2750

Client:
Prima Group

Project:
Former Prescot Police Station, Derby Road

Title:
Aerial Photograph

Scale:
NTS

Issue:
01

Drawn by:
DG

Date:
September 2021

Project No.
CCG-C-22-13413

Drawing No.
02

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EGERTON ROAD

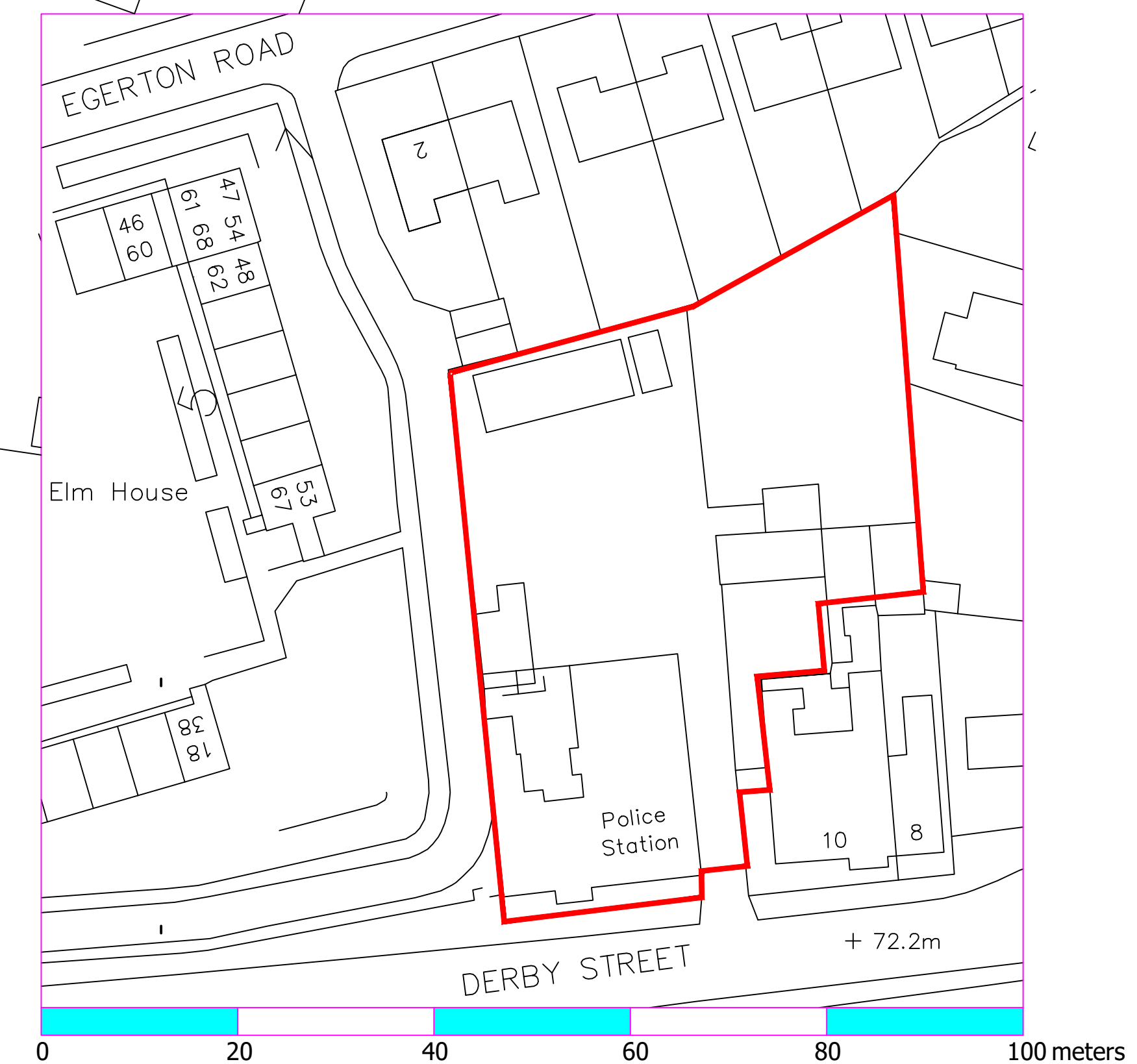
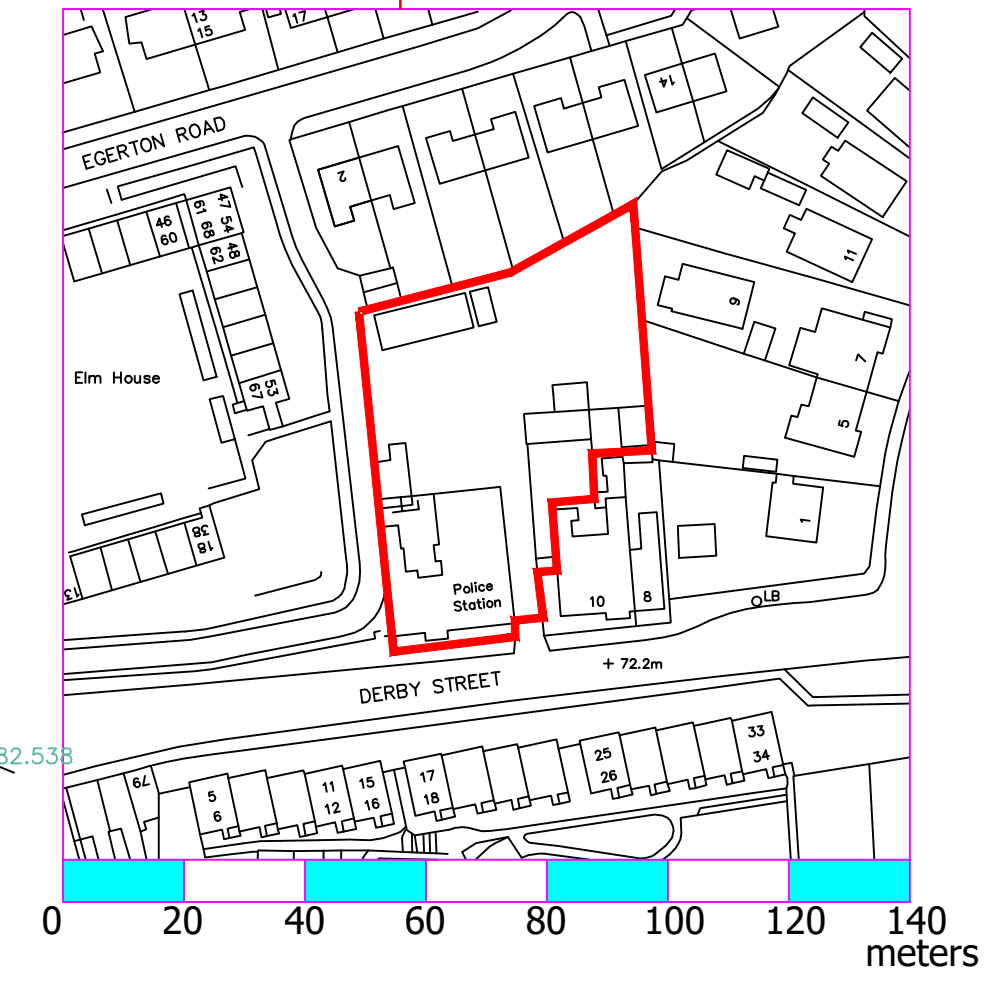
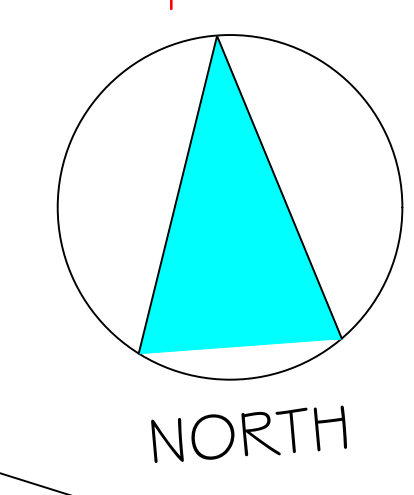
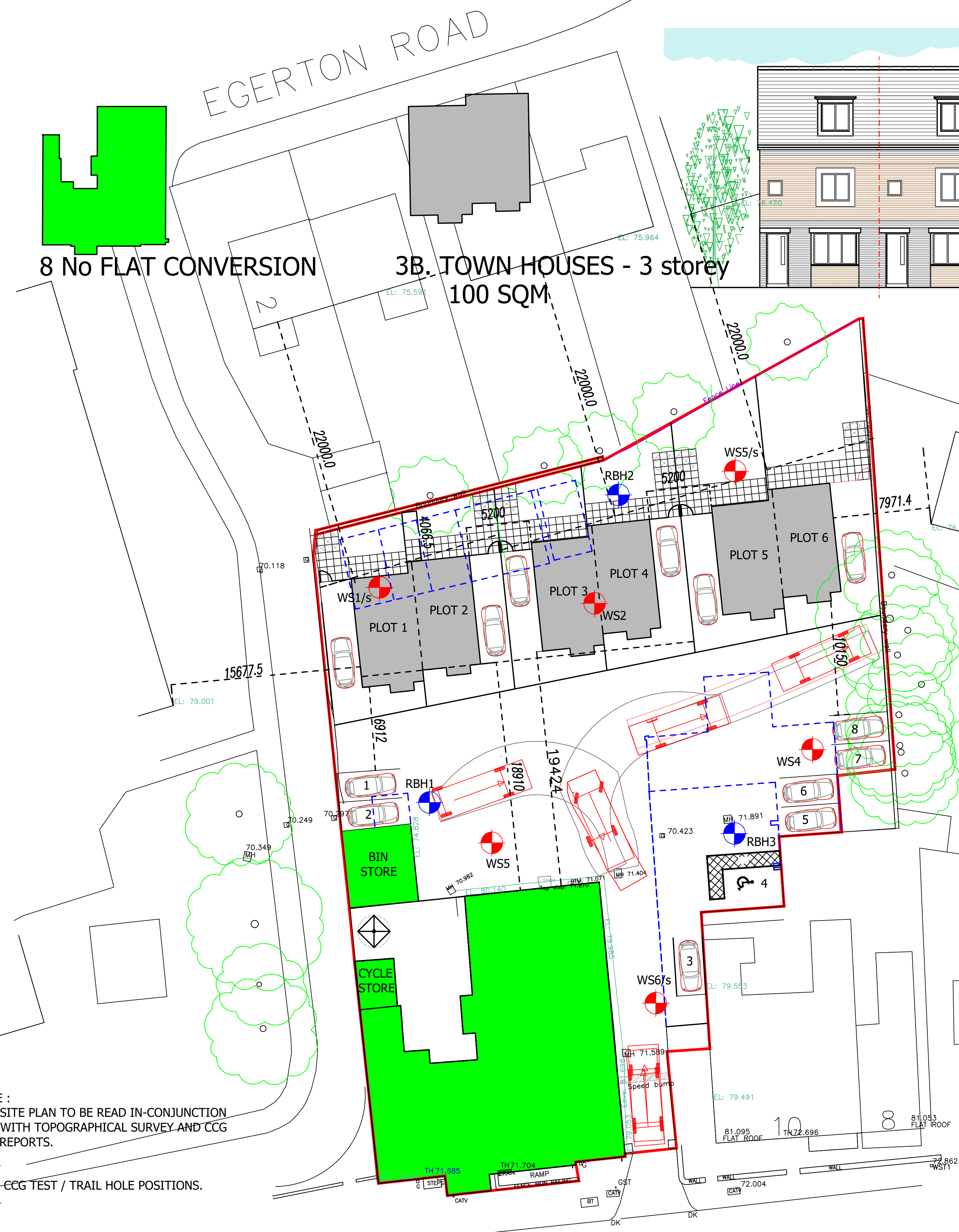
8 No FLAT CONVERSION

3B. TOWN HOUSES - 3 storey
100 SQM



NOTE :
SITE PLAN TO BE READ IN-CONJUNCTION
WITH TOPOGRAPHICAL SURVEY AND CCG
REPORTS.

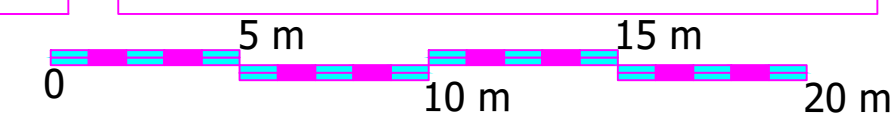
CCG TEST / TRAIL HOLE POSITIONS.



PROPOSED SITE PLAN. PRESCOT POLICE STATION

DERBY STREET

PRIMA GROUP.		DWG TITLE EXISTING AND PROPOSED SITE PLAN.	
		JOB PRESCOT POLICE STATION, DERBY ST , PRESCOT , L34 3LG	
DRAWN	DF.	DATE	OCT'20.
SCALE	1:200@A1.	DWG No	102-01F



APPENDIX A: NOTES ON LIMITATIONS

**Standard Terms and Conditions of Engagement
Notes on Limitations
For
Geoenvironmental and Geotechnical Consultancy Services**

General

CC GEOTECHNICAL LTD has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from **CC GEOTECHNICAL LTD** and a charge may be levied against such approval.

CC GEOTECHNICAL LTD accepts no responsibility or liability for:

the consequences of this document being used for any purpose or project other than for which it was commissioned

and/or

the consequences of use of this document by any party with whom an agreement has not been executed.

Phase I Environmental Audits / Desk Studies

The work undertaken to provide the basis of a Phase 1 Desk Study report comprises a study of available documented information from a variety of sources (including the client), together with (where appropriate) a walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in a Desk Study report have been dictated by finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in the report, **CC GEOTECHNICAL LTD** reserves the right to review such information and to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Environmental Audits

The investigation of the site has been carried out with the intention of providing sufficient information concerning the type and degree of contamination, and ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated to potential human targets, building materials, the environment (including adjacent land), and surface and groundwater.

The amount of exploratory work and chemical testing undertaken may have been restricted by the timescale available, and the locations of the exploratory holes may have been restricted to areas unoccupied by the building(s) on the site, and further restricted by the existence of buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues may need to be resolved.

For those reasons, if costs have been included in relation to site remediation these must be considered as tentative only and must, in any event, be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, investigate only a small volume of the ground in relation to the size of the site, and can only provide a general indication of site conditions. The number of sampling points and the methods of sampling and testing do not preclude the existence of localised “hotspots” of contamination where concentrations may be significantly higher than those actually encountered.

Geoenvironmental Ground Investigations

The investigation of the site has been carried out to provide sufficient information within the agreed scope of the investigation, under the general headings of type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions, to provide a reasonable assessment of the environmental risks together with engineering and development implications.

If costs have been included in relation to the site remediation, these must be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, investigate only a small volume of the ground in relation to the size of the site, and can only provide a general indication of the site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site of each of the exploratory holes. There may be ground conditions present on the site which have not been disclosed by this investigation, and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal, weather, or other effects.

The risk assessment and opinions provided, inter alia, take into consideration currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

APPENDIX B: COMMERCIAL FLOOD INSIGHT REPORT

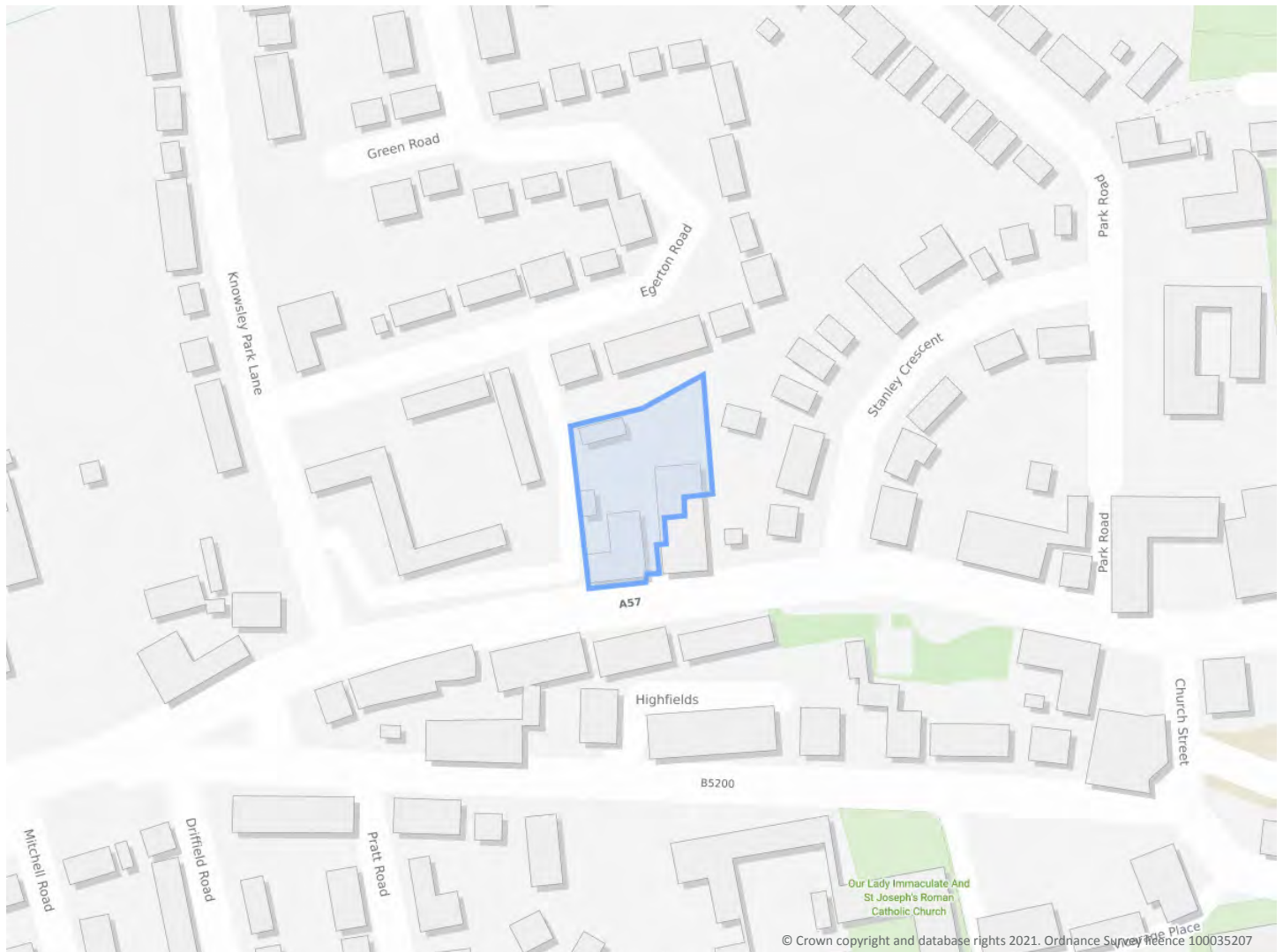
Prescot Police Station, L34 3LG

Order Details

Date: 28/07/2021
Your ref: 4165
Our Ref: CMAPS-AAG-980046-4165-280721EDRGEO
Client: CENTREMAPS

Site Details

Location: 346312 392867
Area: 0.23 ha
Authority: [Knowsley Metropolitan Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

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Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	4	0	19	80	-
17	1.2	Historical tanks	0	0	7	24	-
19	1.3	Historical energy features	0	0	1	19	-
20	1.4	Historical petrol stations	0	0	0	0	-
20	1.5	Historical garages	0	0	1	7	-
21	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
22	2.1	Historical industrial land uses	7	0	27	97	-
27	2.2	Historical tanks	0	0	14	47	-
30	2.3	Historical energy features	0	0	2	47	-
32	2.4	Historical petrol stations	0	0	0	0	-
32	2.5	Historical garages	0	0	2	13	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
34	3.1	Active or recent landfill	0	0	0	0	-
34	3.2	Historical landfill (BGS records)	0	0	0	0	-
35	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
35	3.4	Historical landfill (EA/NRW records)	0	0	0	1	-
35	3.5	Historical waste sites	0	0	0	0	-
35	3.6	Licensed waste sites	0	0	0	0	-
36	3.7	Waste exemptions	0	0	10	2	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
38	4.1	Recent industrial land uses	0	0	5	-	-
39	4.2	Current or recent petrol stations	0	0	0	1	-
39	4.3	Electricity cables	0	0	0	0	-
39	4.4	Gas pipelines	0	0	0	0	-
39	4.5	Sites determined as Contaminated Land	0	0	0	0	-



40	4.6	<u>Control of Major Accident Hazards (COMAH)</u>	0	0	0	2	-
40	4.7	Regulated explosive sites	0	0	0	0	-
40	4.8	Hazardous substance storage/usage	0	0	0	0	-
40	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
41	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
41	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	0	2	-
41	4.12	Radioactive Substance Authorisations	0	0	0	0	-
42	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
42	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
42	4.15	Pollutant release to public sewer	0	0	0	0	-
42	4.16	List 1 Dangerous Substances	0	0	0	0	-
42	4.17	List 2 Dangerous Substances	0	0	0	0	-
43	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
43	4.19	Pollution inventory substances	0	0	0	0	-
43	4.20	Pollution inventory waste transfers	0	0	0	0	-
43	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
44	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
46	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
47	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
48	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
48	5.5	Groundwater vulnerability- local information	None (within 0m)				
49	5.6	<u>Groundwater abstractions</u>	0	0	0	0	5
51	5.7	<u>Surface water abstractions</u>	0	0	0	2	0
52	5.8	<u>Potable abstractions</u>	0	0	0	0	3
53	5.9	Source Protection Zones	0	0	0	0	-
53	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
54	6.1	<u>Water Network (OS MasterMap)</u>	0	0	1	-	-



55	<u>6.2</u>	<u>Surface water features</u>	0	0	1	-	-
55	<u>6.3</u>	<u>WFD Surface water body catchments</u>	1	-	-	-	-
55	<u>6.4</u>	<u>WFD Surface water bodies</u>	0	0	0	-	-
56	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
57	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
57	7.2	Historical Flood Events	0	0	0	-	-
57	7.3	Flood Defences	0	0	0	-	-
57	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
58	7.5	Flood Storage Areas	0	0	0	-	-
59	7.6	Flood Zone 2	None (within 50m)				
59	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
60	<u>8.1</u>	<u>Surface water flooding</u>	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
62	<u>9.1</u>	<u>Groundwater flooding</u>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
63	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
64	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
64	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
64	10.4	Special Protection Areas (SPA)	0	0	0	0	0
64	10.5	National Nature Reserves (NNR)	0	0	0	0	0
65	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
65	10.7	Designated Ancient Woodland	0	0	0	0	0
65	10.8	Biosphere Reserves	0	0	0	0	0
65	10.9	Forest Parks	0	0	0	0	0
66	10.10	Marine Conservation Zones	0	0	0	0	0
66	<u>10.11</u>	<u>Green Belt</u>	0	0	0	1	3
66	10.12	Proposed Ramsar sites	0	0	0	0	0



66	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
67	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
67	10.15	Nitrate Sensitive Areas	0	0	0	0	0
67	10.16	<u>Nitrate Vulnerable Zones</u>	1	0	0	0	3
68	10.17	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
69	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
70	11.1	World Heritage Sites	0	0	0	-	-
71	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
71	11.3	National Parks	0	0	0	-	-
71	11.4	<u>Listed Buildings</u>	0	0	13	-	-
72	11.5	<u>Conservation Areas</u>	1	0	0	-	-
72	11.6	Scheduled Ancient Monuments	0	0	0	-	-
73	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
74	12.1	<u>Agricultural Land Classification</u>	Grade 3b (within 250m)				
75	12.2	Open Access Land	0	0	0	-	-
75	12.3	Tree Felling Licences	0	0	0	-	-
75	12.4	Environmental Stewardship Schemes	0	0	0	-	-
75	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
76	13.1	<u>Priority Habitat Inventory</u>	0	0	11	-	-
77	13.2	Habitat Networks	0	0	0	-	-
77	13.3	Open Mosaic Habitat	0	0	0	-	-
77	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
79	14.1	<u>10k Availability</u>	Identified (within 500m)				
80	14.2	Artificial and made ground (10k)	0	0	0	0	-
81	14.3	Superficial geology (10k)	0	0	0	0	-



81	14.4	Landslip (10k)	0	0	0	0	-
82	14.5	Bedrock geology (10k)	0	0	0	0	-
82	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
83	15.1	<u>50k Availability</u>	Identified (within 500m)				
84	15.2	Artificial and made ground (50k)	0	0	0	0	-
84	15.3	Artificial ground permeability (50k)	0	0	-	-	-
85	15.4	<u>Superficial geology (50k)</u>	0	0	1	1	-
86	15.5	Superficial permeability (50k)	None (within 50m)				
86	15.6	Landslip (50k)	0	0	0	0	-
86	15.7	Landslip permeability (50k)	None (within 50m)				
87	15.8	<u>Bedrock geology (50k)</u>	1	3	11	7	-
89	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
89	15.10	<u>Bedrock faults and other linear features (50k)</u>	0	2	8	4	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
91	16.1	<u>BGS Boreholes</u>	0	0	2	-	-
Page	Section	Natural ground subsidence					
92	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
93	17.2	<u>Running sands</u>	Negligible (within 50m)				
94	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
95	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
96	17.5	<u>Landslides</u>	Very low (within 50m)				
97	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
98	18.1	Natural cavities	0	0	0	0	-
99	18.2	BritPits	0	0	0	0	-
99	18.3	<u>Surface ground workings</u>	0	0	8	-	-
99	18.4	<u>Underground workings</u>	0	0	0	0	7
100	18.5	Historical Mineral Planning Areas	0	0	0	0	-



100	18.6	Non-coal mining	0	0	0	0	0
100	18.7	Mining cavities	0	0	0	0	0
101	18.8	JPB mining areas	None (within 0m)				
101	18.9	<u>Coal mining</u>	Identified (within 0m)				
101	18.10	Brine areas	None (within 0m)				
101	18.11	Gypsum areas	None (within 0m)				
101	18.12	Tin mining	None (within 0m)				
102	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
103	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
104	20.1	<u>BGS Estimated Background Soil Chemistry</u>	1	3	-	-	-
104	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
105	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
106	21.1	Underground railways (London)	0	0	0	-	-
106	21.2	Underground railways (Non-London)	0	0	0	-	-
107	21.3	Railway tunnels	0	0	0	-	-
107	21.4	<u>Historical railway and tunnel features</u>	0	0	5	-	-
107	21.5	Royal Mail tunnels	0	0	0	-	-
108	21.6	Historical railways	0	0	0	-	-
108	21.7	Railways	0	0	0	-	-
108	21.8	Crossrail 1	0	0	0	0	-
108	21.9	Crossrail 2	0	0	0	0	-
108	21.10	HS2	0	0	0	0	-

Recent aerial photograph



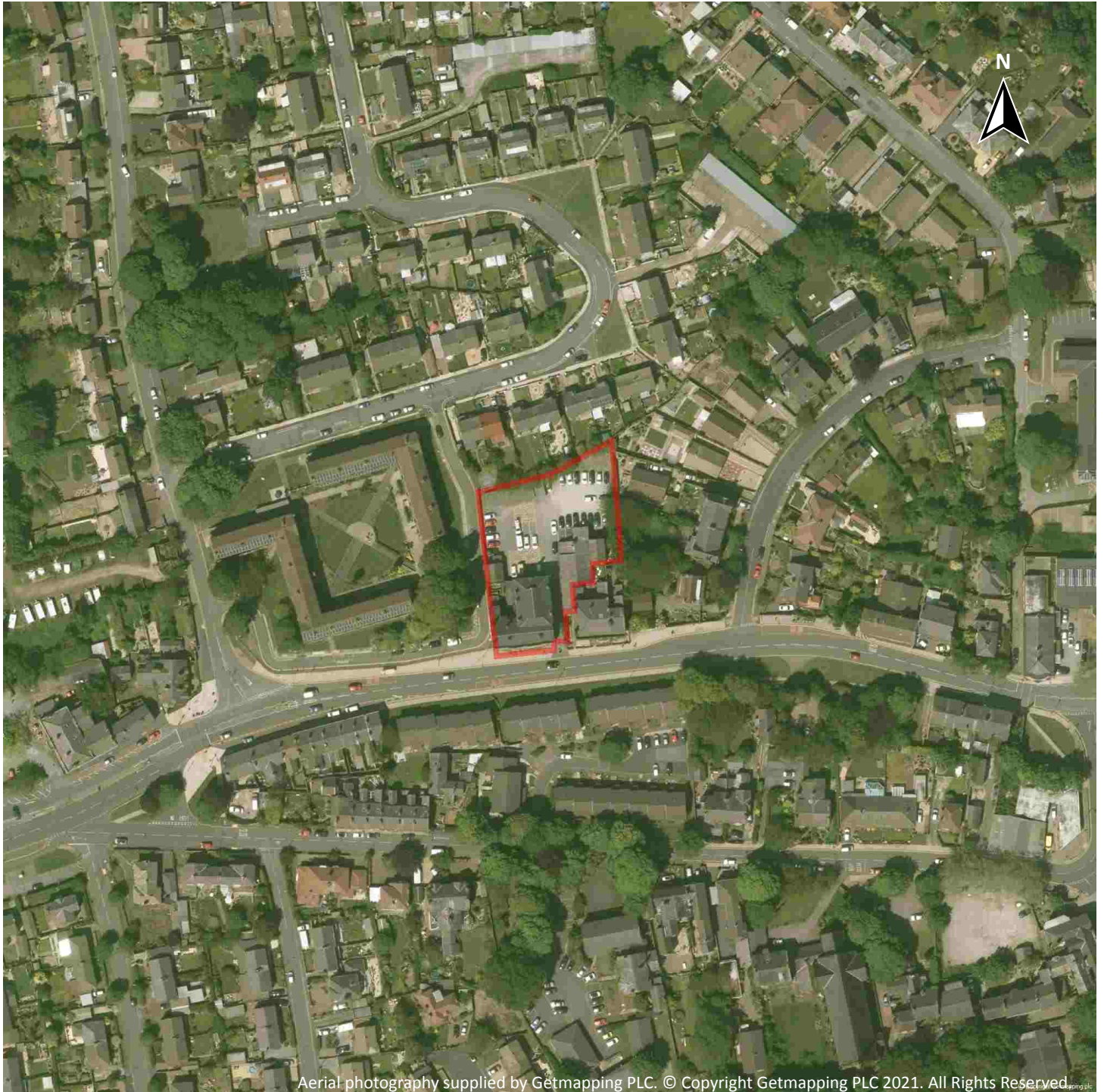
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Capture Date: 22/04/2019

Site Area: 0.23ha



Recent site history - 2015 aerial photograph



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Capture Date: 11/06/2015

Site Area: 0.23ha



Recent site history - 2005 aerial photograph



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Capture Date: 02/09/2005

Site Area: 0.23ha



Recent site history - 2000 aerial photograph



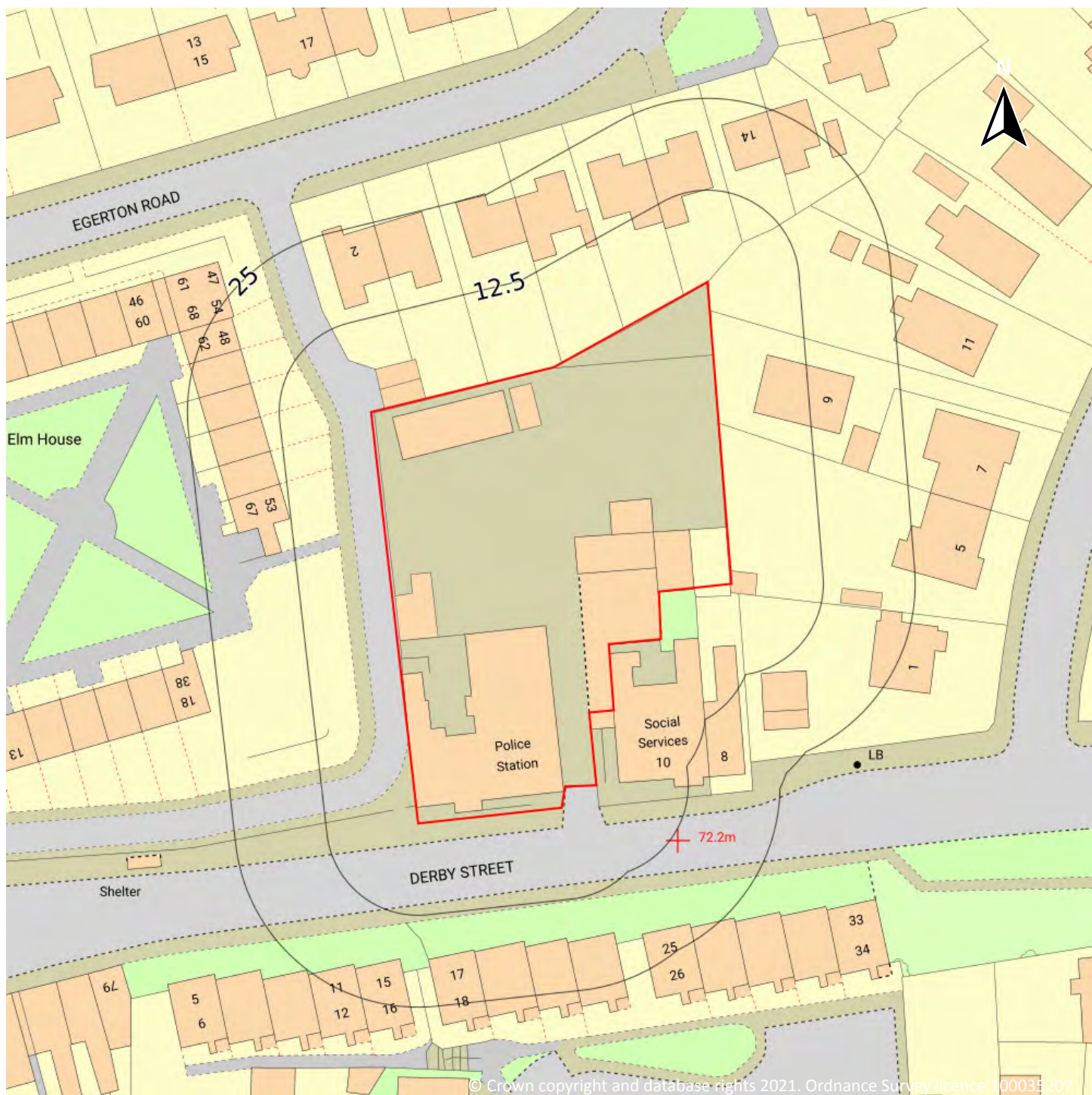
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Capture Date: 21/07/2000

Site Area: 0.23ha



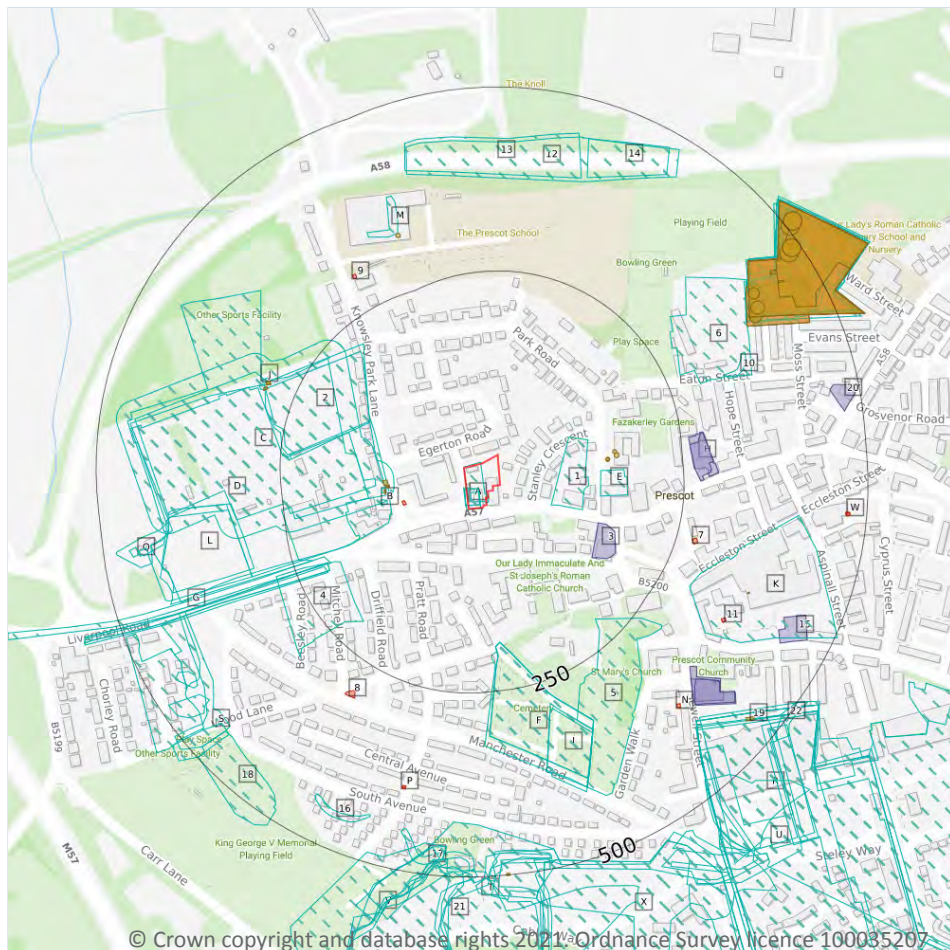
OS MasterMap site plan



Site Area: 0.23ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

1.1 Historical industrial land uses

Records within 500m

103

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	On site	Police Station	1990	848585



ID	Location	Land use	Dates present	Group ID
A	On site	Police Station	1955	860103
A	On site	Police Station	1966 - 1975	877999
A	On site	Police Station	1925 - 1950	899232
1	74m E	Colliery	1851	798244
C	97m W	Nursery	1990	935132
C	105m W	Unspecified Commercial/Industrial	1950 - 1955	970823
D	107m W	Nursery	1851	850321
B	109m W	Unspecified Tanks	1955	815148
B	109m W	Unspecified Tanks	1950	815147
C	122m W	Nursery	1966 - 1975	964074
D	133m W	Nursery	1925	859770
E	137m E	Police Station	1851	832552
2	143m NW	Nursery	1906 - 1938	916443
F	185m S	Cemetery	1950 - 1955	868720
F	185m S	Cemetery	1990	938974
F	185m S	Cemetery	1966 - 1975	985196
4	189m SW	Earthenware Pottery	1851	834889
G	201m W	Tramway Sidings	1955	854072
G	205m W	Railway Sidings	1950	794599
G	205m W	Tramway Sidings	1925 - 1938	892387
G	210m SW	Tramway Sidings	1925	985822
5	214m SE	Grave Yard	1950 - 1955	941638
6	271m NE	Earthenware Pottery	1851	834890
I	281m S	Cemetery	1925 - 1938	901116
I	289m S	Cemetery	1925	951793
J	291m NW	Unspecified Tank	1955	824619
J	291m W	Unspecified Tank	1950	824618
K	292m SE	Unspecified Commercial/Industrial	1990	796683



ID	Location	Land use	Dates present	Group ID
L	303m W	Nursery	1955	903324
L	308m W	Nursery	1950	870017
10	328m E	Unspecified Ground Workings	1925	799847
M	330m N	Unspecified Ground Workings	1975	799848
12	376m N	Cuttings	1975	900807
13	381m N	Cuttings	1990	921792
O	383m NE	Unspecified Commercial/Industrial	1925	967274
O	383m NE	Unspecified Commercial/Industrial	1925 - 1950	991155
O	384m NE	Gas Works	1906	937755
O	388m NE	Unspecified Tank	1925	937563
O	389m NE	Gasometer	1891 - 1906	864745
O	389m NE	Unspecified Tank	1925 - 1950	908448
O	390m NE	Gas Works	1891	954530
O	393m NE	Unspecified Works	1966	830283
O	393m NE	Unspecified Commercial/Industrial	1955	874436
14	396m N	Cuttings	1990	886365
O	397m NE	Gas Holder Station	1975	891256
O	397m NE	Gas Holder Station	1990	929682
O	399m NE	Unspecified Tank	1955	886278
O	399m NE	Unspecified Tank	1966	931710
O	405m NE	Unspecified Tank	1925	869636
O	405m NE	Unspecified Tank	1925 - 1938	905508
O	407m NE	Gasometer	1891 - 1906	881641
Q	408m W	Dye House	1955	896032
R	409m SE	Unspecified Commercial/Industrial	1955	896926
R	409m SE	Unspecified Works	1990	925182
R	409m SE	Unspecified Works	1966	991105
R	409m SE	Unspecified Works	1975	991861



ID	Location	Land use	Dates present	Group ID
S	410m W	Unspecified Ground Workings	1955	799863
R	414m SE	Insulated Cable Works	1925 - 1938	954255
S	414m W	Tan Yard	1851	797996
R	415m SE	Insulated Cable Works	1950	848751
R	418m SE	Unspecified Commercial/Industrial	1925	948573
O	426m NE	Gas Works	1851	933630
T	426m S	Sewage Disposal Works	1955	955403
S	435m SW	Unspecified Heap	1966	803300
16	436m S	Unspecified Ground Workings	1925 - 1938	942574
S	438m SW	Unspecified Pit	1966	839691
Q	440m W	Dye House	1851	973203
U	442m SE	Railway Sidings	1925	878216
17	443m S	Unspecified Ground Workings	1925 - 1938	847780
S	443m SW	Colliery	1851	798241
S	444m SW	Unspecified Heap	1950	803294
18	446m SW	Unspecified Pit	1950 - 1955	873550
U	449m SE	Railway Sidings	1925	853647
Q	450m W	Dye House	1950	954305
V	458m S	Unspecified Works	1966	882261
O	459m NE	Unspecified Heap	1925	803329
V	460m S	Unspecified Pit	1966	961148
V	462m S	Unspecified Pit	1955	929379
T	467m S	Unspecified Ground Workings	1990	957075
T	469m S	Unspecified Ground Workings	1966	878899
O	470m NE	Unspecified Tank	1925 - 1950	878311
T	470m S	Unspecified Ground Workings	1955	846547
O	470m NE	Gasometer	1906	809741
O	476m NE	Unspecified Tanks	1966	815149



ID	Location	Land use	Dates present	Group ID
V	477m S	Sewage Disposal Works	1950	960416
U	477m SE	Collieries	1851	811434
R	477m SE	Railway Sidings	1950	926299
V	478m S	Sewage Outfall Works	1906	818076
T	478m S	Unspecified Ground Workings	1950	846308
R	479m SE	Railway Sidings	1938	867114
O	479m NE	Unspecified Tank	1975	938846
21	479m S	Sewage Disposal Works	1925 - 1938	944190
O	479m NE	Unspecified Tank	1955	943827
V	486m S	Sewage Disposal Works	1925	987628
X	489m S	Unspecified Works	1966 - 1975	947081
X	489m S	Unspecified Works	1990	962306
V	489m S	Unspecified Works	1990	859148
O	491m NE	Unspecified Tank	1950	976039
R	492m SE	Railway Sidings	1925	846055
22	492m SE	Railway Sidings	1955	944895
O	492m NE	Unspecified Tank	1938	919524
X	499m S	Railway Sidings	1966 - 1975	909266

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

31

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

Features are displayed on the Past land use map on **page 13**



ID	Location	Land use	Dates present	Group ID
B	103m W	Tanks	1954 - 1993	138418
B	104m W	Tanks	1982	132179
B	109m W	Tanks	1908 - 1937	133952
E	146m E	Unspecified Tank	1966 - 1993	133537
E	146m E	Unspecified Tank	1982	133794
E	156m E	Unspecified Tank	1908 - 1927	134423
E	158m E	Unspecified Tank	1893	140280
J	286m NW	Unspecified Tank	1995	123065
J	286m NW	Unspecified Tank	1955 - 1974	127986
J	287m W	Unspecified Tank	1937	113181
M	324m NW	Unspecified Tank	1937	113185
K	367m SE	Unspecified Tank	1985	113163
O	382m NE	Gas Works	1893 - 1908	139697
O	389m NE	Gasometer	1893 - 1908	142135
O	389m NE	Unspecified Tank	1927 - 1937	143786
O	390m NE	Gas Works	1955	148951
O	390m NE	Gas Holder Station	1996	122151
O	397m NE	Unspecified Tank	1955 - 1963	123474
O	404m NE	Unspecified Tank	1927 - 1937	127825
O	404m NE	Gasometer	1893 - 1908	133576
O	439m NE	Gasholder Station	1957 - 1984	144213
O	445m NE	Tanks	1955	140210
O	447m NE	Unspecified Tank	1955	129297
19	456m SE	Unspecified Tank	1975	113173
O	469m NE	Unspecified Tank	1908 - 1937	147823
O	477m NE	Gasometer	1955	108457
O	477m NE	Unspecified Tank	1955 - 1963	133684
O	492m NE	Unspecified Tank	1937 - 1963	123743



ID	Location	Land use	Dates present	Group ID
T	498m S	Unspecified Tank	1972 - 1994	141346
O	500m NE	Gasometer	1955	108458
O	500m NE	Gasholder	1957 - 1996	149183

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

20

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
B	83m W	Electricity Substation	1982 - 1993	76582
7	272m E	Electricity Substation	1975 - 1994	74750
8	291m SW	Electricity Substation	1954 - 1993	77747
9	296m NW	Electricity Substation	1974 - 1995	77412
11	351m SE	Electricity Substation	1975 - 1994	83532
N	374m SE	Electricity Substation	1975 - 1994	66390
O	382m NE	Gas Works	1893 - 1908	70988
P	386m S	Electricity Substation	1994	80899
P	386m S	Electricity Substation	1972	72250
O	389m NE	Gasometer	1893 - 1908	82186
O	390m NE	Gas Works	1955	67245
O	390m NE	Gas Holder Station	1996	63809
O	404m NE	Gasometer	1893 - 1908	64390
O	417m NE	Electricity Substation	1955 - 1996	72698
O	439m NE	Gasholder Station	1957 - 1984	66739



ID	Location	Land use	Dates present	Group ID
W	471m E	Electricity Substation	1985 - 1990	64436
W	472m E	Electricity Substation	1994	69487
O	477m NE	Gasometer	1955	59650
O	500m NE	Gasometer	1955	59651
O	500m NE	Gasholder	1957 - 1996	80382

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

8

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

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
3	143m E	Garage	1982 - 1993	24369
H	261m E	Garage	1985 - 1990	27772
H	261m E	Garage	1994	22612
N	353m SE	Garage	1994	21932
N	364m SE	Garage	1964 - 1975	26302
N	370m SE	Garage	1985 - 1990	25814



ID	Location	Land use	Dates present	Group ID
15	425m SE	Garage	1985	20156
20	460m E	Garage	1975 - 1985	25295

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

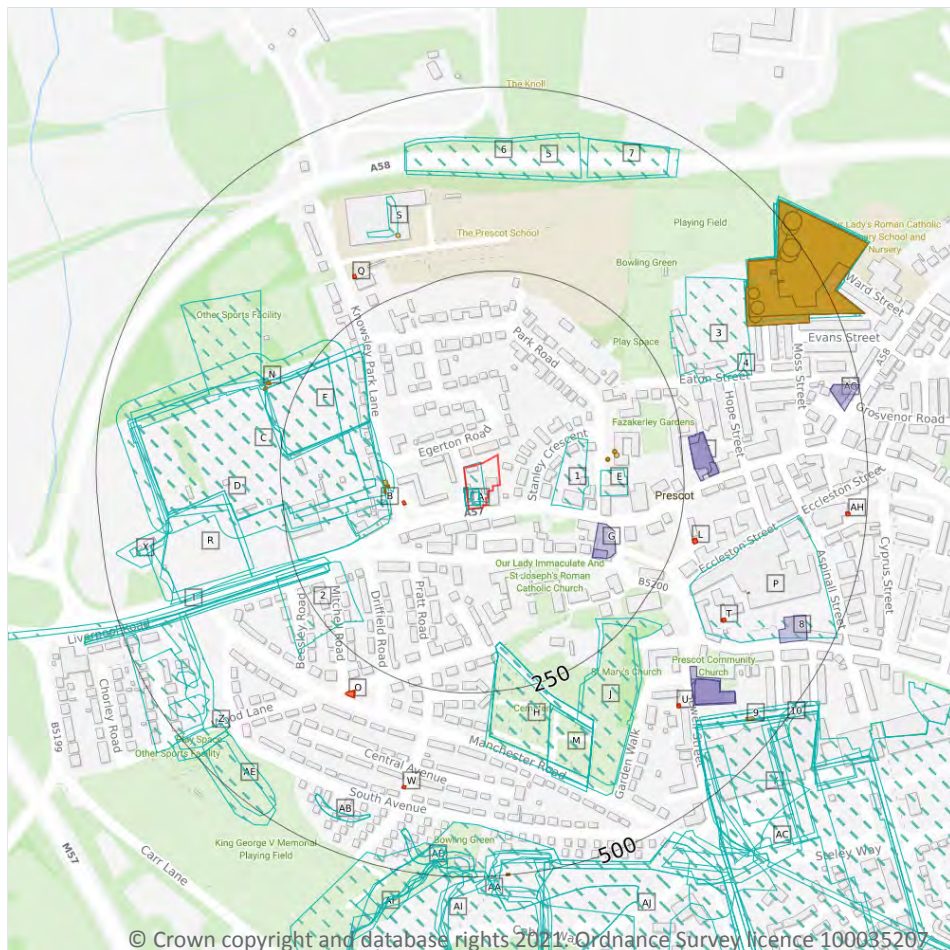
0

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

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



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

2.1 Historical industrial land uses

Records within 500m

131

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

Features are displayed on the Past land use - un-grouped map on **page 22**

ID	Location	Land Use	Date	Group ID
A	On site	Police Station	1938	899232
A	On site	Police Station	1925	899232
A	On site	Police Station	1950	899232



ID	Location	Land Use	Date	Group ID
A	On site	Police Station	1955	860103
A	On site	Police Station	1975	877999
A	On site	Police Station	1990	848585
A	On site	Police Station	1966	877999
1	74m E	Colliery	1851	798244
C	97m W	Nursery	1990	935132
C	105m W	Unspecified Commercial/Industrial	1955	970823
D	107m W	Nursery	1851	850321
C	108m W	Unspecified Commercial/Industrial	1950	970823
B	109m W	Unspecified Tanks	1955	815148
B	109m W	Unspecified Tanks	1950	815147
C	122m W	Nursery	1975	964074
C	122m W	Nursery	1966	964074
D	133m W	Nursery	1925	859770
E	137m E	Police Station	1851	832552
F	143m NW	Nursery	1938	916443
F	143m NW	Nursery	1925	916443
F	143m NW	Nursery	1906	916443
H	185m S	Cemetery	1955	868720
H	185m S	Cemetery	1975	985196
H	185m S	Cemetery	1990	938974
H	185m S	Cemetery	1966	985196
2	189m SW	Earthenware Pottery	1851	834889
H	196m S	Cemetery	1950	868720
I	201m W	Tramway Sidings	1955	854072
I	205m W	Tramway Sidings	1938	892387
I	205m W	Tramway Sidings	1925	892387
I	205m W	Railway Sidings	1950	794599



ID	Location	Land Use	Date	Group ID
I	210m SW	Tramway Sidings	1925	985822
J	214m SE	Grave Yard	1950	941638
J	225m SE	Grave Yard	1955	941638
3	271m NE	Earthenware Pottery	1851	834890
M	281m S	Cemetery	1938	901116
M	281m S	Cemetery	1925	901116
M	289m S	Cemetery	1925	951793
N	291m NW	Unspecified Tank	1955	824619
N	291m W	Unspecified Tank	1950	824618
P	292m SE	Unspecified Commercial/Industrial	1990	796683
R	303m W	Nursery	1955	903324
R	308m W	Nursery	1950	870017
4	328m E	Unspecified Ground Workings	1925	799847
S	330m N	Unspecified Ground Workings	1975	799848
5	376m N	Cuttings	1975	900807
6	381m N	Cuttings	1990	921792
V	383m NE	Unspecified Commercial/Industrial	1925	967274
V	383m NE	Unspecified Commercial/Industrial	1938	991155
V	383m NE	Unspecified Commercial/Industrial	1925	991155
V	383m NE	Unspecified Commercial/Industrial	1950	991155
V	384m NE	Gas Works	1906	937755
V	388m NE	Unspecified Tank	1925	937563
V	389m NE	Gasometer	1906	864745
V	389m NE	Unspecified Tank	1938	908448
V	389m NE	Unspecified Tank	1925	908448
V	389m NE	Unspecified Tank	1950	908448
V	390m NE	Gas Works	1891	954530
V	393m NE	Unspecified Works	1966	830283



ID	Location	Land Use	Date	Group ID
V	393m NE	Unspecified Commercial/Industrial	1955	874436
V	395m NE	Gasometer	1891	864745
7	396m N	Cuttings	1990	886365
V	397m NE	Gas Holder Station	1975	891256
V	397m NE	Gas Holder Station	1990	929682
V	399m NE	Unspecified Tank	1955	886278
V	399m NE	Unspecified Tank	1966	931710
V	405m NE	Unspecified Tank	1925	869636
V	405m NE	Unspecified Tank	1938	905508
V	405m NE	Unspecified Tank	1925	905508
V	407m NE	Gasometer	1906	881641
X	408m W	Dye House	1955	896032
Y	409m SE	Unspecified Commercial/Industrial	1955	896926
Y	409m SE	Unspecified Works	1975	991861
Y	409m SE	Unspecified Works	1990	925182
Y	409m SE	Unspecified Works	1966	991105
V	409m NE	Gasometer	1891	881641
Z	410m W	Unspecified Ground Workings	1955	799863
Y	414m SE	Insulated Cable Works	1938	954255
Z	414m W	Tan Yard	1851	797996
Y	415m SE	Insulated Cable Works	1925	954255
Y	415m SE	Insulated Cable Works	1950	848751
Y	418m SE	Unspecified Commercial/Industrial	1925	948573
V	426m NE	Gas Works	1851	933630
AA	426m S	Sewage Disposal Works	1955	955403
Z	435m SW	Unspecified Heap	1966	803300
AB	436m S	Unspecified Ground Workings	1938	942574
AB	436m S	Unspecified Ground Workings	1925	942574



ID	Location	Land Use	Date	Group ID
Z	438m SW	Unspecified Pit	1966	839691
X	440m W	Dye House	1851	973203
AC	442m SE	Railway Sidings	1925	878216
AD	443m S	Unspecified Ground Workings	1938	847780
AD	443m S	Unspecified Ground Workings	1925	847780
Z	443m SW	Colliery	1851	798241
Z	444m SW	Unspecified Heap	1950	803294
AE	446m SW	Unspecified Pit	1955	873550
AC	449m SE	Railway Sidings	1925	853647
X	450m W	Dye House	1950	954305
AE	457m SW	Unspecified Pit	1950	873550
AF	458m S	Unspecified Works	1966	882261
V	459m NE	Unspecified Heap	1925	803329
AF	460m S	Unspecified Pit	1966	961148
AF	462m S	Unspecified Pit	1955	929379
AA	467m S	Unspecified Ground Workings	1990	957075
AA	469m S	Unspecified Ground Workings	1966	878899
V	470m NE	Unspecified Tank	1925	878311
AA	470m S	Unspecified Ground Workings	1955	846547
V	470m NE	Gasometer	1906	809741
V	470m NE	Unspecified Tank	1938	878311
V	470m NE	Unspecified Tank	1925	878311
V	470m NE	Unspecified Tank	1950	878311
V	476m NE	Unspecified Tanks	1966	815149
AF	477m S	Sewage Disposal Works	1950	960416
AC	477m SE	Collieries	1851	811434
Y	477m SE	Railway Sidings	1950	926299
AF	478m S	Sewage Outfall Works	1906	818076



ID	Location	Land Use	Date	Group ID
AA	478m S	Unspecified Ground Workings	1950	846308
Y	479m SE	Railway Sidings	1938	867114
V	479m NE	Unspecified Tank	1975	938846
V	479m NE	Unspecified Tank	1955	943827
AI	479m S	Sewage Disposal Works	1938	944190
AI	479m S	Sewage Disposal Works	1925	944190
AF	486m S	Sewage Disposal Works	1925	987628
AJ	489m S	Unspecified Works	1975	947081
AJ	489m S	Unspecified Works	1990	962306
AF	489m S	Unspecified Works	1990	859148
V	491m NE	Unspecified Tank	1950	976039
Y	492m SE	Railway Sidings	1925	846055
10	492m SE	Railway Sidings	1955	944895
V	492m NE	Unspecified Tank	1938	919524
AJ	499m S	Unspecified Works	1966	947081
AJ	499m S	Railway Sidings	1966	909266

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

61

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

Features are displayed on the Past land use - un-grouped map on **page 22**

ID	Location	Land Use	Date	Group ID
B	103m W	Tanks	1993	138418
B	103m W	Tanks	1954	138418
B	104m W	Tanks	1966	138418
B	104m W	Tanks	1954	138418



ID	Location	Land Use	Date	Group ID
B	104m W	Tanks	1982	132179
B	109m W	Tanks	1908	133952
B	109m W	Tanks	1927	133952
B	109m W	Tanks	1937	133952
E	146m E	Unspecified Tank	1966	133537
E	146m E	Unspecified Tank	1982	133794
E	147m E	Unspecified Tank	1993	133537
E	156m E	Unspecified Tank	1908	134423
E	156m E	Unspecified Tank	1927	134423
E	158m E	Unspecified Tank	1893	140280
N	286m NW	Unspecified Tank	1995	123065
N	286m NW	Unspecified Tank	1963	127986
N	286m NW	Unspecified Tank	1955	127986
N	286m NW	Unspecified Tank	1955	127986
N	286m NW	Unspecified Tank	1974	127986
N	287m W	Unspecified Tank	1937	113181
S	324m NW	Unspecified Tank	1937	113185
P	367m SE	Unspecified Tank	1985	113163
V	382m NE	Gas Works	1893	139697
V	382m NE	Gas Works	1908	139697
V	389m NE	Gasometer	1893	142135
V	389m NE	Gasometer	1908	142135
V	389m NE	Unspecified Tank	1927	143786
V	389m NE	Unspecified Tank	1937	143786
V	390m NE	Gas Works	1955	148951
V	390m NE	Gas Works	1955	148951
V	390m NE	Gas Holder Station	1996	122151
V	397m NE	Unspecified Tank	1963	123474



ID	Location	Land Use	Date	Group ID
V	397m NE	Unspecified Tank	1955	123474
V	397m NE	Unspecified Tank	1955	123474
V	404m NE	Gasometer	1893	133576
V	404m NE	Gasometer	1908	133576
V	404m NE	Unspecified Tank	1927	127825
V	404m NE	Unspecified Tank	1937	127825
V	439m NE	Gasholder Station	1984	144213
V	439m NE	Gasholder Station	1957	144213
V	445m NE	Tanks	1955	140210
V	445m NE	Tanks	1955	140210
V	447m NE	Unspecified Tank	1955	129297
V	448m NE	Unspecified Tank	1955	129297
9	456m SE	Unspecified Tank	1975	113173
V	469m NE	Unspecified Tank	1908	147823
V	469m NE	Unspecified Tank	1927	147823
V	469m NE	Unspecified Tank	1937	147823
V	477m NE	Gasometer	1955	108457
V	477m NE	Unspecified Tank	1963	133684
V	477m NE	Unspecified Tank	1955	133684
V	492m NE	Unspecified Tank	1937	123743
AA	498m S	Unspecified Tank	1972	141346
AA	498m S	Unspecified Tank	1994	141346
AA	498m S	Unspecified Tank	1994	141346
V	499m NE	Unspecified Tank	1963	123743
V	499m NE	Unspecified Tank	1955	123743
V	500m NE	Gasometer	1955	108458
V	500m NE	Gasholder	1996	149183
V	500m NE	Gasholder	1984	149183



ID	Location	Land Use	Date	Group ID
V	500m NE	Gasholder	1957	149183

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	49
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Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 22**

ID	Location	Land Use	Date	Group ID
B	83m W	Electricity Substation	1993	76582
B	84m W	Electricity Substation	1982	76582
L	272m E	Electricity Substation	1985	74750
L	272m E	Electricity Substation	1990	74750
L	272m E	Electricity Substation	1990	74750
L	272m E	Electricity Substation	1975	74750
L	272m E	Electricity Substation	1994	74750
O	291m SW	Electricity Substation	1954	77747
O	291m SW	Electricity Substation	1954	77747
O	291m SW	Electricity Substation	1993	77747
O	292m SW	Electricity Substation	1982	77747
Q	296m NW	Electricity Substation	1995	77412
Q	298m NW	Electricity Substation	1974	77412
T	351m SE	Electricity Substation	1990	83532
T	352m SE	Electricity Substation	1985	83532
T	352m SE	Electricity Substation	1975	83532
T	352m SE	Electricity Substation	1994	83532
U	374m SE	Electricity Substation	1975	66390
U	374m SE	Electricity Substation	1985	66390



ID	Location	Land Use	Date	Group ID
U	374m SE	Electricity Substation	1990	66390
U	375m SE	Electricity Substation	1994	66390
V	382m NE	Gas Works	1893	70988
V	382m NE	Gas Works	1908	70988
W	386m S	Electricity Substation	1994	80899
W	386m S	Electricity Substation	1994	80899
W	386m S	Electricity Substation	1972	72250
V	389m NE	Gasometer	1893	82186
V	389m NE	Gasometer	1908	82186
V	390m NE	Gas Works	1955	67245
V	390m NE	Gas Works	1955	67245
V	390m NE	Gas Holder Station	1996	63809
V	404m NE	Gasometer	1893	64390
V	404m NE	Gasometer	1908	64390
V	417m NE	Electricity Substation	1955	72698
V	417m NE	Electricity Substation	1996	72698
V	417m NE	Electricity Substation	1955	72698
V	417m NE	Electricity Substation	1984	72698
V	417m NE	Electricity Substation	1957	72698
V	439m NE	Gasholder Station	1984	66739
V	439m NE	Gasholder Station	1957	66739
AH	471m E	Electricity Substation	1985	64436
AH	471m E	Electricity Substation	1990	64436
AH	471m E	Electricity Substation	1990	64436
AH	472m E	Electricity Substation	1994	69487
V	477m NE	Gasometer	1955	59650
V	500m NE	Gasometer	1955	59651
V	500m NE	Gasholder	1996	80382



ID	Location	Land Use	Date	Group ID
V	500m NE	Gasholder	1984	80382
V	500m NE	Gasholder	1957	80382

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

15

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

Features are displayed on the Past land use - un-grouped map on **page 22**

ID	Location	Land Use	Date	Group ID
G	143m E	Garage	1982	24369
G	155m SE	Garage	1993	24369
K	261m E	Garage	1985	27772
K	261m E	Garage	1990	27772
K	261m E	Garage	1990	27772
K	261m E	Garage	1994	22612
U	353m SE	Garage	1994	21932
U	364m SE	Garage	1964	26302
U	370m SE	Garage	1975	26302
U	370m SE	Garage	1985	25814
U	370m SE	Garage	1990	25814

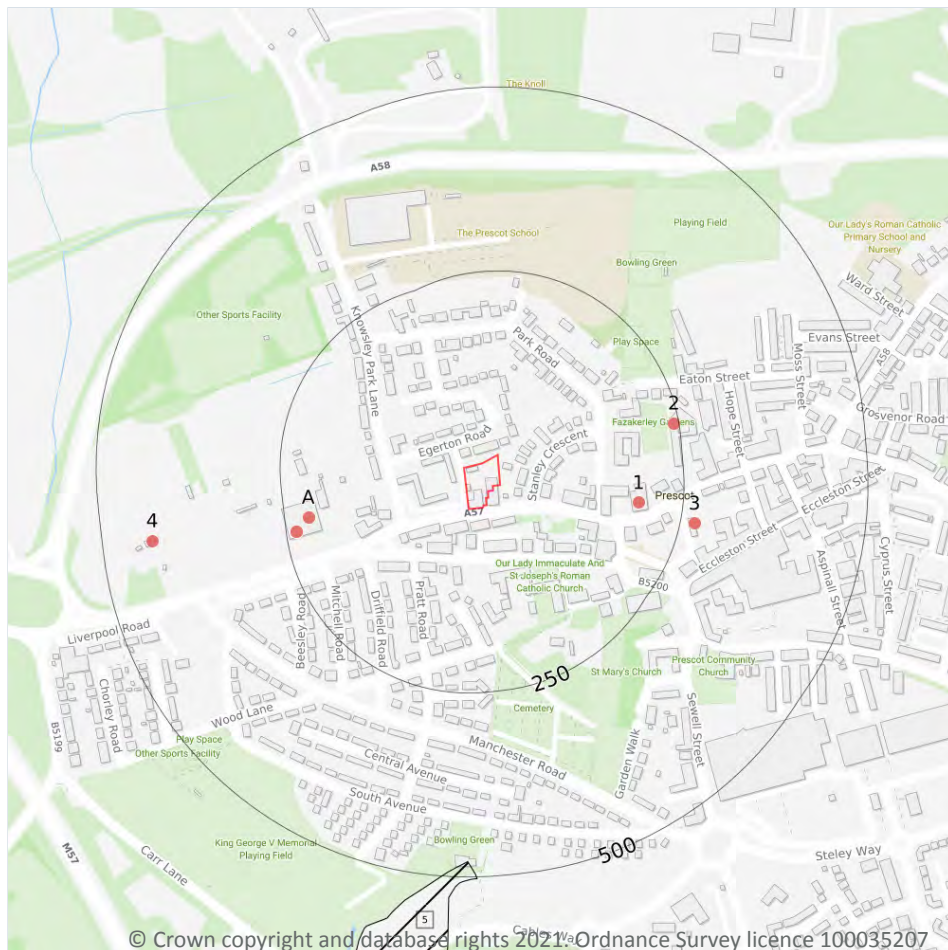


ID	Location	Land Use	Date	Group ID
U	370m SE	Garage	1990	25814
8	425m SE	Garage	1985	20156
AG	460m E	Garage	1985	25295
AG	461m E	Garage	1975	25295

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical landfill (EA/NRW)
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m

1

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

Features are displayed on the Waste and landfill map on **page 34**

ID	Location	Details		
5	479m S	Site Address: Prescot WWTW, Carr Lane, Prescot Licence Holder Address: -	Waste Licence: - Site Reference: GDO M271 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded: - Last Recorded: -

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

3.5 Historical waste sites

Records within 500m

0

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

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

3.6 Licensed waste sites

Records within 500m

0

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

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

3.7 Waste exemptions

Records within 500m

12

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

Features are displayed on the Waste and landfill map on **page 34**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	190m E	PRESCOT HOUSE, 3, HIGH STREET, PRESCOT, L34 3LD	WEX258709	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	218m W	LIVERPOOL ROAD, PRESCOT, L34 3LX	WEX061986	Using waste exemption	On a farm	Spreading waste on non-agricultural land to confer benefit
A	218m W	LIVERPOOL ROAD, PRESCOT, L34 3LX	WEX061986	Using waste exemption	On a farm	Use of mulch
A	236m W	WHITAKERS GARDEN CENTRE Liverpool Road PRESCOT Merseyside L34 3LX	EPR/QF0738X X/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open
A	236m W	WHITAKERS GARDEN CENTRE Liverpool Road PRESCOT Merseyside L34 3LX	EPR/QF0738X X/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	236m W	WHITAKERS GARDEN CENTRE Liverpool Road PRESCOT Merseyside L34 3LX	EPR/QF0738X X/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
A	236m W	WHITAKERS GARDEN CENTRE Liverpool Road PRESCOT Merseyside L34 3LX	EPR/QF0738X X/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of mulch
A	236m W	WHITAKERS GARDEN CENTRE Liverpool Road PRESCOT Merseyside L34 3LX	EPR/QF0738X X/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading of plant matter to confer benefit

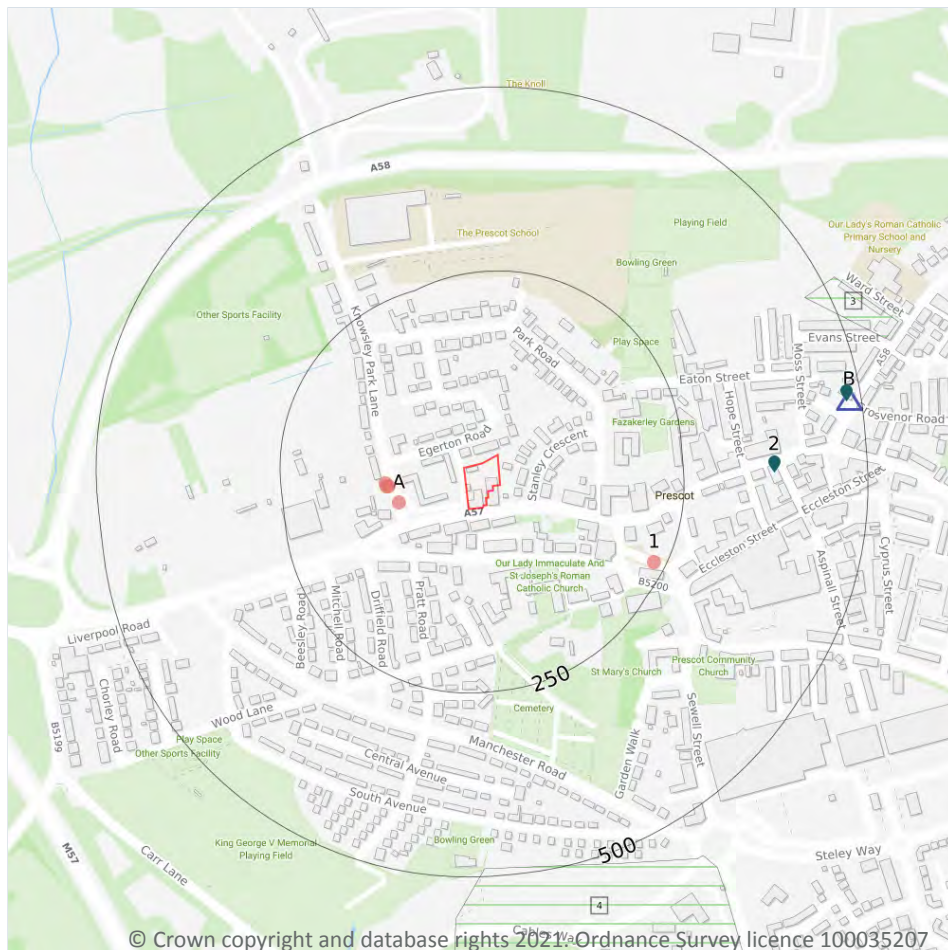


ID	Location	Site	Reference	Category	Sub-Category	Description
A	236m W	WHITAKERS GARDEN CENTRE Liverpool Road PRESCOT Merseyside L34 3LX	EPR/QF0738X X/A001	Using waste exemption	Both agricultural and non- agricultural waste	Incorporation of ash into soil
2	243m E	MCKENNA COURT 11A, HIGH STREET, PRESCOT, L34 3LD	WEX164956	Treating waste exemption	Not on a Farm	Sorting and de-naturing of controlled drugs for disposal
3	269m E	8, MILL STREET, PRESCOT, L34 6HA	WEX167417	Treating waste exemption	Not on a farm	Screening and blending of waste
4	432m W	Prescot brook with current silt management in place. Existing garden centre to remain for 2 years of initial site remediation	WEX268937	Using waste exemption	Not on a farm	Use of waste in construction

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- ▲ Current or recent petrol stations
- Control of Major Accident Hazards
- Licensed pollutant release (Part A(2)/B)

4.1 Recent industrial land uses

Records within 250m

5

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 38**

ID	Location	Company	Address	Activity	Category
A	94m W	Electricity Sub Station	Merseyside, L34	Electrical Features	Infrastructure and Facilities
A	105m W	Tank	Merseyside, L34	Tanks (Generic)	Industrial Features
A	107m W	Tank	Merseyside, L34	Tanks (Generic)	Industrial Features
A	109m W	Tank	Merseyside, L34	Tanks (Generic)	Industrial Features



ID	Location	Company	Address	Activity	Category
1	234m SE	Bus Station	Merseyside, L34	Bus and Coach Stations, Depots and Companies	Public Transport, Stations and Infrastructure

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1
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Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 38**

ID	Location	Company	Address	LPG	Status
B	483m E	TEXACO	19, St Helens Road, Prescot, Merseyside, L34 6HN	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0
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High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0
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High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0
----------------------------	----------

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

2

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

Features are displayed on the Current industrial land use map on **page 38**

ID	Location	Company	Address	Operational status	Tier
3	469m NE	British Gas	British Gas, Ward Street, Prescot, L34 6JJ	Historical NIHHS Site	-
4	489m S	Bicc Metals Ltd	Bicc Metals Ltd, Carr Lane, Prescott, L34 1PD	Historical NIHHS Site	-

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m

0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

0

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

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



4.10 Licensed industrial activities (Part A(1))

Records within 500m

0

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

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

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

Records within 500m

2

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

Features are displayed on the Current industrial land use map on **page 38**

ID	Location	Address	Details	
2	373m E	Prescot Dry Cleaners, 40 High Street, Prescot, L34 6HQ	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
B	480m E	Prescot Fuel Service Station (Formerly Texaco), St. Helens Road, Prescot, L34 6HN	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

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

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



4.13 Licensed Discharges to controlled waters

Records within 500m**0**

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

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m**0**

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

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

4.15 Pollutant release to public sewer

Records within 500m**0**

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m**0**

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

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

4.17 List 2 Dangerous Substances

Records within 500m**0**

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m**0**

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

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

4.19 Pollution inventory substances

Records within 500m**0**

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

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

4.20 Pollution inventory waste transfers

Records within 500m**0**

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

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

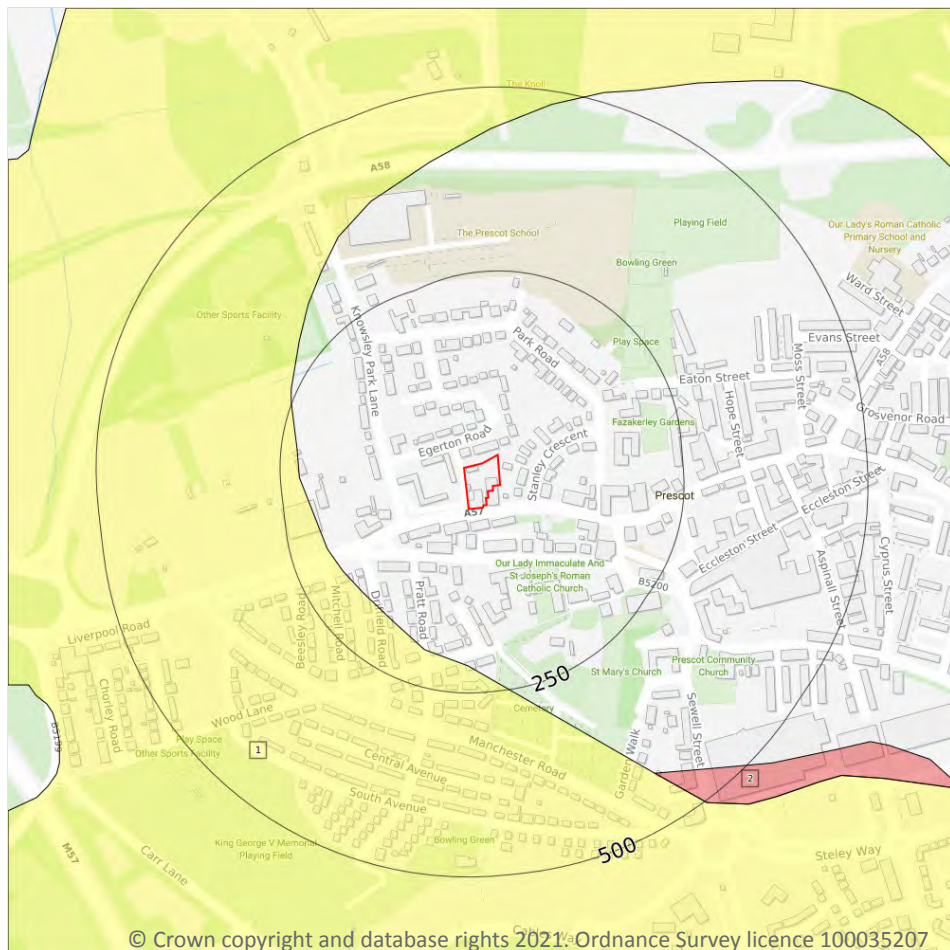
4.21 Pollution inventory radioactive waste

Records within 500m**0**

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

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

5 Hydrogeology - Superficial aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

2

Aquifer status of groundwater held within superficial geology.

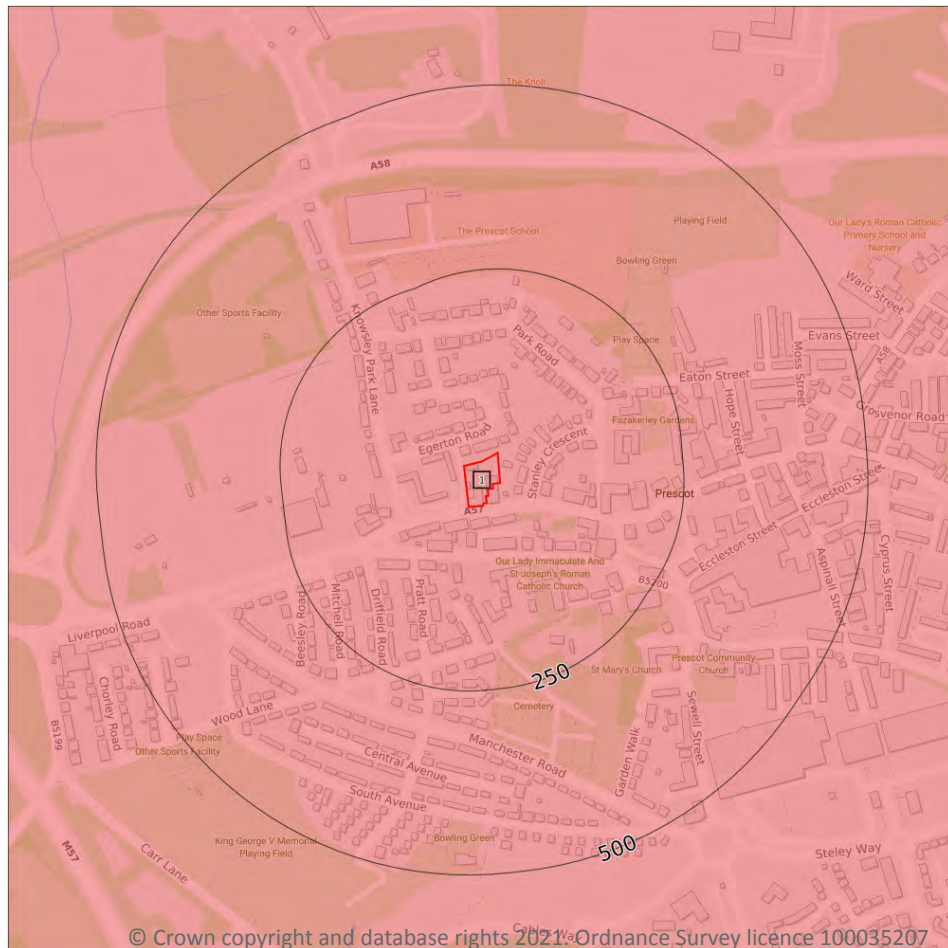
Features are displayed on the Hydrogeology map on **page 44**

ID	Location	Designation	Description
1	181m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	430m SE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

1

Aquifer status of groundwater held within bedrock geology.

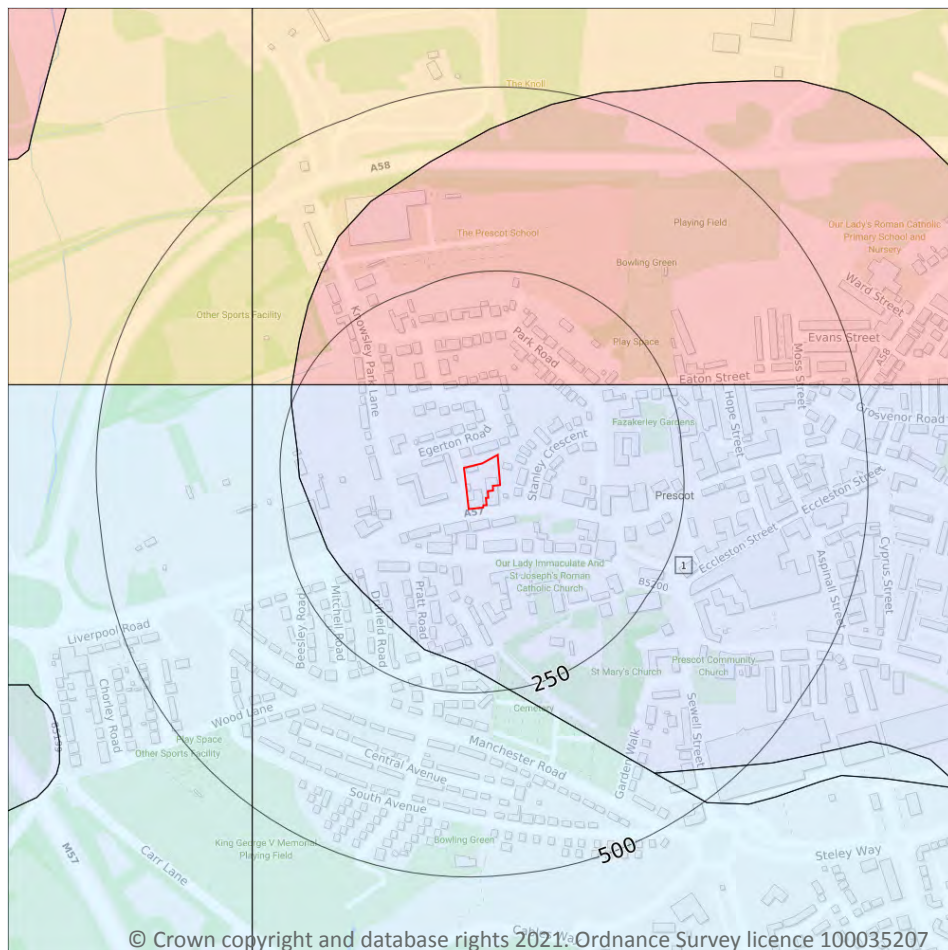
Features are displayed on the Bedrock aquifer map on **page 46**

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

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



Groundwater vulnerability



— Site Outline

Search buffers in metres (m)

Superficial vulnerability

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

Bedrock vulnerability

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

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m

1

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

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

Features are displayed on the Groundwater vulnerability map on **page 47**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0
------------------------	----------

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

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

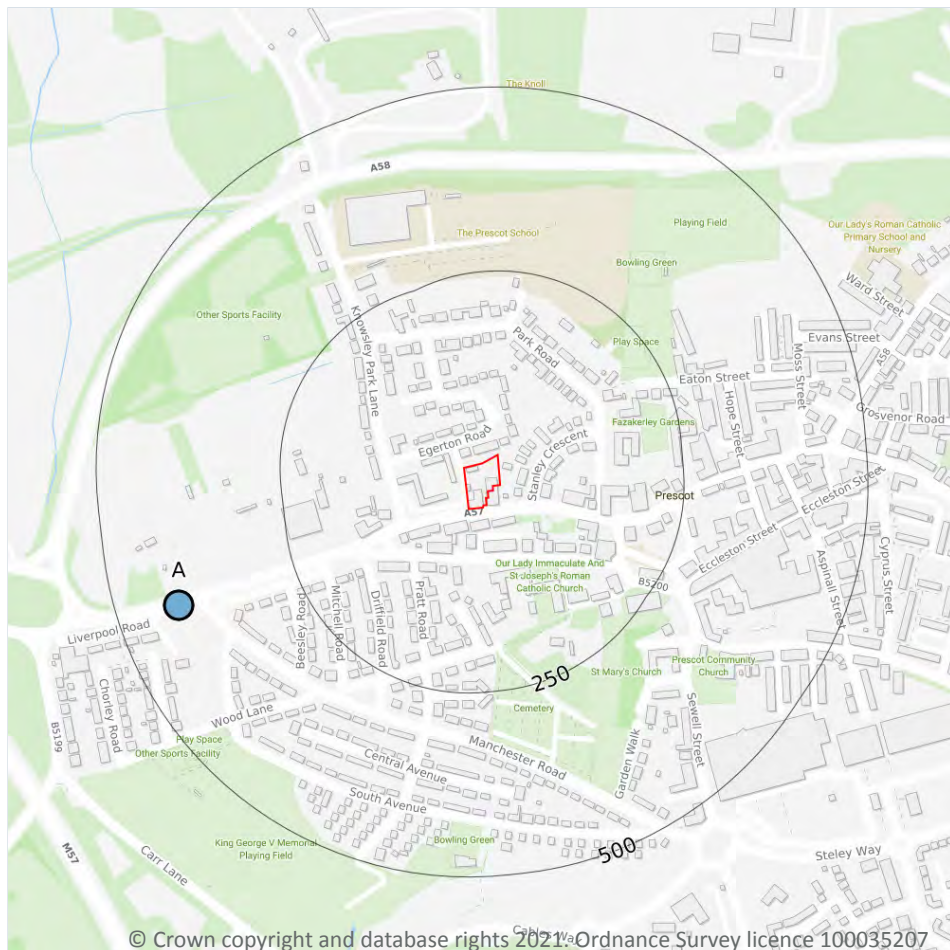
5.5 Groundwater vulnerability- local information

Records on site	0
------------------------	----------

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

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

Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

5

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 49**

ID	Location	Details	
-	1830m SE	Status: Historical Licence No: 2569025072 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1830m SE	Status: Historical Licence No: 2569025072 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1830m SE	Status: Historical Licence No: 2569025072 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1830m SE	Status: Historical Licence No: 2569025072 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -



ID	Location	Details	
-	1963m E	Status: Historical Licence No: 2569025020 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT ECCLESTON PARK RAILWAY STATION Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 348300 Northing: 392900	Annual Volume (m ³): 295490 Max Daily Volume (m ³): 986.482 Original Application No: - Original Start Date: 31/05/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/07/1975 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m

2

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 49**

ID	Location	Details	
A	415m W	Status: Historical Licence No: 2569028003 Details: Spray Irrigation - Direct Direct Source: "Surface, Non-Tidal - North West Region" Point: "LOGWOOD MILL BROOK AT LH'S PREMISES, PRESCOT, MERSEYSIDE" Data Type: Point Name: JAMES WHITAKER & SONS NURSERYMEN LTD Easting: 345900 Northing: 392700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 04/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1999 Version End Date: -
A	415m W	Status: Historical Licence No: 2569028003 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: LOGWOOD MILL BROOK AT LH'S PREMISES, PRESCOT, MERSEYSIDE Data Type: Point Name: JAMES WHITAKER & SONS NURSERYMEN LTD Easting: 345900 Northing: 392700	Annual Volume (m ³): 772.82 Max Daily Volume (m ³): 77.282 Original Application No: - Original Start Date: 04/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/03/1999 Version End Date: -

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



5.8 Potable abstractions

Records within 2000m

3

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 49**

ID	Location	Details	
-	1830m SE	Status: Historical Licence No: 2569025072 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE" Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1830m SE	Status: Historical Licence No: 2569025072 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: TWO BOREHOLES AT WHISTON HOSPITAL, PRESCOT, MERSEYSIDE Data Type: Point Name: ST HELENS AND KNOWSLEY HOSPITALS Easting: 348000 Northing: 392100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 13/08/1992 Expiry Date: - Issue No: 100 Version Start Date: 13/08/1992 Version End Date: -
-	1963m E	Status: Historical Licence No: 2569025020 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT ECCLESTON PARK RAILWAY STATION Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 348300 Northing: 392900	Annual Volume (m ³): 295490 Max Daily Volume (m ³): 986.482 Original Application No: - Original Start Date: 31/05/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/07/1975 Version End Date: -

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



5.9 Source Protection Zones

Records within 500m

0

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

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

5.10 Source Protection Zones (confined aquifer)

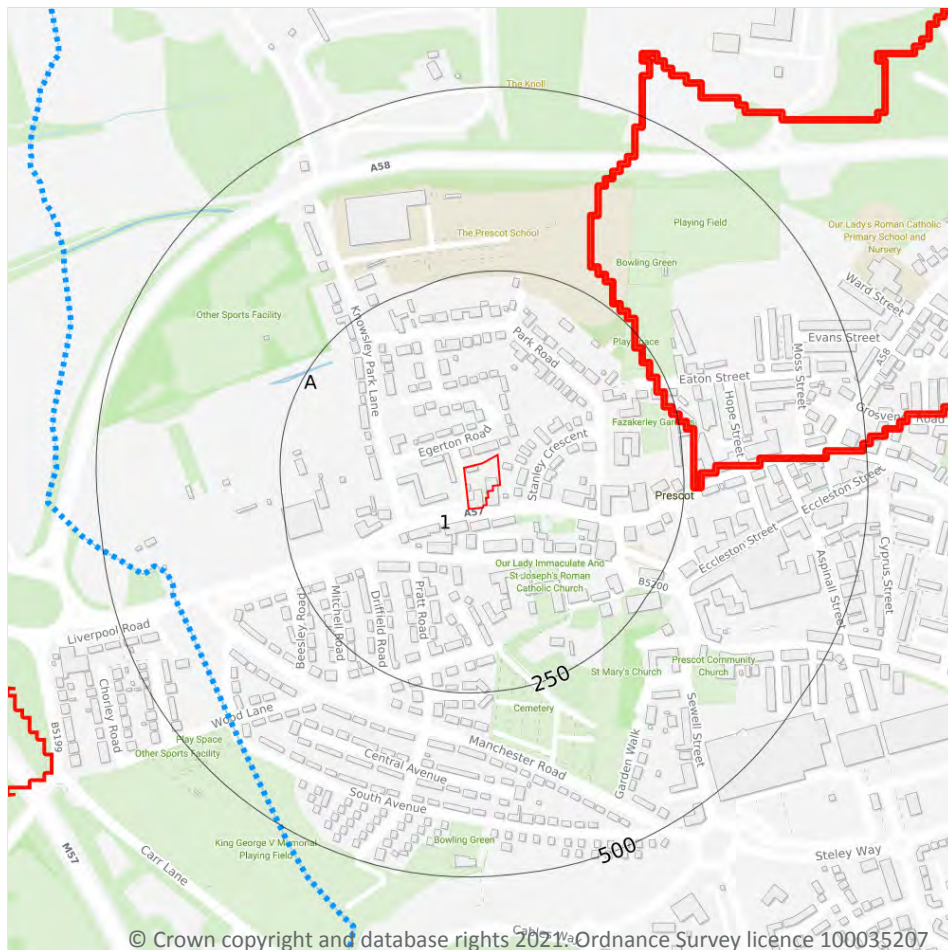
Records within 500m

0

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

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

6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

1

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

Features are displayed on the Hydrology map on **page 54**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	229m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.



6.2 Surface water features

Records within 250m

1

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

Features are displayed on the Hydrology map on **page 54**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

1

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

Features are displayed on the Hydrology map on **page 54**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River WB catchment	Prescot Brook (Logwood Mill Brook)	GB112069060710	Ditton	Lower Mersey

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

6.4 WFD Surface water bodies

Records identified

1

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

Features are displayed on the Hydrology map on **page 54**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
3	413m SW	River	Prescot Brook (Logwood Mill Brook)	GB112069060710	Poor	Good	Poor	2016

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

6.5 WFD Groundwater bodies

Records on site

0

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

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



7 River and coastal flooding

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m

0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

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

7.2 Historical Flood Events

Records within 250m

0

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

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

7.3 Flood Defences

Records within 250m

0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m

0

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

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



7.5 Flood Storage Areas

Records within 250m

0

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

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



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

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

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

7.7 Flood Zone 3

Records within 50m

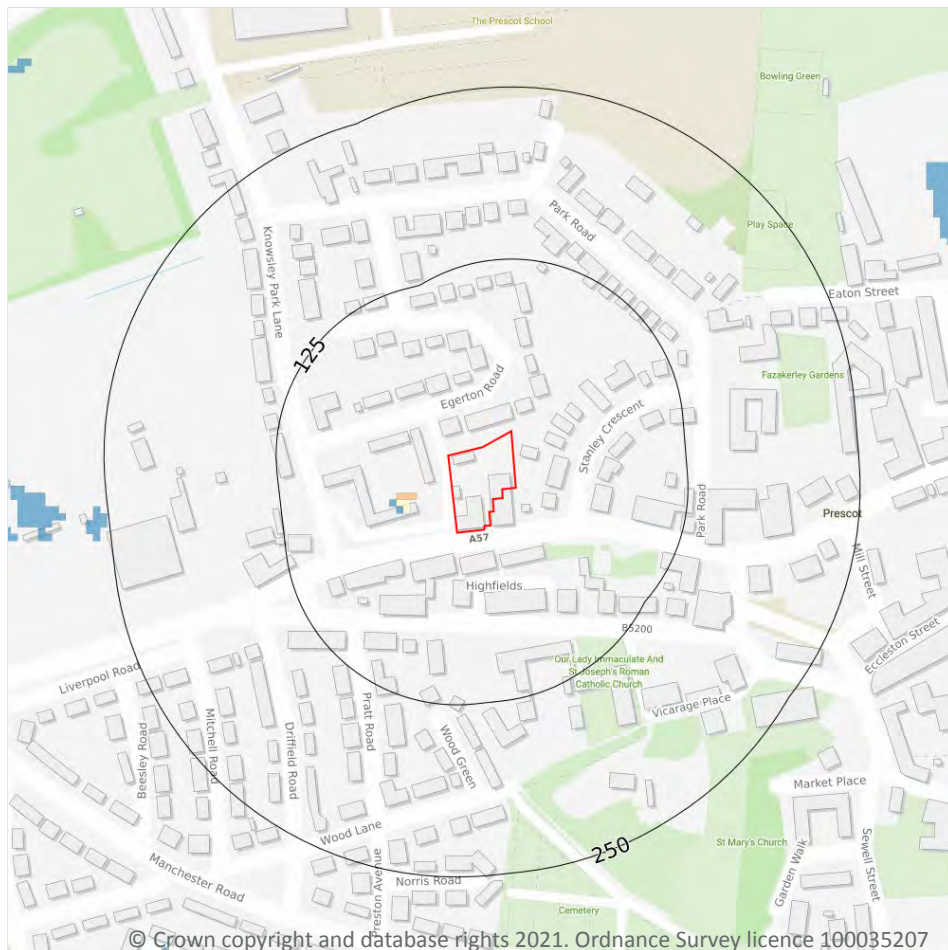
0

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

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



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

Negligible

Highest risk within 50m

1 in 30 year, 0.1m - 0.3m

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

Features are displayed on the Surface water flooding map on **page 60**

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

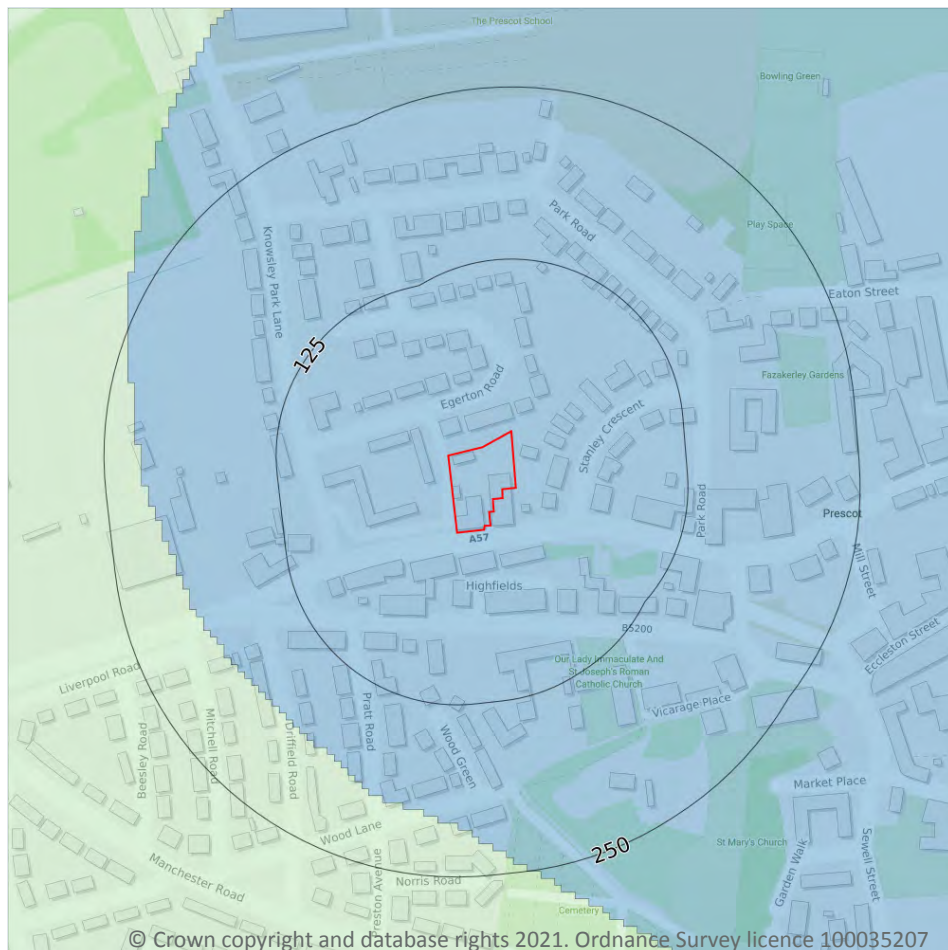
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



— Site Outline
Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

Highest risk on site

Negligible

Highest risk within 50m

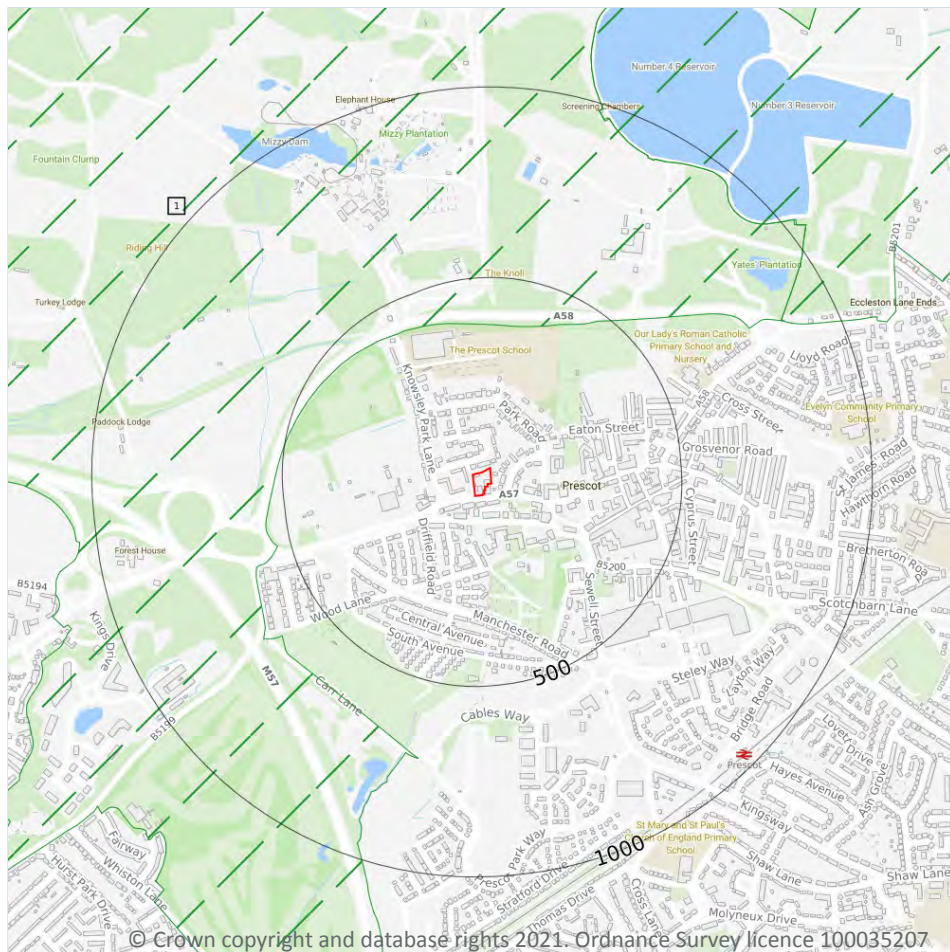
Negligible

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

Features are displayed on the Groundwater flooding map on **page 62**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m**0**

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

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

10.7 Designated Ancient Woodland

Records within 2000m**0**

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

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

10.8 Biosphere Reserves

Records within 2000m**0**

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

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

10.9 Forest Parks

Records within 2000m**0**

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m

0

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

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

10.11 Green Belt

Records within 2000m

4

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

Features are displayed on the Environmental designations map on **page 63**

ID	Location	Name	Local Authority name
1	376m N	Merseyside and Greater Manchester	Knowsley
2	858m NE	Merseyside and Greater Manchester	St. Helens
-	1823m E	Merseyside and Greater Manchester	St. Helens
-	1946m E	Merseyside and Greater Manchester	Knowsley

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

10.12 Proposed Ramsar sites

Records within 2000m

0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

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

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



10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

4

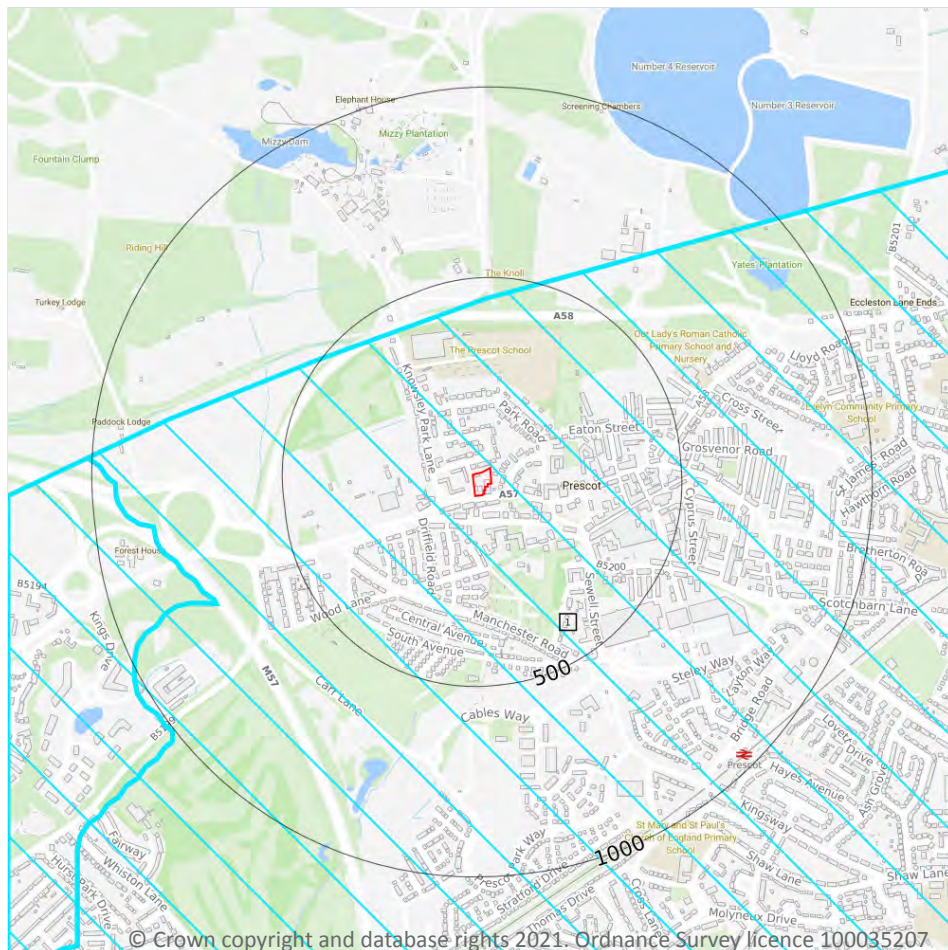
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	Dittton Brook (Halewood to Mersey Estuary) NVZ	Surface Water	S640	Existing
731m E	Sankey Brook (Black Bk to Mersey) NVZ	Surface Water	S639	Existing
792m NW	ALT NVZ	Surface Water	S642	Existing
1302m NW	Dittton Brook (Halewood to Mersey Estuary) NVZ	Surface Water	S640	Existing

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



SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 68**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location)

This data is sourced from Natural England.

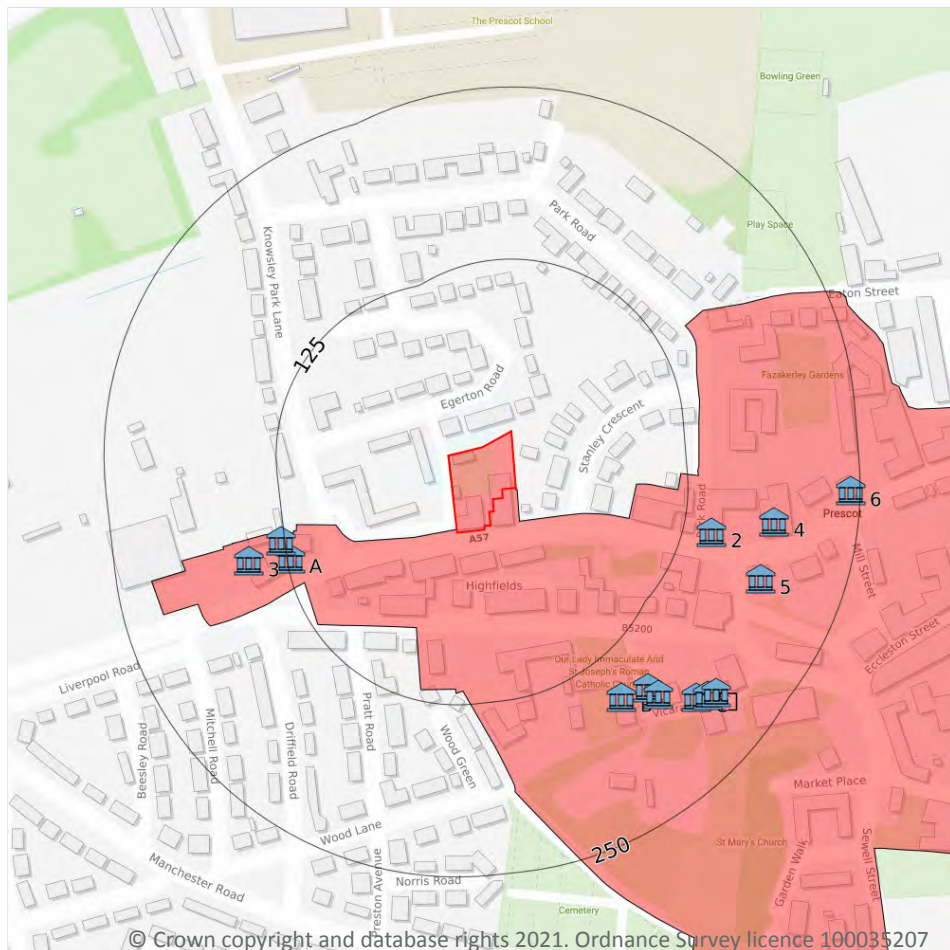
10.18 SSSI Units

Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

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

11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

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

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

11.3 National Parks

Records within 250m

0

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

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

11.4 Listed Buildings

Records within 250m

13

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

Features are displayed on the Visual and cultural designations map on **page 70**

ID	Location	Name	Grade	Reference Number	Listed date
A	123m W	44-50, Derby Street, Prescott, Knowsley, L34	II	1283501	06/04/1979
A	128m W	Stable Block To North East Of Number 54, Prescott, Knowsley, L34	II	1199248	03/08/1981
2	146m E	2, Derby Street, Prescott, Knowsley, L34	II	1075501	19/03/1987
3	153m W	Clock Face Public House, Prescott, Knowsley, L34	II	1075502	19/03/1951
B	157m SE	Church Of Our Lady Immaculate, Prescott, Knowsley, L34	II	1199627	19/03/1987

ID	Location	Name	Grade	Reference Number	Listed date
B	164m SE	14, Vicarage Place, Prescot, Knowsley, L34	II	1075507	19/03/1987
B	173m SE	Number 10 Including Garden Wall, Prescot, Knowsley, L34	II	1199612	19/03/1951
4	189m E	Masonic Hall, Prescot, Knowsley, L34	II	1283414	19/03/1951
5	190m E	Prescot Museum, Prescot, Knowsley, L34	II	1075500	19/03/1987
C	194m SE	6, Vicarage Place, Prescot, Knowsley, L34	II	1343470	19/03/1951
C	200m SE	4, Vicarage Place, Prescot, Knowsley, L34	II	1199607	19/03/1951
C	204m SE	2, Vicarage Place, Prescot, Knowsley, L34	II	1075506	19/03/1951
6	243m E	Number 11, Including Wall And Gatepiers, Prescot, Knowsley, L34	II	1075504	19/03/1951

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

11.5 Conservation Areas

Records within 250m

1

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

Features are displayed on the Visual and cultural designations map on **page 70**

ID	Location	Name	District	Date of designation
1	On site	Prescot Town Centre, Knowsley	Knowsley	1974

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

11.6 Scheduled Ancient Monuments

Records within 250m

0

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

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



11.7 Registered Parks and Gardens

Records within 250m

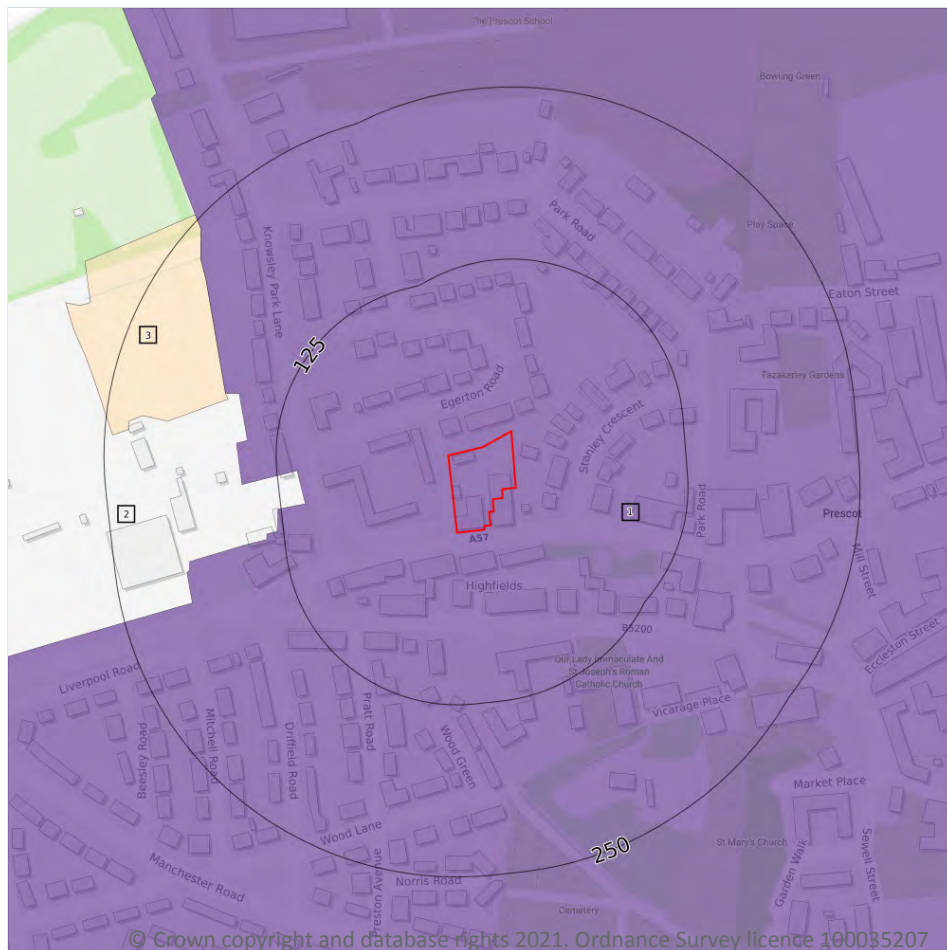
0

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

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



12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

3

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

Features are displayed on the Agricultural designations map on **page 74**

ID	Location	Classification	Description
1	On site	Urban	-
2	107m W	Not Surveyed	-

ID	Location	Classification	Description
3	165m W	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0
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The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

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

12.3 Tree Felling Licences

Records within 250m	0
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Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0
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Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0
----------------------------	----------

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

This data is sourced from Natural England.



13 Habitat designations



- Site Outline**
- Search buffers in metres (m)**
- Priority Habitat Inventory
 - Open Mosaic Habitat
 - Limestone Pavement Orders
- Habitat Networks**
- Primary Habitat
 - Restorable Habitat
 - Associated Habitats
 - Habitat Restoration-Creation
 - Network Enhancement Zone 1
 - Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

11

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

Features are displayed on the Habitat designations map on **page 76**

ID	Location	Main Habitat	Other habitats
1	176m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	187m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	187m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	206m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)



ID	Location	Main Habitat	Other habitats
B	217m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	217m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	220m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	230m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	241m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	244m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	248m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

0

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

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

0

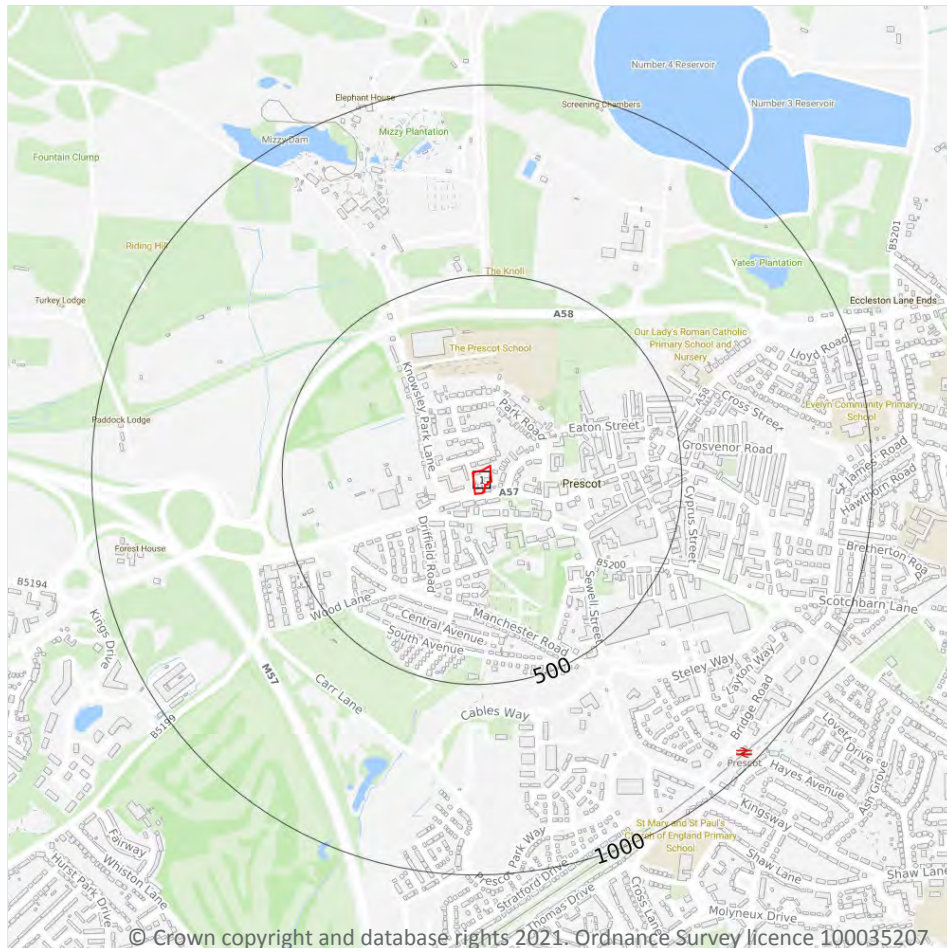
Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened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



This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



— Site Outline
Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m

1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 79**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov

This data is sourced from the British Geological Survey.



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

14.2 Artificial and made ground (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

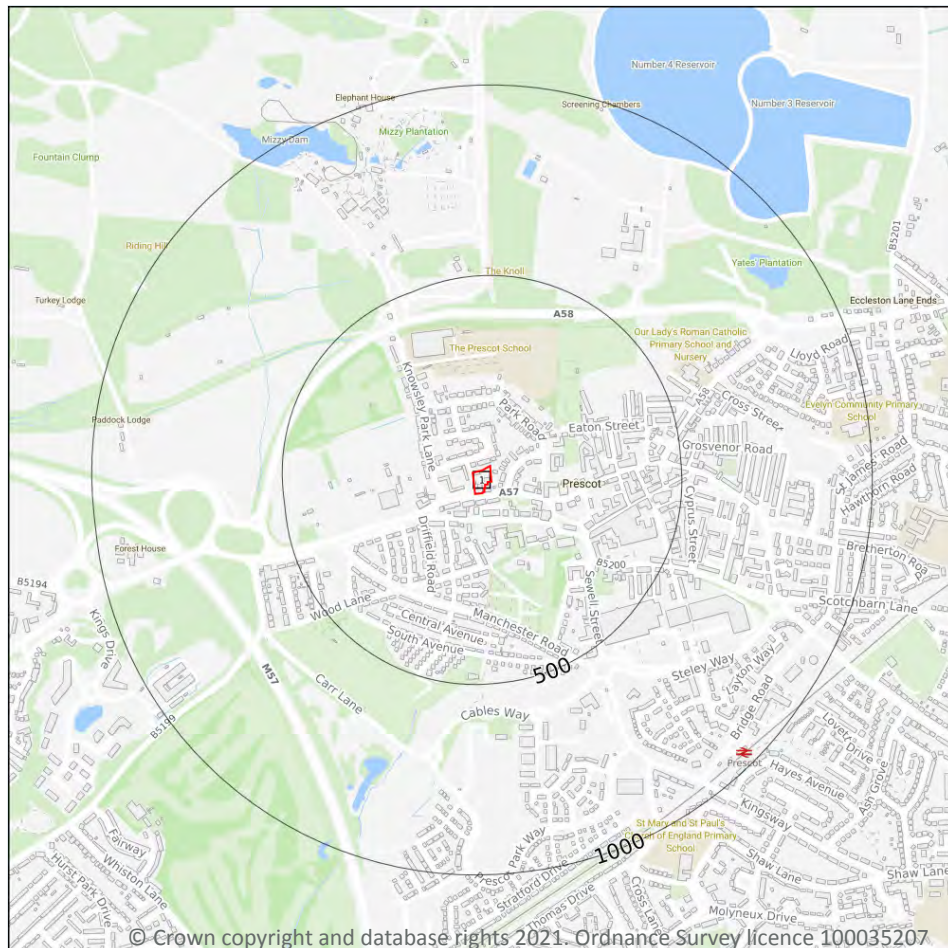
0

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

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 83**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW097_runcorn_v4

This data is sourced from the British Geological Survey.



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

15.2 Artificial and made ground (50k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

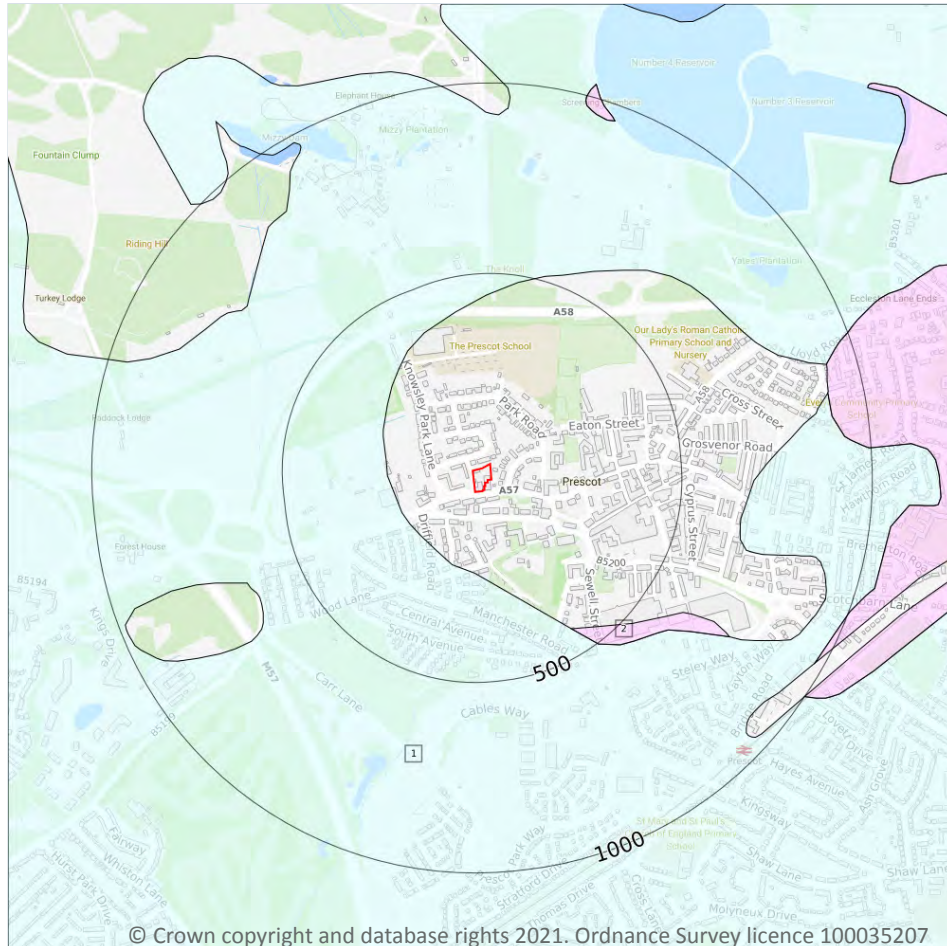
0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m

2

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 85**

ID	Location	LEX Code	Description	Rock description
1	181m SW	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON
2	430m SE	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVANSIAN	SAND AND GRAVEL

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m

0

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m

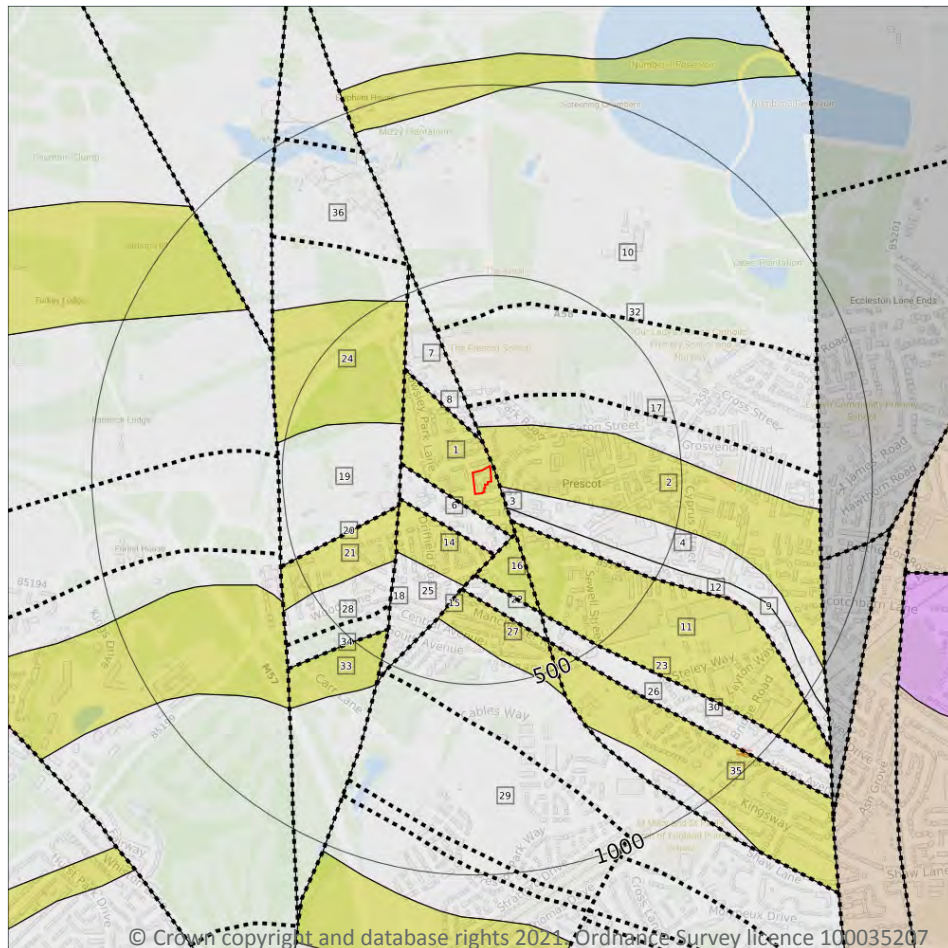
0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

..... Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m

22

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 87**

ID	Location	LEX Code	Description	Rock age
1	On site	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
2	7m NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
4	26m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	41m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
7	65m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	72m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10	104m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11	104m SE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
14	112m SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
16	138m SE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
19	190m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	203m W	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
22	213m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
24	224m NW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
25	228m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
27	252m S	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
28	272m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
29	340m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
30	349m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
33	421m SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN



ID	Location	LEX Code	Description	Rock age
35	424m SE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
36	482m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

3

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	High	Low
25m SE	Fracture	High	Low
41m N	Fracture	High	Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

14

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 87**

ID	Location	Category	Description
3	7m NE	FAULT	Fault, inferred
5	41m SW	ROCK	Coal seam, inferred
8	65m N	ROCK	Coal seam, inferred
12	104m SE	ROCK	Coal seam, inferred
13	112m SW	ROCK	Coal seam, inferred
15	138m SE	FAULT	Fault, observed

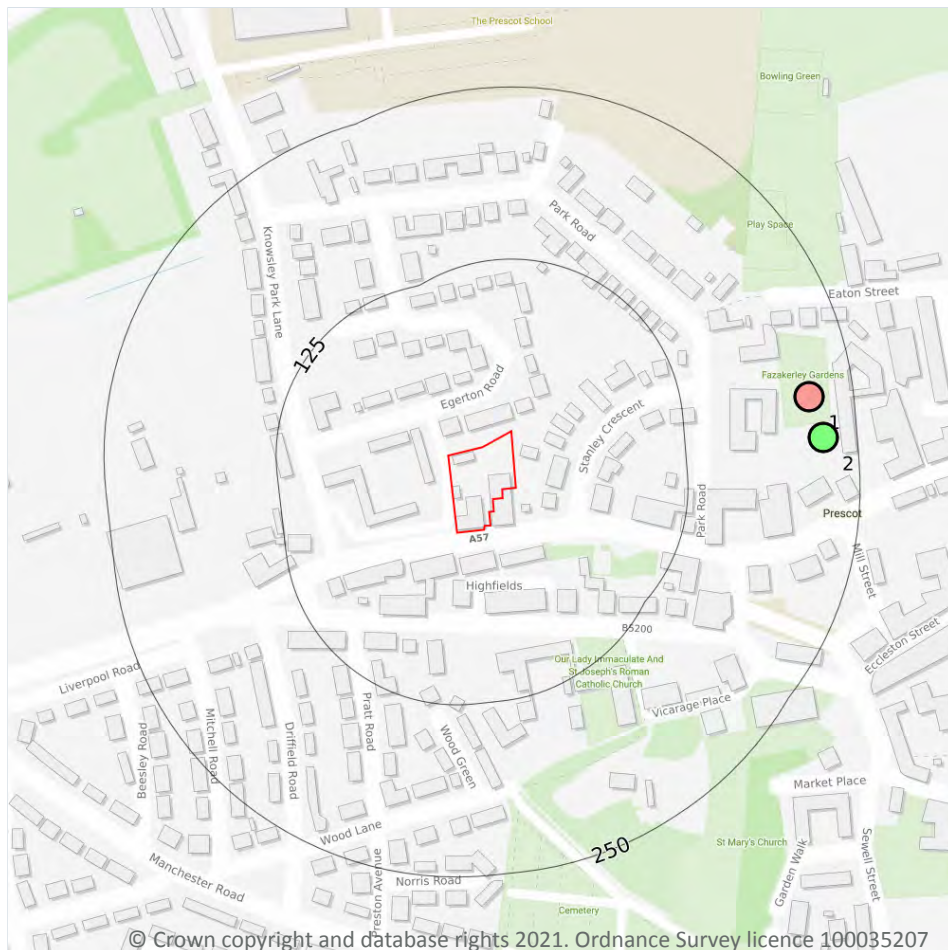


ID	Location	Category	Description
17	165m N	ROCK	Coal seam, inferred
18	190m W	FAULT	Fault, inferred
20	203m W	ROCK	Coal seam, inferred
23	213m S	ROCK	Coal seam, inferred
26	252m S	ROCK	Coal seam, inferred
31	367m SW	ROCK	Coal seam, inferred
32	381m N	ROCK	Coal seam, inferred
34	421m SW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m

2

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

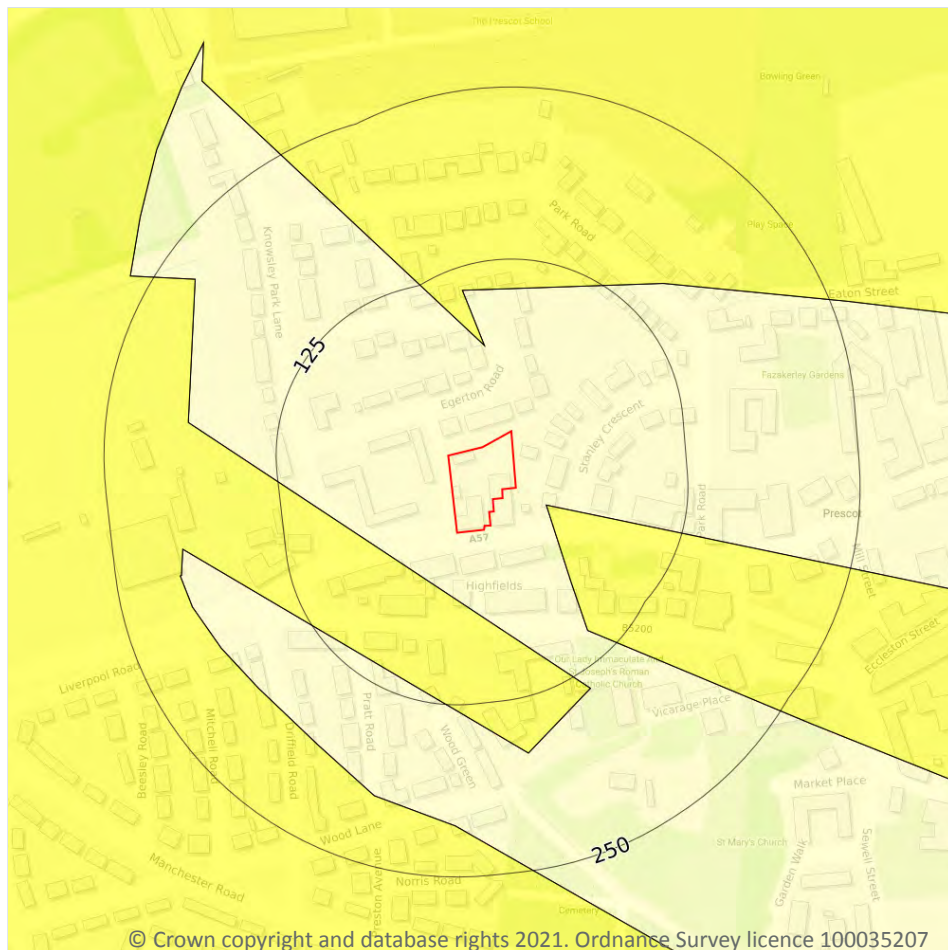
Features are displayed on the Boreholes map on **page 91**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	218m E	346550 392930	NURSING HOME PRESCOTT 2	36.0	N	165876
2	225m E	346560 392900	NURSING HOME PRESCOTT 3	26.0	N	165877

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



— Site Outline
Search buffers in metres (m)

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

17.1 Shrink swell clays

Records within 50m

2

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

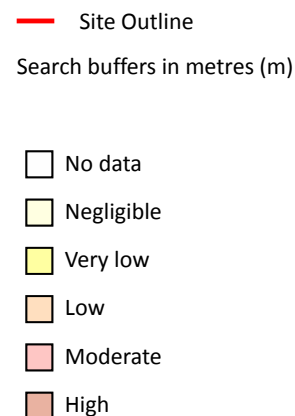
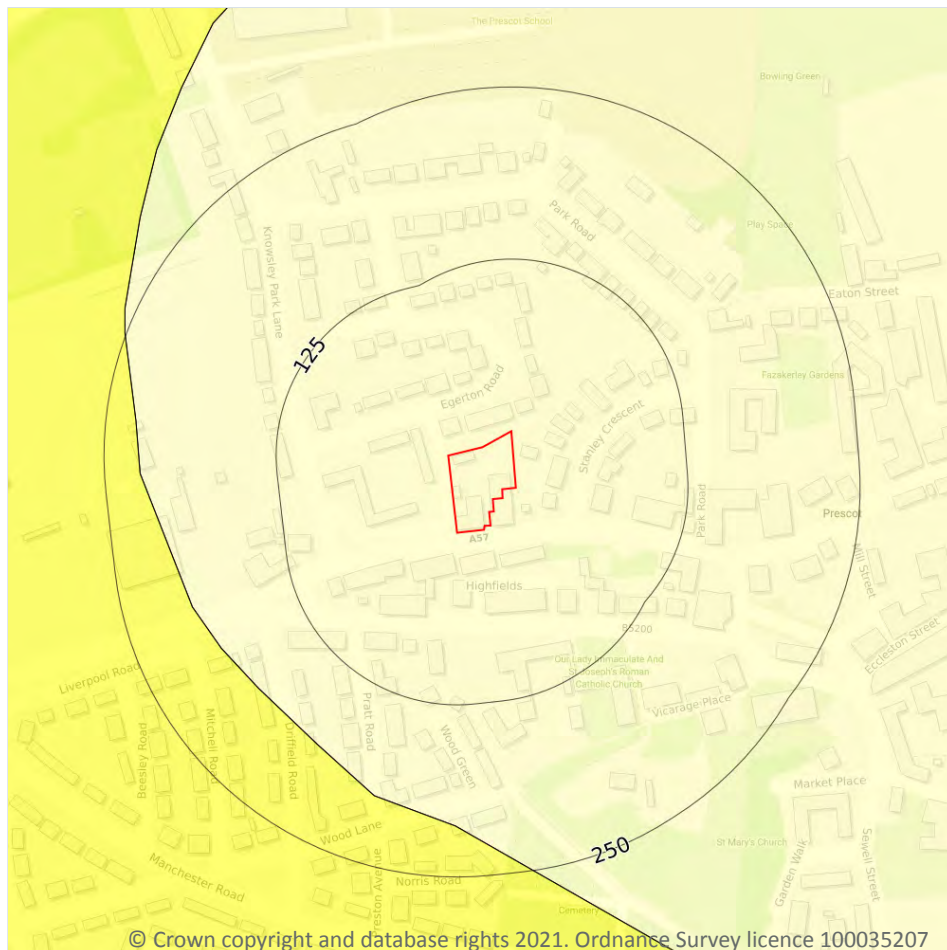
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 92**

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
26m SE	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



17.2 Running sands

Records within 50m

1

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

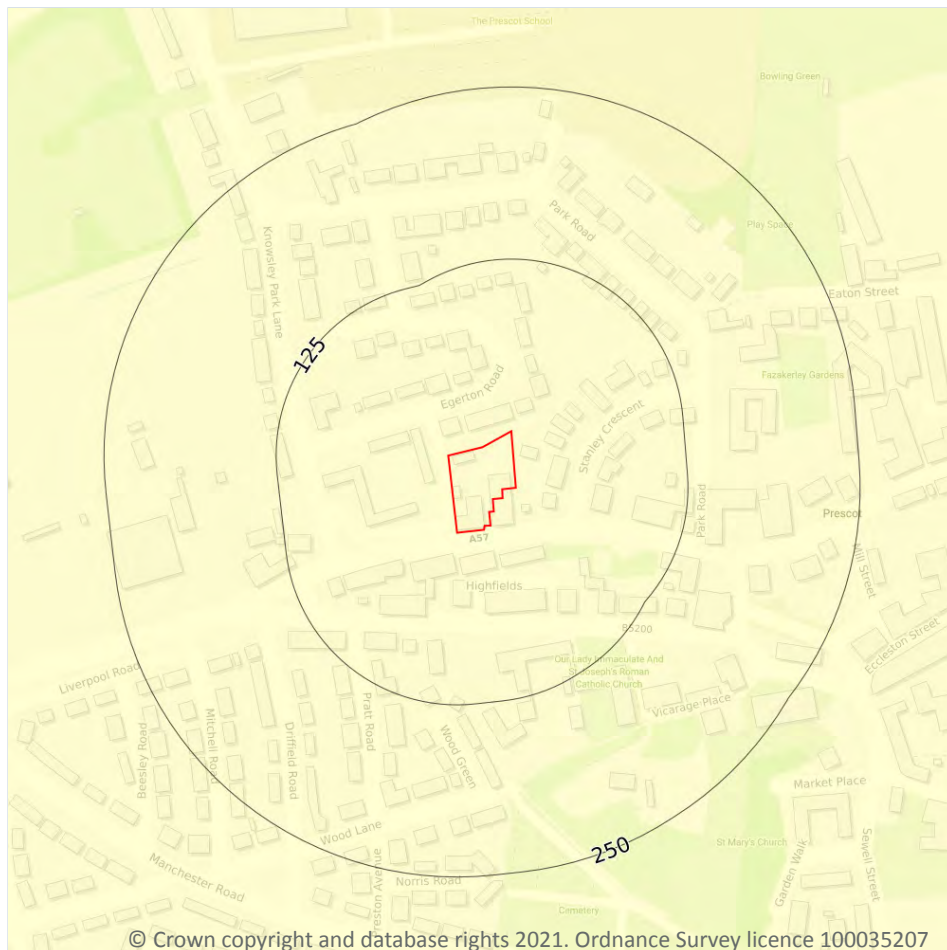
Features are displayed on the Natural ground subsidence - Running sands map on **page 93**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



— Site Outline
Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m

1

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

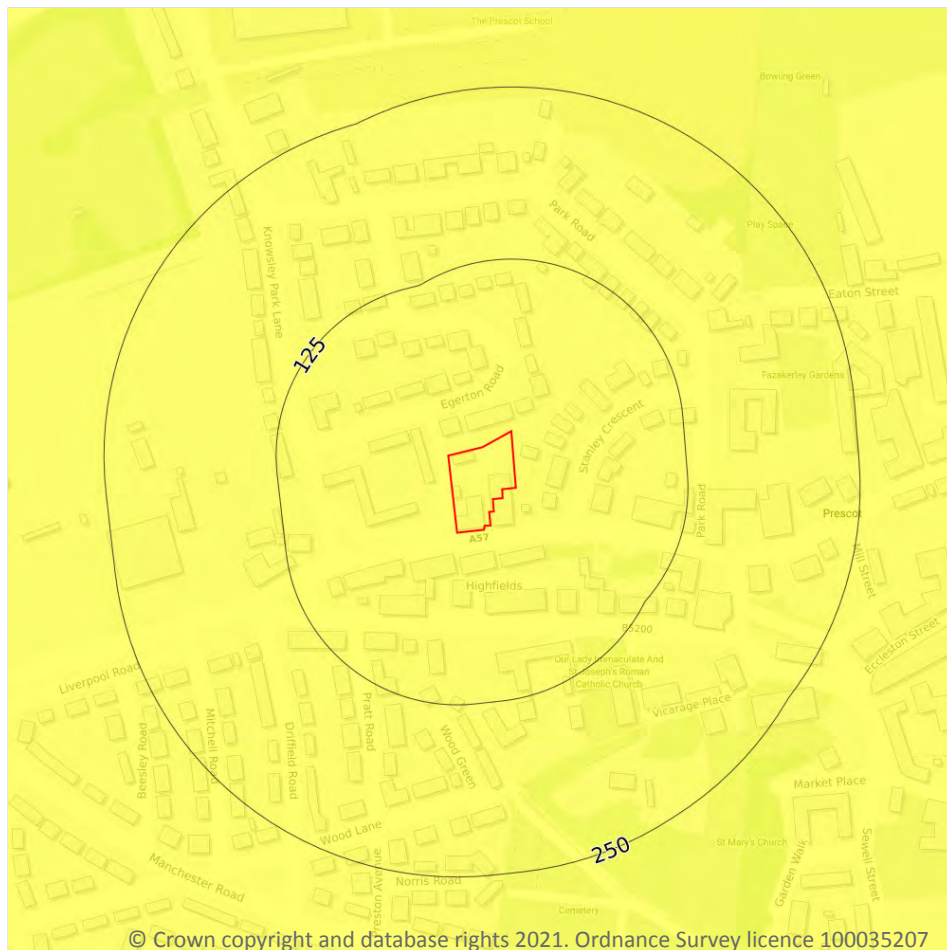
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 94**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline**
- Search buffers in metres (m)**
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

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

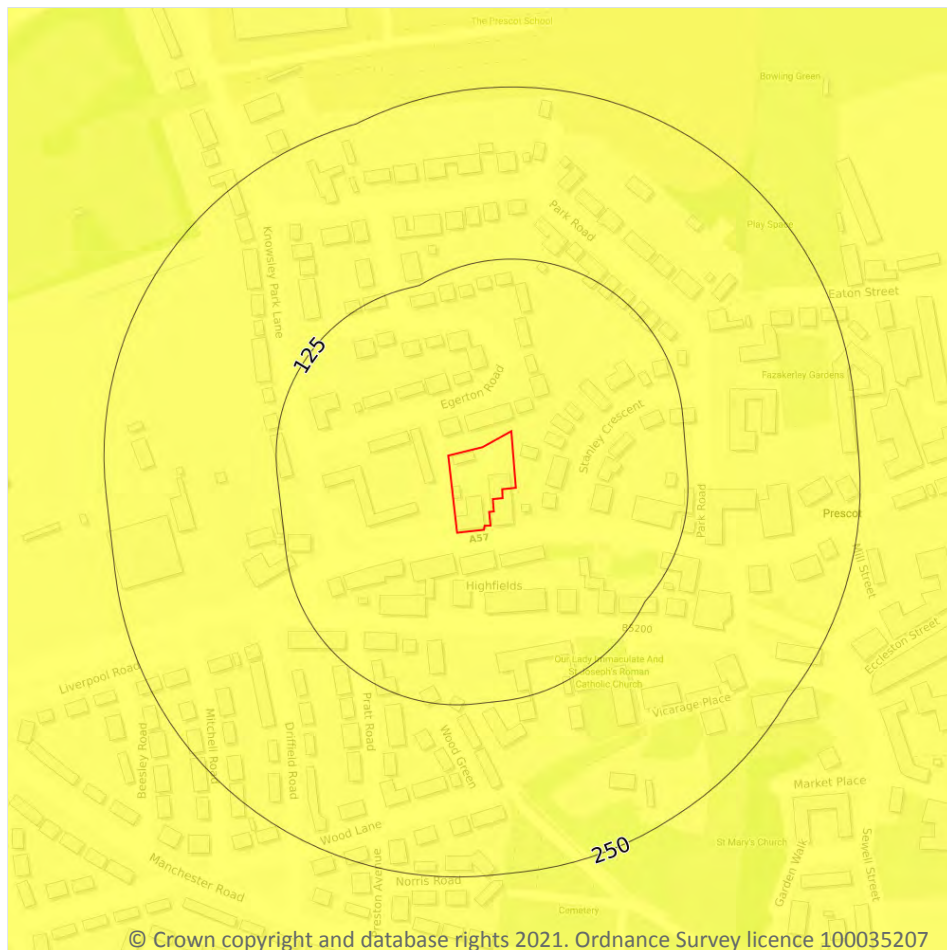
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 95**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



— Site Outline
Search buffers in metres (m)

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

17.5 Landslides

Records within 50m

1

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

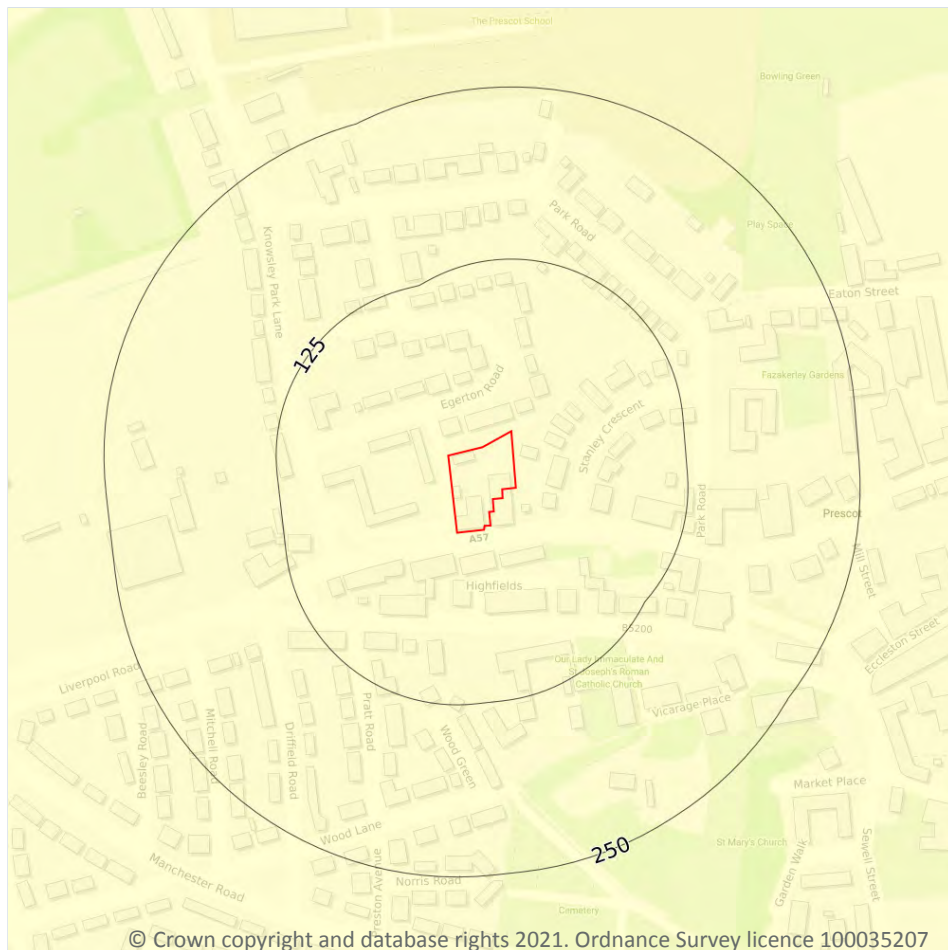
Features are displayed on the Natural ground subsidence - Landslides map on **page 96**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

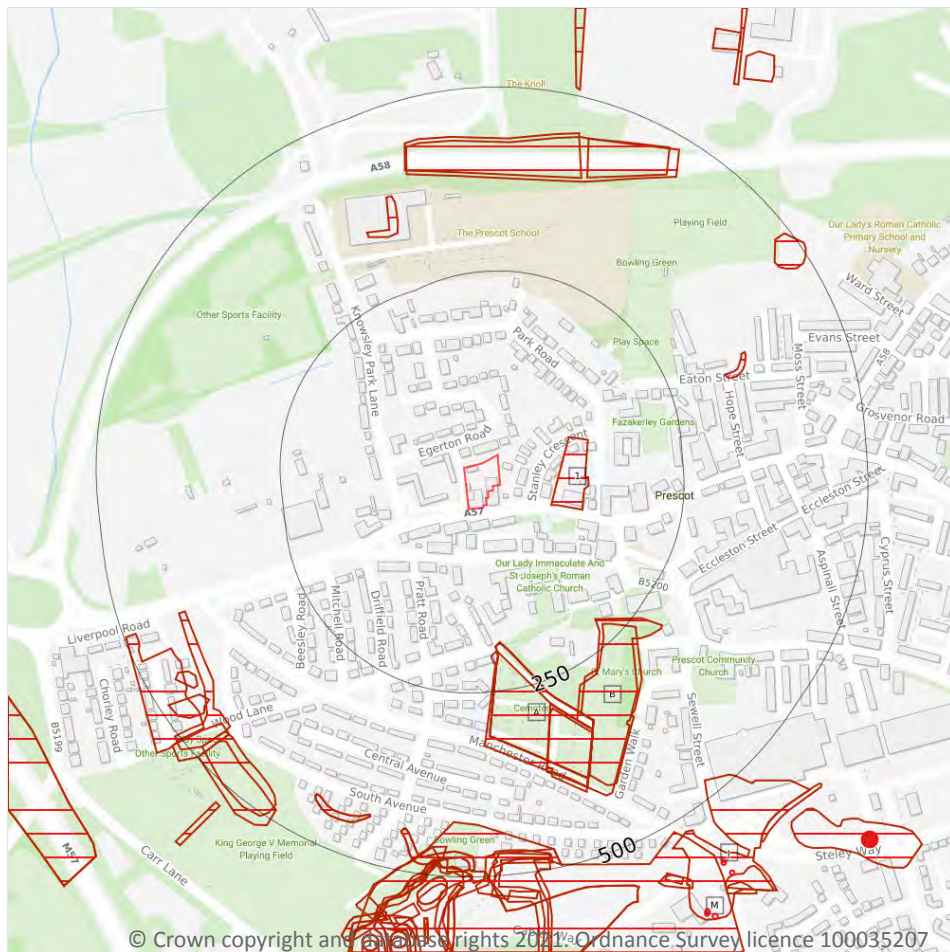
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 97**

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

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

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

8

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 98**

ID	Location	Land Use	Year of mapping	Mapping scale
1	74m E	Colliery	1851	1:10560
A	185m S	Cemetery	1955	1:10560
A	185m S	Cemetery	1975	1:10000
A	185m S	Cemetery	1990	1:10000
A	185m S	Cemetery	1966	1:10560
A	196m S	Cemetery	1950	1:10560
B	214m SE	Grave Yard	1950	1:10560
B	225m SE	Grave Yard	1955	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

7

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 98**

ID	Location	Land Use	Year of mapping	Mapping scale
J	577m SE	Unspecified Old Shaft	1906	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
J	580m SE	Unspecified Old Shaft	1925	1:10560
J	598m SE	Unspecified Old Shaft	1891	1:10560
M	625m SE	Unspecified Old Shaft	1906	1:10560
M	628m SE	Unspecified Old Shaft	1925	1:10560
M	635m SE	Unspecified Old Shaft	1891	1:10560
-	959m S	Unspecified Shaft	1891	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0
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Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0
-----------------------------	----------

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

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0
-----------------------------	----------

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

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0
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Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	1
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Areas which could be affected by past, current or future coal mining.

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0
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The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

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

18.11 Gypsum areas

Records on site	0
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Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
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Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

18.13 Clay mining

Records on site

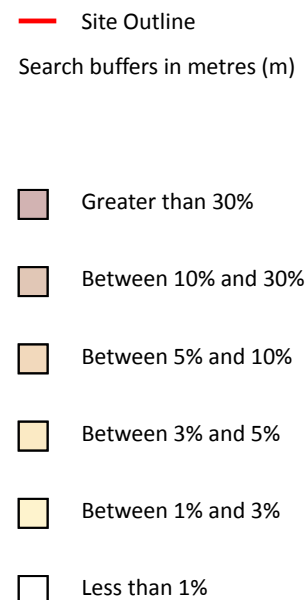
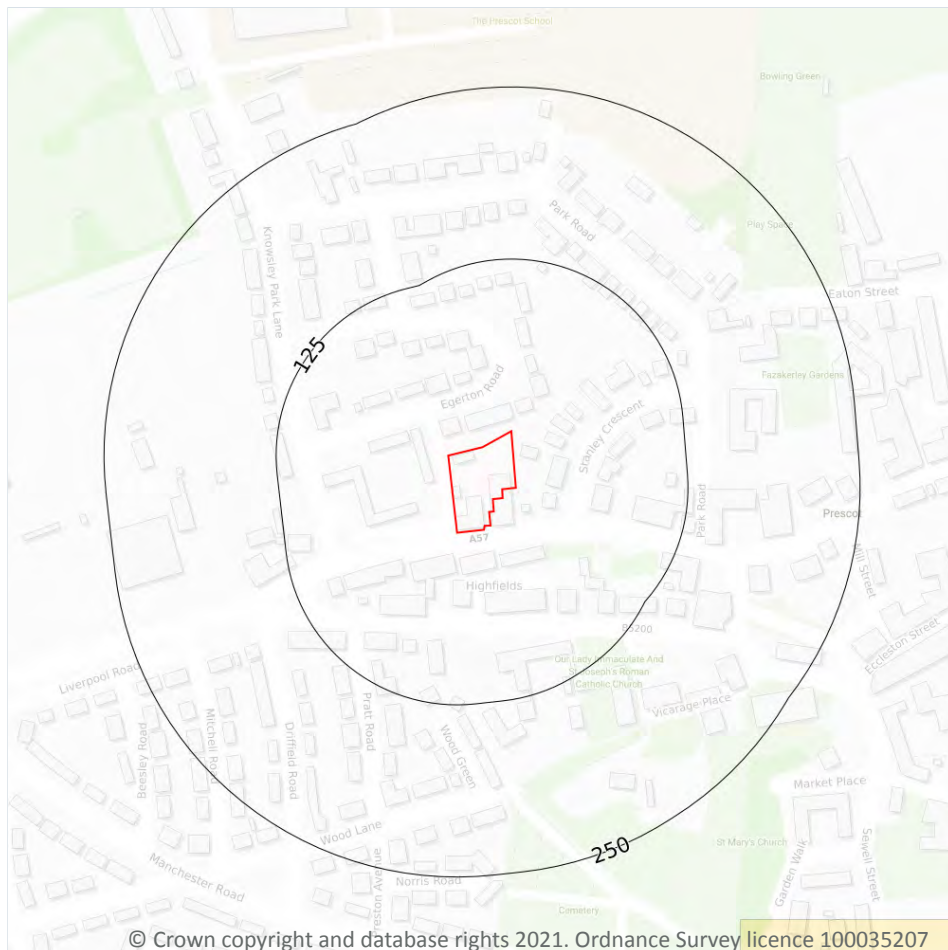
0

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

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



19 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 103**

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

4

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
7m NE	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
25m SE	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
41m SW	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 - 2.2 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.



20.3 BGS Measured Urban Soil Chemistry

Records within 50m

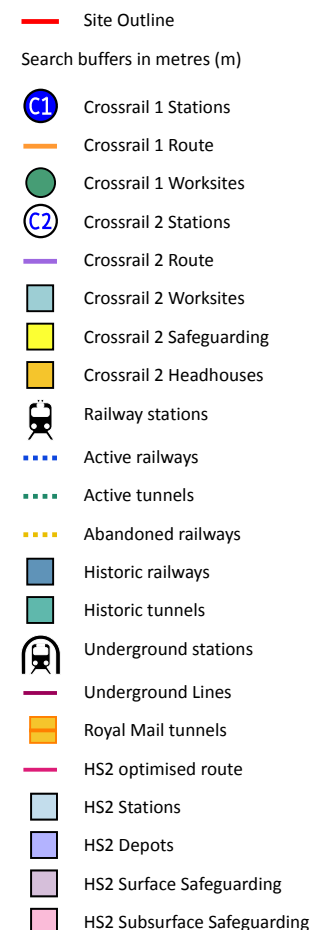
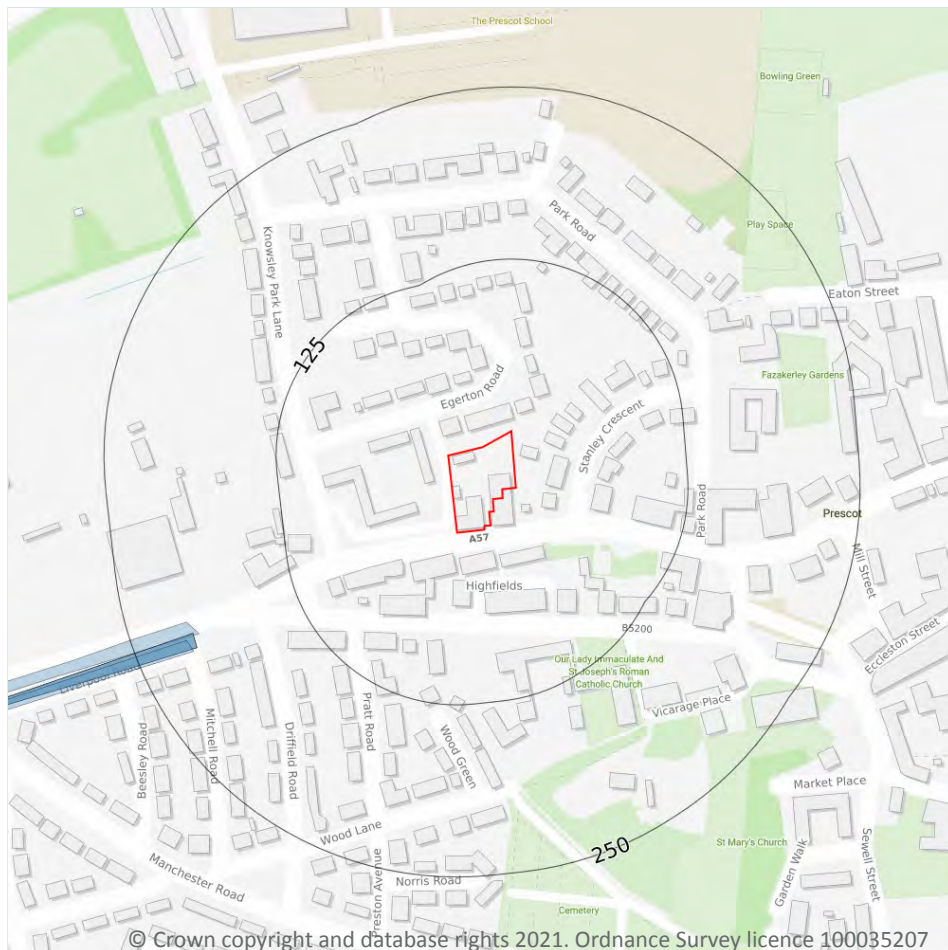
0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects



21.1 Underground railways (London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

5

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

Features are displayed on the Railway infrastructure and projects map on **page 106**

Location	Land Use	Year of mapping	Mapping scale
201m W	Tramway Sidings	1955	10560
205m W	Railway Sidings	1950	10560
205m W	Tramway Sidings	1938	10560
205m W	Tramway Sidings	1925	10560
210m SW	Tramway Sidings	1925	10560

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

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

This data is sourced from Groundsure/the Postal Museum.



21.6 Historical railways

Records within 250m**0**

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m**0**

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

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

This data is sourced from HS2 Ltd.

Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <https://www.groundsure.com/terms-and-conditions-jan-2020/>.



APPENDIX C: NATIONAL PLANNING POLICY FRAMEWORK TABLE 1 – 3

Note: These flood zones refer to the probability of river and sea flooding, ignoring the presence of defences

TABLE 1: FLOOD ZONES

Zone 1 - low probability

Definition

This zone comprises land assessed as having a less than 1:1 000 annual probability of river or sea flooding (<0.1%).

Appropriate uses

All uses of land are appropriate in this zone.

Flood risk assessment requirements

For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment. This need only be brief unless the factors above or other local considerations require particular attention.

Policy aims

In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems².

Zone 2 - medium probability

Definition

This zone comprises land assessed as having between a 1:100 and 1:1,000 annual probability of river flooding (1% – 0.1%), or between a 1:200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.

Appropriate uses

Essential infrastructure and the water-compatible, less vulnerable, and more vulnerable uses, as set out in table 2, are appropriate in this zone. The highly vulnerable uses are only appropriate in this zone if the Exception Test is passed.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage systems.

Zone 3a - high probability

Definition

This zone comprises land assessed as having a 1:100 or greater annual probability of river flooding (>1%), or a 1:200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Appropriate uses

The water-compatible and less vulnerable uses of land (table 2) are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone.

The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

- Reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems;
- Relocate existing development to land in zones with a lower probability of flooding; and
- Create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Zone 3b - the functional floodplain

Definition

This zone comprises land where water has to flow or be stored in times of flood.

Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.

The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1:20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain.

Appropriate uses

Only the water-compatible uses and the essential infrastructure listed in table 2 that has to be there should be permitted in this zone. It should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

Essential infrastructure in this zone should pass the Exception Test.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems;
- relocate existing development to land with a lower probability of flooding.

TABLE 2: FLOOD RISK VULNERABILITY CLASSIFICATION

Essential infrastructure

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.
- Wind turbines.

Highly vulnerable

- Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding.
- Emergency dispersal points.
- Basement dwellings.
- Caravans, mobile homes, and park homes intended for permanent residential use³.
- Installations requiring hazardous substances consent⁴. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as “essential infrastructure”)⁵

More vulnerable

- Hospitals.
- Residential institutions such as residential care homes, children’s homes, social services homes, prisons, and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs, and hotels.
- Non-residential uses for health services, nurseries, and educational establishments.
- Landfill and sites used for waste management facilities for hazardous waste⁶.
- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan⁷

³ For any proposal involving a change of use of land to a caravan, camping or chalet site, or to a mobile home site or park home site, the Sequential and Exception Tests should be applied.

⁴ See Circular 04/00: Planning controls for hazardous substances (paragraph 18) at:

www.communities.gov.uk/publications/planningandbuilding/circularplanningcontrols

⁵ In considering any development proposal for such an installation, local planning authorities should have regard to planning policy on pollution in the National Planning Policy Framework.

⁶ For definition, see Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10 at www.communities.gov.uk/publications/planningandbuilding/planningsustainable

⁷ See footnote 3.

Less vulnerable

- Police, ambulance, and fire stations which are not required to be operational during flooding.
- Buildings used for shops, financial, professional, and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage, and distribution, non-residential institutions not included in “more vulnerable”, and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).

Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas, and wharves.
- Navigation facilities.
- Ministry of Defence defence installations.
- Ship building, repairing, and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Notes to table 2:

1. This classification is based partly on Department for Environment, Food and Rural Affairs and Environment Agency research on Flood Risks to People (FD2321/TR2)8 and on the need of some uses to keep functioning during flooding.
2. Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.
3. The impact of a flood on the uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a vulnerability classification.

⁸ See website for further details. www.defra.gov.uk/science/Project_Data/DocumentLibrary/FD2320_3364_TRP.pdf

TABLE 3: FLOOD RISK VULNERABILITY AND FLOOD ZONE COMPATIBILITY						
VULNERABILITY CLASSIFICATION (TABLE 2)		ESSENTIAL INFRASTRUCTURE	WATER COMPATIBLE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE
FLOOD ZONE (TABLE 1)	Zone 1	√	√	√	√	√
	Zone 2	√	√	Exception Test Required	√	√
	Zone 3a	Exception Test Required	√	*	Exception Test Required	√
	Zone 3b Functional Floodplain	Exception Test Required	√	*	*	*

Key:

√ Development is appropriate

* Development should not be permitted

Notes on Table 3;

- The application of the Sequential Test which guides development to Flood Zone 1 first, then Zone 2, and then Zone 3;
- Flood risk assessment requirements; or
- The policy aims for each flood zone.

APPENDIX D: GREENFIELD CALCULATIONS



Site: Former Prescott Ploce Station
Job Number: 22-13413
Client: Prima Group
Completed By: T. Gerrard
Authorised By: Chris Bolan
Date Assessed: Sept' 22

Wallingford Procedure Runoff Calculations

Total Site Area	2240	m ²		
Previous Impermeable Area	2105	m ²	PIMP	94 %
Post Developmet Imp Area	1905	m ²	PIMP	85 %

Soil Value	4	%age Runoff Before	79 %
Average Rainfall	850	%age Runoff After	72 %
M5-60	19		
UCWI	138		

Return Period	100	30	20	5	2	1		100	30	20	5	2	1
r	0.4	0.4	0.4	0.4	0.4	0.4	Cv	0.84	0.84	0.85	0.85	0.85	0.85
Z1	0.47	0.47	0.47	0.47	0.47	0.47	Cr	1.40	1.40	1.40	1.40	1.40	1.40
M5-10	8.93	8.93	8.93	8.93	8.46	8.93	Area	0.22	0.22	0.22	0.22	0.22	0.22
Z2	2.03	1.55	1.45	1.03	0.78	0.64	Q	68.10	51.72	48.70	34.59	24.95	21.49
Rainfall Intensity	108.7674	83.05	77.69	55.19	39.59	34.29							

Q100year+ Climate Change (40%) 95.34 l/s

Calculated by: Tony Gerrard

Site name: Former Police Station

Site location: Derby Street, Prescott, L34

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude: 53.42989° N

Longitude: 2.8095° W

Reference: 132171877

Date: Sep 28 2022 14:46

Runoff estimation approach: IH124

Site characteristics

Total site area (ha): 0.224

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

Hydrological characteristics

	Default	Edited
SAAR (mm):	885	885
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	0.54	0.54
1 in 1 year (l/s):	0.47	0.47
1 in 30 years (l/s):	0.91	0.91
1 in 100 year (l/s):	1.12	1.12
1 in 200 years (l/s):	1.27	1.27

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.