



Haigh Huddleston & Associates

Civil & Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Road, Dewsbury, WF12 7BU

t 01924 464342 f 01924 450662 e trevor.haigh@haighhuddleston.co.uk

Geo-environmental Ground Investigation Report

ON

PROPOSED RESIDENTIAL DEVELOPMENT

AT

**KENILWORTH NURSERIES, LONDON ROAD,
RETFORD**

FOR

HARRON HOMES

MAY 2016

E16/6617/R001

Prepared by

M.Huddleston MEng

INDEX

0.0	Executive Summary	Page 4
1.0	Introduction	Page 8
2.0	The Site	Page 10
3.0	Site History	Page 12
4.0	Site Geology and Mining	Page 13
5.0	Environmental Considerations	Page 14
5.1	Radon	Page 14
5.2	Landfill Sites	Page 14
5.3	Flood Risk	Page 14
5.4	Groundwater	Page 14
6.0	Preliminary Site Conceptual Model	Page 16
7.0	Fieldwork	Page 18
8.0	Results of the Investigation	Page 20
8.1	Geotechnical Investigation	Page 20
8.2	Groundwater	Page 20
8.3	Gas Monitoring	Page 20
9.0	Contamination	Page 25
9.1	Human Health Risk Assessment	Page 25
9.2	Contamination Results	Page 25
9.3	Qualitative Risk Assessment	Page 28
10.0	Conclusions and Recommendations	Page 31
10.1	Geotechnical Assessment	Page 31
10.2	Ground Floor Slab – Gas Measures	Page 32
10.3	Surface Water Drainage	Page 33
10.4	Contamination Assessment	Page 33
11.0	Suggested Further Work	Page 36

- Appendix A Site Location Plan
 - Trial Pit Location Plan
 - Typical Site Conceptual Model

- Appendix B Trial Hole Logs
 - Soakaway Test Results
 - Borehole Logs

- Appendix C Chemical Analysis of Samples
 - Geotechnical Analysis of Samples

- Appendix D Coal Authority Report
 - Geological Report

- Appendix E Groundsure Report
 - Historical Plans

0.0 EXECUTIVE SUMMARY

SITE	<p>The site is irregularly shaped and located to the east of London Road, Retford. To the north there are residential developments, and to the south and east are open fields. To the south west is a railway line and to the west is London Road. A watercourse flows northwards along the eastern boundary. The eastern three quarters of the site consists of open field with a broken hedge running west to east along the centre. A small pond was noted within a copse of trees in the north east corner of the site.</p> <p>The western quarter of the site is used as a nursery which consists of greenhouses, single storey brick shops a small area of hardstanding and planted grounds.</p> <p>The site banks down from London Road on the western boundary by 1-2.5m before gently rising to the hedge separating the nursery from the field. From the hedge the site falls to the watercourse on the eastern boundary at an average grade of approximately 1 in 90.</p> <p>There is sporadic tree growth noted in the nursery area and the site boundaries. There is a dense copse of trees immediately north east of the site.</p>
HISTORY	<p>From 1885, the site was shown separated into several fields with a pond in the north eastern corner, which is the only pond remaining on site. From the 1880s to the 1920s there were also ponds indicated in the north west and south east of the site.</p> <p>From the historical plans, only the north western corner has been developed. In 1938, the development of the north west corner of the site where the nursery now is. This was not labelled formally as a nursery until the 1970s. There has been little development in the vicinity of the site, with residential properties located to the north from the 1930s onwards.</p>
GEOLOGY	<p>No artificial strata is shown on or in the vicinity of the site. However, ground workings are recorded immediately west of the site presumably associated with the construction of the railway line.</p> <p>The entire site is shown to be overlain by superficial strata consisting of Sands and Gravels. The western three quarters are classified as Glaciofluvial Deposits and the eastern quarter as River Terrace Deposits.</p> <p>The majority of the site is shown to be underlain by the Mercia Mudstone Group consisting of Mudstone, with only the western edge of the site shown to be underlain by the Tarporley Siltstone Formation consisting of Siltstone, Mudstone and Sandstone.</p> <p>There are no fault lines shown in the vicinity of the site.</p>

The trial pit excavations generally proved a shallow depth of topsoil overlying a sandy firm clay becoming firm/stiff with depth in the east of the site. In the west there were bands of sands and gravels encountered in addition to the clays. Only in TP13 undertaken adjacent London Road was a 1m depth of made ground consisting of topsoil, crushed brick, sandstone gravels and pottery encountered.

All but TP13 terminated in the mudstone/sandstone strata which was encountered at depths of 1.1m to 2.6m below existing ground levels.

TP13 terminated in a layer of sands and gravels in a sandy clay matrix at a depth of 2.5m.

The window samples proved shallow depths of sands and gravels in the west of the site and clays in the east of the site with the underlying sandstone and mudstone recorded at depths of 0.9m to 2.8m across site.

Instability was noted in several of the trial pits, in particular where loose sands and gravels were encountered in the west and with the ingress of ground water.

MINING/QUARRYING The Coal Authority report states that the site is not within a surface area that could be affected by past underground mining.
The property is not in an area likely to be affected by present, planned, or where they plan to approve, a license to remove or work coal by underground methods.
There are no known coal mine entries within, or within 20m of, the boundary of the property.

HYDROLOGY The nearest surface water features are an un-named pond in the north east of the site and an un-named tertiary river flowing to the north on the eastern boundary. The watercourse shows elevated water levels, and becomes an Environment Agency maintained watercourse approximately 180m north of the site.
There are two recorded licensed discharge consents within 250m of the site. These are both located 214m to the south west.
There is one recorded pollution incident to controlled waters within 250m of the site. This was a Category 3 (Minor) incident located 210m north east of the site.
The western quarter of the site is located within an area designated as Source Protection Zone 3 – Total Catchment.
The site is not within an Environment Agency defined flood zone.

HYDROGEOLOGY The superficial strata overlying the site is designated as a Secondary A Aquifer.

The bedrock underlying the site is designated as a Secondary B Aquifer. There are no recorded groundwater abstractions located within 250m of the site.

There is a single recorded surface water abstraction located within 250m of the site. This is located 230m south west of the site.

The site is in an area recorded to be susceptible from groundwater flooding within the superficial deposits.

Groundwater ingress was noted in eight of the fifteen trial pits throughout the site at depths of 0.7m to 2.3m below existing ground levels.

Only three of the window samples recorded groundwater strikes at a depth of 1.0m.

During the gas monitoring undertaken on site, groundwater levels have been recorded at 0.1m to 1.30m below existing ground levels.

Elevated ground water levels are expected as standing water was noted adjacent to the watercourse and due to the levels observed in the watercourse adjacent the site and in the pond.

HAZARDOUS GAS

The property is not in an area requiring radon protection measures. Gas monitoring to date has recorded a maximum carbon dioxide concentration of 1.2% and no methane. A maximum flow rate of 0.3 l/s has been recorded. Based on these the site would have a preliminary classification of GREEN. However, the gas monitoring is ongoing and a final report will be prepared confirming any gas protection measures required upon completion.

CONTAMINATION

The samples of topsoils and subsoils submitted for analysis proved no elevated levels of contaminants.

No asbestos was recorded in the samples submitted for analysis.

REMEDIATION

An asbestos survey should be undertaken prior to the demolition of the existing buildings on the nursery on site and any asbestos containing material removed by a suitably qualified and certified specialist contractor.

Following the demolition of the existing properties and areas of hardstanding on site, further investigation works should be undertaken to determine any areas of localised contamination to be removed from site.

The existing topsoil on site should be scraped and stockpiled behind protective fencing prior to development commencing. Further testing should be undertaken to provide a robust sample set confirming its suitability for use on site.

FOUNDATIONS

Based on the site investigations to date, we would recommend the proposed residential properties should be constructed on strip/trench fill footings founded entirely onto the firm clay strata. Where mudstone/sandstone is encountered within the excavations, the foundations should be deepened to lie entirely onto the sandstone/mudstone strata to avoid differential settlement. The foundation widths will vary dependent upon the line loadings calculated.

Due to the presumed high groundwater table, and instability noted within the trial pits, extra caution should be taken to prevent collapse during excavation works, especially in the western areas of the site.

DRAINAGE

The soak-a-way tests undertaken to date indicate that infiltration methods will **not** be a suitable long term method of surface water disposal. The water levels rose during the majority of the soak-a-way tests, an indication of the high water table likely to be encountered.

It is proposed to discharge surface water run-off from the site to the existing watercourse located on the eastern boundary of the site. The proposed discharge rate for the development should be restricted to greenfield run-off rates with on-site attenuation provided through detention basins and underground storage.

Notts CC has stated that there should be a minimum two-stage treatment train for the surface water run-off prior to discharging to the watercourse if it is not located within an IDB area. Notts CC have verbally confirmed they would not be willing to adopt these features.

Due to the presumed high groundwater table, and instability noted within the trial pits, as a pre-caution, trench support should be provided during drainage and foundation excavation works, especially in the western areas of the site.

1.0 **INTRODUCTION**

- 1.1 As requested by Harron Homes, this practice carried out ground and contamination investigation works to the proposed development located at Kenilworth Nurseries, London Road, Retford.
- 1.2 The purpose of the report was to:-
- 1.2.1 Identify the nature of the near surface strata, in order to enable to recommendations to be made as to the most economic foundation solution for the proposed residential properties.
 - 1.2.2 To identify any areas of contaminated ground.
 - 1.2.3 Propose a suitable outline remediation strategy, which will enable the site to be developed safely, to the satisfaction of the overseeing regulators and in compliance with the current environmental standards.
 - 1.2.4 Determine if infiltration methods would be a suitable form of surface water dispersal.
- 1.3 Soil sampling was undertaken via trial pits to determine the near surface strata. Distributed samples were taken for testing to ascertain the nature of the soils and fills present. It should be noted that Kenilworth Nurseries was an ongoing venture at the time of the investigation works which restricted the location of the proposed window samples and trial pits in the western third of the site adjacent London Road.
- 1.4 The conclusions and recommendations made in this report are limited to the findings of the preliminary Geotechnical Survey. The report is made on condition that Haigh Huddleston Associates will not in any circumstances be liable for loss, arising directly or indirectly from ground conditions encountered between trial pits and window samples, which have not been revealed by the investigation.
- 1.5 Any opinion given on the possible configuration of strata between trial pit and window sample locations and below maximum depth of the investigation is for guidance only. Any remarks on groundwater conditions made are based solely on observations made at the time of investigation. Kindly note that levels may differ from those reported due to seasonal variations or other influences.
- 1.6 Furthermore, there is the possibility that any trial pits or window samples undertaken as part of the investigatory works may be within the influence of existing or proposed

foundations or excavations. Haigh Huddleston Associates cannot be held responsible for any failure of any excavations, foundations or structures within the influence of the trial pits or window samples.

2.0 THE SITE

- 2.1 The site is located to the east of London Road, Retford and is situated around Ordnance Survey grid reference 471533, 379517. A site location plan is included in Appendix A.
- 2.2 The site is irregularly shaped, and located on the edge of a residential area. There is vehicle access direct from London Road on the western boundary and indirectly across fields on the eastern boundary. To the north there are residential developments, and to the south and east are open fields. To the south west is a railway line and to the west is London Road. A small watercourse flows northwards along the eastern boundary. The overall site area to be developed is approximately 10.68ha.
- 2.3 The western quarter of the site is used as a nursery which consists of greenhouses, single storey brick shops a small area of hardstanding and planted grounds. There were informal French drains to the perimeters of several of the greenhouses. Towards the south of the nurseries there was a septic tank with a pumped discharge to a ditch containing discoloured water that acted as a soak-a-way.
- 2.4 The eastern three quarters of the site consists of open field with a broken hedge running west to east along the centre. A small pond was noted within a copse of trees in the north east corner of the site. There was a ditch running along the southern boundary which was dry at the time of the site investigation works. The water in the watercourse on the western boundary appeared to be fairly stagnant, suggesting a flat gradient and/or possible siltation/blockage downstream.
- 2.5 There is sporadic tree growth noted in the nursery area and the site boundaries. There is a dense copse of trees immediately north east of the site.
- 2.6 The majority of the site boundary is formed by a mixture of hedges and timber fences. The eastern boundary is formed by a watercourse which has a small culverted area in the north east to allow vehicle access to the fields.
- 2.7 The site banks down from London Road on the western boundary by 1-2.5m before gently rising to the hedge separating the nursery from the field. From the hedge the site falls to the watercourse on the eastern boundary at an average grade of

approximately 1 in 90. There is a high point of approximately 23.2m AOD in the south west of the site and a low point of approximately 18.0m AOD in the north east adjacent the watercourse.

3.0 SITE HISTORY

A number of historical Ordnance Survey plans from 1885-2014 have been consulted. These are contained for reference within Appendix E to the rear of the report. Below is a brief description outlining the significant developments that may affect future construction of the site.

Date	Historical uses on site	Historical findings within 100m perimeter of the site	Historical findings further than 100m perimeter of the site
1885	<ul style="list-style-type: none"> i) The site is shown as several separate fields with ponds in the north east, east and north west of the site. ii) A watercourse is shown on the eastern boundary. iii) There is a highway and a railway adjacent the western and south western boundaries. iv) A footpath is shown following within the northern and eastern boundaries. 	<ul style="list-style-type: none"> i) There are fields to the north, east and south and beyond the highway and railway to the west. ii) Pond shown approximately 50m north of the site. 	<ul style="list-style-type: none"> i) The River Idle is located approximately 250m south west of the site.
1898	<ul style="list-style-type: none"> i) The on-site features are similar to the previous sheet. 	<ul style="list-style-type: none"> i) Nurseries shown 25m south west of the site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
1921	<ul style="list-style-type: none"> i) The on-site features are similar to the previous sheet. 	<ul style="list-style-type: none"> i) Lodge labelled adjacent western boundary. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
1938	<ul style="list-style-type: none"> i) Buildings shown in north western corner of the site. 	<ul style="list-style-type: none"> i) Residential development immediately north west of the site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
1948	<ul style="list-style-type: none"> i) The on-site features are similar to the previous sheet. 	<ul style="list-style-type: none"> i) No significant developments within 100m of the site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
1956	<ul style="list-style-type: none"> i) The on-site features are similar to the previous sheet. 	<ul style="list-style-type: none"> i) No significant developments within 100m of the site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
1974-1980	<ul style="list-style-type: none"> i) Buildings in north west labelled as nurseries. ii) Ponds no longer shown in north west or east of the site 	<ul style="list-style-type: none"> i) Residential development north of the site over location of former pond. ii) Nurseries no longer labelled to south west of site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
2002	<ul style="list-style-type: none"> i) The on-site features are similar to the previous sheet. 	<ul style="list-style-type: none"> i) Residential development immediately north east of site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
2010	<ul style="list-style-type: none"> i) Buildings redeveloped adjacent western boundary of the site. 	<ul style="list-style-type: none"> i) No significant developments within 100m of the site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.
2014	<ul style="list-style-type: none"> i) The on-site features are similar to the previous sheet. 	<ul style="list-style-type: none"> i) No significant developments within 100m of the site. 	<ul style="list-style-type: none"> i) No significant developments 100-500m from site.

4.0 SITE GEOLOGY & MINING

- 4.1 The BGS Digital Geological Map of Great Britain at 1:50,000 scale has been consulted and we would report as follows:-
- 4.2 No artificial strata is shown on or in the vicinity of the site. However, ground workings are recorded immediately west of the site presumably associated with the construction of the railway line.
- 4.3 The entire site is shown to be overlain by superficial strata consisting of Sands and Gravels. The western three quarters are classified as Glaciofluvial Deposits and the eastern quarter as River Terrace Deposits.
- 4.4 The majority of the site is shown to be underlain by the Mercia Mudstone Group consisting of Mudstone, with only the western edge of the site shown to be underlain by the Tarporley Siltstone Formation consisting of Siltstone, Mudstone and Sandstone.
- 4.5 There are no fault lines shown in the vicinity of the site.
- 4.6 The Coal Authority Report has been obtained and is included in Appendix D. This states that the property is not within the zone of likely physical influence on the surface from past underground workings.
- 4.7 The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods. The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods. However, reserves of coal exist in the local area which could be worked at some time in the future.
- 4.8 There are no known coal mine entries within, or within 20 metres of, the boundary of the property.
- 4.9 There are no subsidence claims within 50 metres of the site.

5.0 ENVIRONMENTAL CONSIDERATIONS

5.1 Radon

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

No Radon Protective Measures are necessary.

5.2 Landfill Sites

There are no recorded historical or active landfill sites shown within 500m of the site.

5.3 Flood Risk

The site is not within an Environment Agency defined flood zone.

The site is in an area recorded to be susceptible from groundwater flooding within the superficial deposits.

A Flood Risk Assessment has been prepared for the site, and this should be consulted for a detailed analysis of the flood risk to the development.

5.4 Groundwater

The superficial strata overlying the site are classified as Secondary (A) Aquifers. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

The bedrocks underlying the site are classified as Secondary (B) Aquifers. These are predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers

There are no groundwater abstraction licences recorded within 250m of the site.

There are two recorded licensed discharge consents within 250m of the site. These are both located 214m to the south west.

There is a single recorded surface water abstraction located within 250m of the site. This is located 230m south west of the site.

There is one recorded pollution incident to controlled waters within 250m of the site. This was a Category 3 (Minor) incident located 210m north east of the site.

The western quarter of the site is located within an area designated as Source Protection Zone 3 – Total Catchment.

The nearest surface water features are an un-named pond in the north east of the site and an un-named tertiary river flowing to the north on the eastern boundary. The watercourse shows elevated water levels, and becomes an Environment Agency controlled watercourse approximately 180m north of the site.

6.0 PRELIMINARY CONCEPTUAL SITE MODEL

- 6.1 The initial stage in assessing the risks posed from contaminated land during the redevelopment of a site is to prepare a conceptual model. A generalised conceptual model can be developed highlighting the main pollutant linkages through a contaminant ► pathway ► receptor model for a residential development. In order to prepare the conceptual model for a particular site the following parameters need to be reviewed as discussed below.
- 6.2 Contamination of existing land can be caused by a number of factors, including:-
- i) Possible historical/current industrial activities.
 - ii) Disposal of waste materials.
 - iii) Storage of materials.
 - iv) A number of natural processes can also lead to hazardous gases and elevated heavy metals.
- 6.3 Potential pathways can include ground and surface water, permeable strata, existing services providing a conduit and voided ground. Potential receptors can include human health, ecosystems, controlled waters and building structures. There are a number of ways that a receptor can be exposed to the contaminant these include, inhalation, direct contact, ingestion, dermal contact and uptake.
- 6.4 Sources of potential contamination, that could affect the proposed development, from either on or off site activities would include the following:-
- i) Construction materials within existing buildings on site.
 - ii) Possible made ground used in levelling the nurseries in the west of the site.
- Based on the above activities the potential for some contamination to exist on site is considered to be low.
- 6.5 Considering the proposed residential end use, there will be two possible human receptor groups exposed to the existing onsite contamination:-
- a) Site operatives during development.
 - b) End users, future site residents (the critical receptor is a 6 year old female).
- 6.6 Human receptors may be exposed to site contamination by a number of possible pathways. These pathways are summarised in Table 1 below.

Table 1- Potential Human Exposure Pathways

<u>Human Exposure Pathway</u>	<u>Site Users</u>	<u>Construction Workers</u>
Soil Ingestion	YES	YES
Consumption of Home Grown Vegetables	YES	NO
Dermal Contact	YES	YES
Dust Inhalation	YES	YES
Gases/Vapours	YES	NO

- 6.7 The construction workers will come into contact with any contaminated soil to a far greater extent than future residents. The exposure pathways are generally through dermal contact and indirect ingestion. However their exposure will be for a limited time and the provision and correct use of personnel protective equipment and adequate welfare facilities during construction should restrict their risks to acceptable levels
- 6.8 The risk of pollution to controlled waters by existing contamination is considered low. The site is overlain by superficial strata that is classified as a Secondary (A) Aquifer with bedrock classified as a Secondary (B) aquifer. The nearest surface water feature is an un-named watercourse on the eastern boundary of the site. The historical plans show no obvious sources of potential contamination, however care should be taken during construction to ensure no contamination from building works enters the watercourse.
- 6.9 No specific areas of ecological importance have been identified in the initial desk top study. Therefore the site is considered to be in a low risk environmental setting. The potential for phototoxic materials to exist at shallow depth should be considered, these could pose a potential risk to new planting and soft landscaping areas within the proposed development.
- 6.10 The proposed planning drawings indicate residential properties with private garden areas to be constructed. The presence of elevated sulphates and hydrocarbons could affect the long term integrity of buried concrete structures, including foundations and drainage pipes. Plastic water supply pipes can also be damaged by the presence of hydrocarbon contamination.

7.0 FIELDWORK

- 7.1 Site investigation works were undertaken using a JCB 3CX with back actor and 600mm wide bucket on 23rd and 24th March 2016. A total of fifteen trial pits were undertaken to enable soil sampling to be undertaken. In addition to this, a total of fifteen window samples were undertaken during the two days. Four of the window samples were set up as gas and water monitoring stations. The location of the trial pits and window samples are indicated on the plan in Appendix A.
- 7.2 Materials encountered in the trial pits and window samples were examined and categorised. Trial pit and window sample logs are contained within Appendix B of the report.
- 7.3 The soakaway tests were undertaken in accordance with the method specified in BRE Digest 365 Soakaway Design. An instantaneous supply of water was provided via an IBC. In general the trial pits were filled and the water levels were recorded against time as the water permeated into the natural strata. Due to time constraints only one soakaway test was undertaken within each trial pit. The water level was monitored over an extended time period to determine the infiltration rate for the sandstone strata.
- 7.4 The site investigation works were designed to achieve comprehensive site coverage within the proposed development area. Kenilworth Nursery in the west of the site is an ongoing venture with existing buildings and services which restricted the locations of trial pits and window samples in this area.
- 7.5 Soil samples were removed from the natural and made ground deposits within the trial pits. The samples were removed by operatives wearing gloves and placed into airtight clean plastic containers and glass bottles for transportation to the laboratory.
- 7.6 A total of seventeen samples from the natural and made ground deposits were recovered from the trial holes for chemical analysis. The testing was carried out by a UKAS accredited laboratory to nationally or accredited in-house methods. The results of the contamination testing are contained within Appendix C of this report.
- 7.7 A full range of common metal and inorganic contaminants were tested for as well as Total TPH and asbestos from the natural and made ground samples.

7.8 All samples were stored in airtight containers within cool boxes at approximately 4°C until delivery to the laboratory within 48 hours.

8.0 RESULTS OF THE INVESTIGATION

8.1 GEOTECHNICAL INVESTIGATION

- 8.1.1 A copy of the trial hole and window sample logs providing a complete record of strata encountered beneath the proposed development is presented in Appendix B.
- 8.1.2 The trial pit excavations generally proved a shallow depth of topsoil overlying a sandy firm clay becoming firm/stiff with depth in the east of the site. In the west there were bands of sands and gravels encountered in addition to the clays.
- 8.1.3 The surface of all the trial pits except TP06 consisted of dark brown topsoil. In TP13 and TP14 in the nursery area, this was noted to contain made ground material including gravels, pottery, plastic and some brick fragments. Generally, the topsoil varied in depth between 0.2m and 0.35m, with only TP13 recording a greater depth of 1.0m.
- 8.1.4 At the surface of TP06, and beneath the topsoil in the remaining trial pits, except TP14, there was a soft to firm light brown sandy clay that was noted to contain sandstone gravels in several trial pits. The thickness of clay varied from 0.45m to 1.85m across site.
- 8.1.5 In the east of the site, several of the trial pits had a second layer of firm to stiff dark reddish brown clay. This varied in thickness from 0.6m to 1.0m across site.
- 8.1.6 In the west of the site, there was a layer of medium dense sand and gravels beneath the clay and topsoil. In TP12 this was noted to be wet. The thickness of sands and gravels varied from 0.55m to 1.65m across site. TP13 terminated in this strata at a depth of 2.5m below existing ground levels.
- 8.1.7 At the base of all the trial pits except TP13 there was either a mudstone or sandstone strata that became difficult to excavate. This was encountered at 0.8m to 2.65m below existing ground levels.
- 8.1.8 Instability was noted in several of the trial pits in the nursery/western area of the site (TP05, TP12 and TP13), in particular where loose sands and gravels were

encountered and with the ingress of ground water. However, it should be noted that the trial pits only remained open for a short period of time before being backfilled.

8.1.9 As discussed previously in the report, seven of the trial pits were used to carry out soakaway tests in order to obtain infiltration rates across the site.

8.1.10 The infiltration rate has been calculated in each case between the 75% and 25% full values as recommended in the BRE Digest 365. The soakaway results are included in Appendix B and are summarised Table 2 below:-

Table 2 Summary of infiltration rates

SOAKAWAY NUMBER	INFILTRATION RATE m/s x10⁻⁶
TP01	RISE IN WATER LEVEL
TP02	RISE IN WATER LEVEL
TP04	RISE IN WATER LEVEL
TP07	RISE IN WATER LEVEL
TP08	NEGLIGIBLE DROP IN WATER LEVEL
TP10	RISE IN WATER LEVEL
TP14	NO CHANGE IN WATER LEVEL

8.1.11 Only TP08 recorded a drop in water levels during the soak-a-way test. The majority of the trial pits recorded a rise in water level due to groundwater ingress.

8.1.12 The window samples proved shallow depths of sands and gravels in the west of the site and clays in the east of the site with the underlying sandstone and mudstone recorded at depths of 0.9m to 2.8m across site.

8.1.13 Cone Penetration Test 'N' values taken at 1.0m depth increments within the window samples are summarised in Table 3 below:-

Table 3 Summary of CPT (N Value)

Depth (m)	1.0-1.45	2.0-2.45	3.0-3.45	
WS1(N Value)	23	REFUSAL	-	-
WS2(N Value)	10	REFUSAL	-	-
WS3(N Value)	8	REFUSAL	-	-
WS4(N Value)	16	REFUSAL	-	-
WS5(N Value)	14	REFUSAL	-	-
WS6(N Value)	27	-	-	REFUSAL AT 1.70-2.15
WS7(N Value)	18	REFUSAL	-	-
WS8(N Value)	28	-	-	REFUSAL AT 1.50-1.95
WS9(N Value)	22	REFUSAL	-	-
WS10(N Value)	REFUSAL	-	-	-
WS11(N Value)	15	32	REFUSAL	-
WS12(N Value)	44	REFUSAL	-	-
WS13(N Value)	16	24	REFUSAL	-
WS14(N Value)	22	22	-	REFUSAL AT 2.80-3.25
WS15(N Value)	36	-	-	REFUSAL AT 1.90-2.35

8.1.14 The CPT tests indicate firm to very stiff clays. Refusals were recorded within the shallow mudstone and sandstone strata.

8.1.15 The results of the geotechnical analysis undertaken on the samples of clayey soil indicates the clay to be of low to very high plasticity (Plasticity Index 10-48%). If the modified results are calculated, taking into account the percentage of material retained on a 425micron sieve, the results correspond to a high shrinkage clay. The test certificates are contained in Appendix C.

8.2 GROUNDWATER

8.2.1 Groundwater was encountered in eight of the fifteen trial pits undertaken on site at depths of 0.7 – 2.3m below existing ground levels.

8.2.2 During the window sampling, groundwater was encountered in three window samples at a depth of 1.0m below existing ground levels. During the gas monitoring, groundwater has been recorded at depths of 0.1m to 1.3m below existing ground levels. The shallowest groundwater was recorded in WS01 in the east of the site

which indicated ground water levels very close to the surface (0.1-0.4m below existing ground levels).

- 8.2.3 It should be recognised that ground water levels may vary throughout the year. During periods of heavy rainfall the groundwater levels may be substantially higher than the results revealed in this investigation.

8.3 GAS MONITORING

- 8.3.1 As discussed previously WS01, WS09, WS11 and WS14 were installed with gas standpipes and lockable covers. Gas testing is currently being undertaken on site and to date the wells have been monitored on four occasions.

- 8.3.2 A standard gas monitoring procedure has been followed in accordance with CIRIA guidance, including measurement of the following:-

- i) Methane, Oxygen and Carbon Dioxide concentrations.
- ii) Atmospheric Pressure.
- iii) Gas Flow Rate.
- iv) Standing water level.

- 8.3.3 The result of the monitoring undertaken to-date is summarised in Table 4 below. A complete set of results will be reported on completion of the intended testing programme.

Table 4 - Summary of Recorded Gas Levels.

Borehole No.	Date	Oxygen %	Carbon Dioxide %	Methane %	Flow Rate (l/hr)	Depth to Water (m)	Atmospheric Pressure (mb)
WS01	20.04.16	GAS TAP SUBMERGED – UNABLE TO READ (DEPTH TO WATER 0.1m)					
	29.04.16	HIGH GROUND WATER – UNABLE TO READ (DEPTH TO WATER 0.2m)					
	05.05.16	HIGH GROUND WATER – UNABLE TO READ (DEPTH TO WATER 0.4m)					
	16.05.16	HIGH GROUND WATER – UNABLE TO READ (DEPTH TO WATER 0.4m)					
WS09	20.04.16	20.9	0.0	0.0	0.0	0.95	1026
	29.04.16	21.1	0.0	0.0	0.0	1.10	997
	05.05.16	21.1	0.0	0.0	0.0	1.20	1007
	16.05.16	21.2	0.0	0.0	0.0	1.30	1014
WS11	20.04.16	21.1	0.2	0.0	0.1	0.50	1026
	29.04.16	20.7	1.0	0.0	0.3	0.60	997
	05.05.16	20.5	1.2	0.0	0.2	0.75	1007
	16.05.16	21.0	0.0	0.0	0.1	0.80	1014
WS14	20.04.16	GAS TAP INSTALLED ON FIRST VISIT (DEPTH TO WATER 0.4m)					
	29.04.16	21.3	0.1	0.0	0.0	0.45	997
	05.05.16	21.0	0.0	0.0	0.0	0.60	1007
	16.05.16	21.7	0.0	0.0	0.0	0.60	1014

8.3.4 A maximum carbon dioxide concentration of 1.20% was recorded in WS11 and no methane on site. A maximum flow rate of 0.3 l/hr was recorded in WS11.

8.3.5 The readings undertaken on 5th May 2016 were during falling atmospheric pressure conditions.

8.3.6 The gas monitoring is ongoing and a final report will be produced on the completion of the monitoring. At present the results would indicate that the site may be classified as Green.

9.0 CONTAMINATION

9.1 HUMAN HEALTH RISK ASSESSMENT

9.1.1 The appraisal of contaminated land within the UK is based on a risk assessment approach. The method involves the principle of defining a source ► pathway ► receptor, linkage to establish a human health risk. For any risk to exist to a potential receptor from an identified contaminant there must be an unbroken source ► pathway ► target relationship.

9.1.2 In the first instance site data for the contaminant levels are compared against guidance such as the CLEA values published by DEFRA. Should the site values exceed the guidance criteria, the contamination levels are recognised to have the potential to pose a risk to human health. Two scenarios are then available:-

- a) To break or remove one of the source ► pathway ► receptor linkages, by specifying an appropriate level of remedial work. Examples of remedial action may include the removal of the contaminated material or alternatively specifying a sufficient capping layer.
- b) The alternative approach is to provide a more detailed human health site specific risk assessment. This will involve examining factors such as soil properties, exposure assumptions, groundwater flows and contamination composition.

9.2 CONTAMINATION RESULTS

9.2.1 As stated above, in order to put the analytical results into context, the data has in the first instance been assessed in relation to several sets of guidelines: -

9.2.2 The analytical results have been assessed via an initial screening assessment with regard to the current Contaminated Land Exposure Assessment model (CLEA UK) for human health, which has been produced for the Environment Agency and the Department of Environment, Food and Rural Affairs (DEFRA). The CLEA model provides Soil Guideline Values (SGVs) for a limited range of contaminants only, and these are based on risk to human health. As such they do not take into account potential risks to other receptors eg groundwater and third party land.

- 9.2.3 It is proposed to redevelop the site for residential properties with private garden areas. Soil results have therefore been assessed against the CLEA SGV's for residential use with plant uptake, as these are considered to be the most suitable guidelines to protect the most critical targets from contaminants via all possible exposure routes.
- 9.2.4 Where no CLEA SGV has been published, Generic Assessment Criteria (GAC) based on guidelines from the Chartered Institute of Environmental Health (CIEH) and Land Quality Management Ltd (LQM) S4UL document residential land use with plant uptake has been used. Where there is no GAC, guidance limits have been adopted from sources referenced in the table below.
- 9.2.5 A new approach has now been adopted for the calculation of SGV based on an acceptably low level of risk. These Category 4 Screening Levels (C4SL) have been calculated for six substances to date by modifying the toxicological/exposure parameters within CLEA. C4SLs have been used as tier 1 trigger levels within this assessment, superseding the previous CIEH and LQM SGVs.
- 9.2.6 Assessment of risk is considered as a tiered approach. Assessment based on non intrusive means is considered Tier 1 assessment, comparison against SGVs and GACs is a Tier 2 assessment, and the generation of and comparison with Site Specific Assessment Criteria (SSAC) is a Tier 3 assessment and is conducted where deemed appropriate following the Tier 2 assessment.
- 9.2.7 The sulphate and acid concentrations have been compared against the BRE digest "Concrete in Aggressive Ground" parts 1-4. This will enable the concrete class to be specified in relation to possible contact with aggressive soils.
- 9.2.8 The results of the chemical analysis are presented on the laboratory analysis sheets with Appendix C. A summary of the significance of the results is presented in Table 5.

Table 5**Comparison of contaminant against accepted guidance values for residential use with plant uptake**

<u>CONTAMINANT</u>	<u>SGV</u> <u>MG/KG</u>	<u>CONCENTRATION IN</u> <u>ALL SOILS.</u> <u>MG/KG</u>	<u>No. OF</u> <u>SAMPLES</u> <u>EXCEEDING</u> <u>GUIDANCE</u> <u>VALUES</u>	<u>PERCENTAGE</u> <u>OF SAMPLES</u> <u>EXCEEDING</u> <u>GUIDELINE</u> <u>VALUE</u>
Arsenic	37 (4)	3.0-14.0	0/17	
Cadmium	22 (4)	<0.1-3.3	0/17	
Chromium	130 (2)	9.2-38	0/17	
Lead	200 (4)	6.2-100	0/17	
Mercury (Total)	1.2 (1)	<0.05-0.16	0/17	
Selenium	250 (1)	<0.5-0.8	0/17	
Copper	2400 (1)	17-38	0/17	
Nickel	180 (1)	8.2-39	0/17	
Zinc	3700 (1)	34-180	0/17	
Sulphate	0.24 (3)	<0.01-0.07	0/17	
Thiocyanate	50	<0.6-11	0/17	
Sulphide	250	<10-20	0/17	
Naphthalene	2.3 (1)	<0.1	0/17	
Benzo(a)pyrene	5 (4)	<0.1	0/17	
PAH (Total)	40	<1.6-2.2	0/17	
Phenols	280 (1)	<0.3	0/17	
Asbestos	No fibres	None	0/10	
pH	6-8	6.1-7.1	0/17	

(1) Copyright Land Quality Management Ltd reproduced with permission; Publication Number S4UL3499. All rights reserved.

(2) DEFRA CLR SGV's withdrawn used for initial comparison

(3) BS 8110 1985 Table 6.1

(4) Category 4 Screening Levels

9.2.9 No elevated levels of heavy or phytotoxic metals were recorded in the samples taken from site.

9.2.10 No elevated levels of PAH compounds were recorded in the samples taken from site.

9.2.11 No fibres of asbestos were detected in the samples of natural and made ground submitted for analysis.

9.2.12 No elevated levels of sulphate were recorded in the samples taken from site, therefore a design sulphate class DS-1, ACEC class AC-1, when compared against the BRE Special Digest 1 "Concrete in aggressive ground".

9.3 **QUALITATIVE RISK ASSESSMENT**

9.3.1 The Qualitative Risk Assessment is based upon the previously discussed source ► pathway ► receptor principle. In relation to the proposed site these may be described as follows:-

9.3.2 **SOURCE**

- i) No elevated levels of contaminants recorded on site.

9.3.3 **PATHWAYS**

- i) Ingestion of contamination material.
- ii) Inhalation of contaminated particles.
- iii) Dermal contact with the known contamination.
- iv) Leaching to controlled waters.

9.3.4 **RECEPTORS**

- i) Residential end users.
- ii) Construction and maintenance workers.
- iii) Controlled waters.
- iv) The building structure.

9.3.5 Each of the receptors will now be appraised and attribute the likely risks involved.

i) Residential end users.

Based on the chemical results obtained it is considered that there is currently a **low** risk to end users from localised ground contamination on-site.

No elevated levels of heavy or phytotoxic metals were recorded in the samples taken from site.

No elevated levels of PAH (Total) was recorded in the samples taken from site.

No fibres of asbestos were detected in the samples submitted for analysis.

An asbestos survey should be undertaken on the existing buildings and any asbestos containing materials identified should be removed from site prior to demolition works commencing by a suitably qualified and specialist contractor.

It is not anticipated that additional topsoil will need to be imported to site. Prior to construction work commencing on site, the existing topsoil should be scraped and stockpiled behind protective fencing to prevent cross contamination during demolition/development works. Further testing will be required to provide a robust sampling base for the topsoil to confirm it's suitability for use. Prior to being relaid on site, the topsoil should be screened to remove any unsuitable material.

A maximum carbon dioxide concentration of 1.20% was recorded in WS11 and no methane on site. A maximum flow rate of 0.3 l/hr was recorded in WS11. The gas monitoring is ongoing and a final report will be produced on the completion of the monitoring. At present the results would indicate that the site may be classified as Green.

ii) Construction and Maintenance Workers.

It is considered that there is a **low** risk to construction and maintenance workers from the redevelopment of the site.

Any asbestos containing materials identified in the asbestos report should be removed from site by specialist contractors prior to demolition and construction work commencing on site.

Construction workers should always wear PPE including overalls, boots and gloves when handling the contaminated materials onsite. In addition eating, drinking and smoking should be restricted to designated areas where the above hygiene facilities are available.

iii) Controlled Waters

There were no elevated levels of contaminants identified during the site investigation works undertaken to date. However, there is a watercourse at the low point of the site on the eastern boundary. Protection works should be undertaken to the eastern boundary prior to work commencing on site to prevent contaminants from

construction works entering the watercourse through surface water run-off. The possibility of existing contaminants leaching is therefore considered **low**.

iv) Building Structures.

No elevated levels of sulphate were recorded in the samples taken from site, therefore a design sulphate class DS-1, ACEC class AC-1, when compared against the BRE Special Digest 1 "Concrete in aggressive ground".

Service providers should be forwarded the final validated chemical levels in order for them to provide an accurate specification for the apparatus to be provided. New services should be surrounded and backfilled with clean material to afford some protection to the apparatus and allow any future maintenance work to be undertaken in clean material.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 GEOTECHNICAL ASSESSMENT

- 10.1.1 The fieldwork generally proved soft clays overlying firm clays and sands and gravels with a sandstone/mudstone bedrock. For initial design purposes we would envisage a safe bearing capacity of 100kN/m² where foundations are to be cited onto the firm/stiff sandy clay material or sands and 150kN/m² where the foundations are extended onto the mudstone/sandstone bedrock.
- 10.1.2 We would therefore suggest that the proposed two storey traditional house construction should be constructed on strip/trench fill footings founded entirely onto the firm clay or sands and gravels. If mudstone/sandstone strata is encountered within the foundation excavation then the entire footing should be deepened and constructed off the mudstone/sandstone strata to avoid potential differential settlement. The foundation widths will vary dependent upon the line loadings calculated.
- 10.1.3 Foundations should be deepened where constructed adjacent to boundary retaining walls or existing buildings, to prevent any lateral forces being exerted on the retaining structure.
- 10.1.4 The plot foundations should be constructed in accordance with NHBC Standards Chapter 4.2 "Building Near Trees". Designs should cater for previous, existing or proposed trees adjacent to the plot foundations where sited in shrinkable soils. In particular, the plots in the centre of the site are situated above the hedge dividing the fields and existing trees which will result in localised deeper foundations. In these cases the foundation depths should be increased in accordance with NHBC Standards Chapter 4.2. Plasticity testing has found the clays to be of high volume change potential.
- 10.1.5 Particular care will also need to be exercised with any new landscape and planting proposals with their effects on the new foundations being considered prior to planting.
- 10.1.6 All foundations should be placed below a line of 45deg drawn up from the base of any services or other structures.

- 10.1.7 If any existing foundations or structures are encountered during construction, these should be totally removed from the excavations to enable the new foundations to be constructed without obstructions.
- 10.1.8 Due to the high groundwater table, and instability noted within the trial pits, extra caution should be taken to prevent collapse during excavation works, particularly in the nursery/western area of the site. Support should be considered for excavations which are to be left open for longer periods.
- 10.1.9 Furthermore, consideration should be given to pouring the trench foundations in discrete sections to minimise the extent of open excavations, with an overlaid capping beam.
- 10.1.10 No elevated levels of sulphate were recorded in the samples taken from site, therefore a design sulphate class DS-1, ACEC class AC-1, when compared against the BRE Special Digest 1 "Concrete in aggressive ground".

10.2 GROUND FLOOR SLAB – GAS MEASURES

- 10.2.1 Monitoring stations have been installed on site primarily to measure the groundwater levels on site. In addition to monitoring the water levels, measures of the gas concentrations have been undertaken.
- 10.2.2 The on-going gas testing results obtained from window samples on site have proved max concentration of carbon dioxide of 1.3% and no methane. At present the results would indicate that the site may be classified as Green. Gas measurements are on-going and will be reported on in due course.
- 10.2.3 Radon protection measures are not required for the site.
- 10.2.4 Where fill is in excess of 600mm thick, a suspended precast concrete or cast insitu concrete floor should be used. In addition where the foundations are subject to the influence of trees a suspended floor is also required.

10.3 SURFACE WATER DRAINAGE

10.3.1 The majority of the soakaway tests undertaken on site showed rising water levels due to the high groundwater table encountered on site. In only one test was a negligible drop in the water level recorded.

10.3.2 We would therefore not consider infiltration methods a suitable long term drainage solution for the development.

10.3.3 A discharge rate and point of connection should be agreed with Severn Trent Water and the local IDB.

10.3.4 Due to the high ground water levels encountered during the soakaway testing, consideration should be given to raising the pond above existing ground levels to prevent groundwater ingress, or the use of a storage system entirely of oversized pipes/culverts.

10.4 CONTAMINATION ASSESSMENT

10.4.1 The trial pit excavations generally proved a shallow depth of topsoil overlying a sandy firm clay becoming firm/stiff with depth in the east of the site. In the west there were bands of sands and gravels encountered in addition to the clays. Only in TP13 undertaken adjacent London Road was a 1m depth of made ground consisting of topsoil, crushed brick, sandstone gravels and pottery encountered.

10.4.2 No elevated levels of heavy or phytotoxic metals were recorded in the samples taken from site.

10.4.3 No elevated levels of PAH compounds were recorded in the samples taken from site.

10.4.4 No fibres of asbestos were detected in the samples of natural and made ground submitted for analysis.

10.4.5 An asbestos survey should be undertaken on the existing buildings and any asbestos containing materials identified should be removed from site prior to demolition works commencing by a suitably qualified and specialist contractor.

- 10.4.6 Protection works should be undertaken to the eastern boundary prior to work commencing on site to prevent contaminants from construction works entering the watercourse through surface water run-off.
- 10.4.7 Prior to construction work commencing on site, the existing topsoil should be scraped and stockpiled behind protective fencing to prevent cross contamination during remediation works. Further testing will be required to provide a robust sampling base for the topsoil to confirm it's suitability for use. Prior to being relaid on site, the topsoil should be screened to remove any unsuitable material.
- 10.4.8 Should any suspected areas of contamination be exposed during site strip/construction, an engineer should be contacted to determine if additional chemical testing should be undertaken. The on-site staff should maintain a photographic record and dates of any exposed contaminated material.
- 10.4.9 It is not currently anticipated that any topsoil will be required to be imported to site based on the currently available information. However, should any material need to be imported, all imported material should be tested for the range of contaminants listed previously in table 4. Only material found to be below published trigger levels should be deemed uncontaminated and accepted for use on site.
- 10.4.10 If the imported material is from a Greenfield site, a minimum of 3 samples or 1 per 250m³ of imported material should be taken for testing, whichever is greater. If it is from a brownfield site, a minimum of 6 samples, or 1 per 100m³ of imported material should be taken for testing, whichever is greater. Material provided by a commercial supplier should be certified to the same level of testing, with the certificate less than two months old.
- 10.4.11 All imported certified material should be placed immediately. If this is not possible, or the material is not certified and sampling is to be carried out prior to being laid, it should be securely stored on site prior to use to prevent possible contamination from any materials on site.
- 10.4.12 If any areas of made ground are removed off site, they should be taken to a licensed waste site and full documentation should be obtained. Any material to be taken off-site should be suitably quarantined prior to removal to prevent cross contamination. Any relevant chemical test results should be given to the landfill operator, so that

they can determine if this material is suitable to be disposed of in their licensed landfill.

10.4.13 Following completion of the remediation, shallow trial pits should be excavated to the top of the capping layer by an independent consultant to confirm the capping layer thickness. All site records and results of the shallow trial pits should be consolidated into a validation report.

11.0 SUGGESTED FURTHER WORK

- 11.1 Asbestos survey to be undertaken on existing buildings and all asbestos containing materials removed from site prior to demolition of buildings.
- 11.2 Following the demolition of the existing properties and areas of hardstanding on site, further investigation works should be undertaken to determine any areas of localised contamination to be removed from site.
- 11.3 The existing topsoil on site should be scraped and stockpiled behind protective fencing prior to development commencing. Further testing should be undertaken to provide a robust sample set confirming its suitability for use on site.
- 11.4 Ground gas monitoring to be completed and final report issued confirming gas protection measures required.

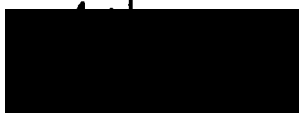
12.0 APPROVALS

12.1 Proposals for the remediation of contaminated land may require the approval of numerous bodies.

These include:

- a) NYCC Environmental Health Department as required by the building and planning regulations.
- b) The NHBC or similar warranty provider as they will provide the insurance costs to cover the property.
- c) The Environment Agency if there are risks of contamination to ground or surface water systems. They will also require notification if material is removed from site and taken to an appropriate tip.
- d) Relevant highways and drainage authorities and other service companies may also wish to know about the level of contaminants.

Prepared by



M. Huddleston. MEng

Checked by



T. Haigh. BSc.,C.Eng.M.I.C.E.

May 2016

This report is subject to the provisions of the Copyright Acts and is for the sole benefit of Harron Homes in respect of the proposals described.

APPENDIX A

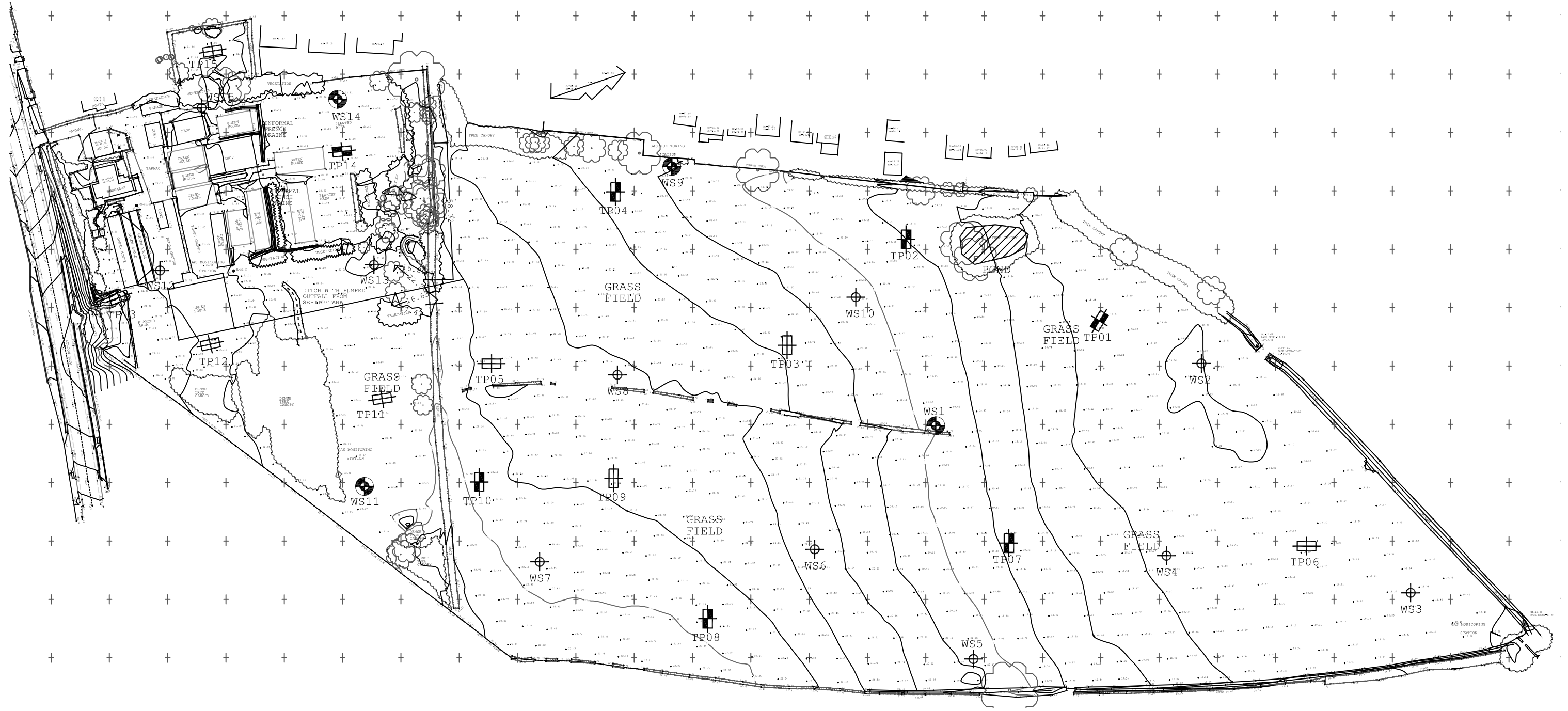
Site Location Plan

Trial Pit Location Plan





Typical Site Conceptual Model



LONDON ROAD,
RETFORD
DN22 7JE



KEY:

-  TRIAL PIT
-  SOAKAWAY TEST
-  WINDOW SAMPLE
-  MONITORING STATION

Rev C Gas Monitoring locations updated.
 Rev B Amended to suit on site trial pit and window sample locations

19.04.16 JM
 15.04.16 DG



Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Rd, Dewsbury, WF12 7BU t 01924 464342 f 01924 450662
 e trevor.haigh@haighhuddleston.co.uk

Client

Harron Homes

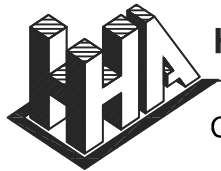
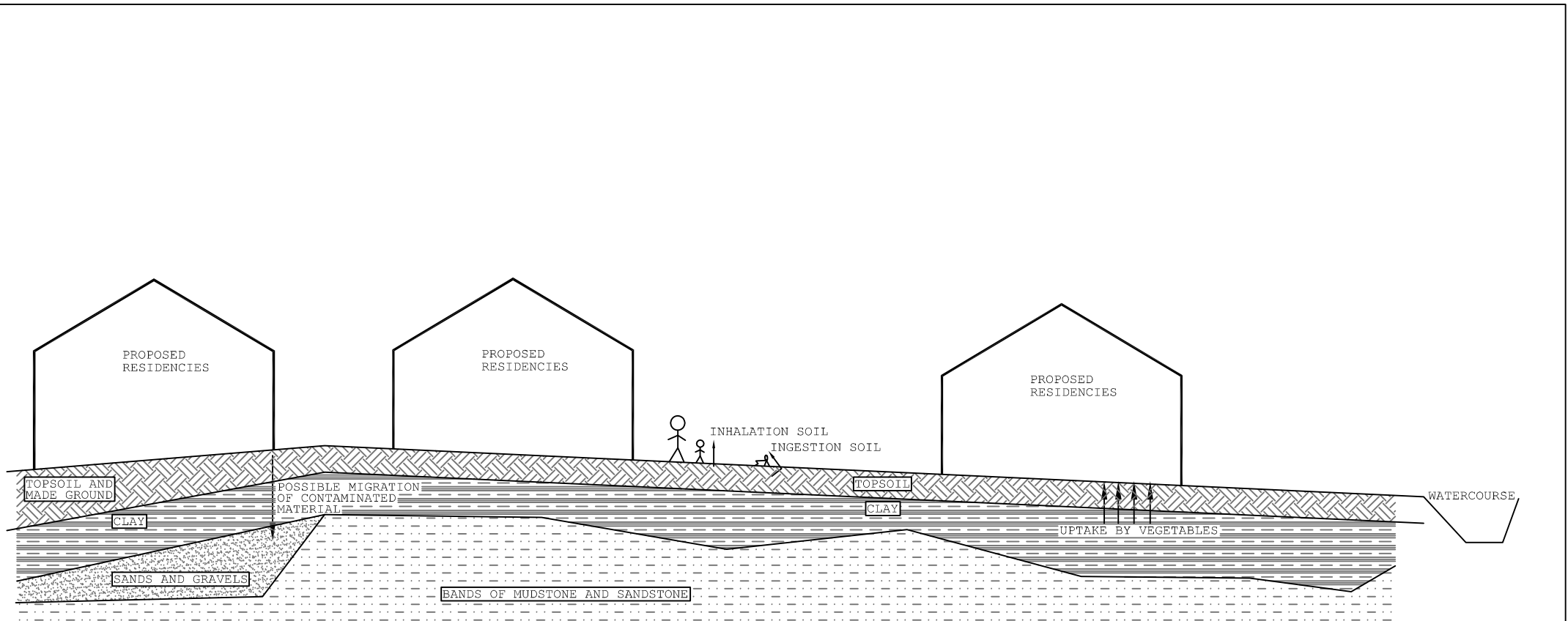
Project

London Road, Retford

Detail

Site Investigation Plan

Scale	Dwn	Chkd	Date	Dwg No.
NTS	DG		Sep'15	E15/6617/03C



Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Rd, Dewsbury, WF12 7BU t 01924 464342 f 01924 450662

e trevor.haigh@haighhuddleston.co.uk

Client				
Harron Homes				
Project				
London Road, Retford				
Detail				
Typical Site Conceptual Model				
Scale	Dwn	Chkd	Date	Dwg No.
NTS	MD		May'16	E15/6617/32

APPENDIX B

Trial Hole Logs

Soak-a-way Test Results

Window Sample Logs



Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Firth Building,
99-101, Leeds Road,
Dewsbury, WF12 7BU

t 01924 464342
f 01924 450662
e trevor.haigh@haighhuddleston.co.uk

FORM HHA 5

TRIAL HOLE NO. 1

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.25	Dark brown topsoil. Sample taken at 0.2m.
		Firm light brown very sandy clay. Sample taken at 0.6m.
0.5		
		Firm/stiff dark reddish brown clay.
0.7		
1.0		
1.4		
1.5		Moderately strong light grey sandstone excavated as horizontally bedded angular gravels.
2.0	2.0	
		Difficult to excavate. Small amount of groundwater entering base of trial pit.
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	YES
Sample taken	YES at 0.2m and 0.6m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 2

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.2	Dark brown topsoil. Sample taken at 0.2m.
0.5	1.1	Soft/firm light brown very sandy clay.
1.0		
1.5	1.5	
1.9		
2.0	1.9	Weak reddish brown highly weathered sandstone excavated as small angular gravels.
2.5		Moderately strong light grey sandstone difficult to excavate.
3.0		
3.5		
4.0		
4.0		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 3

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.2	Dark brown topsoil. Sample taken at 0.2m.
0.5		Soft/firm light brown very sandy clay containing numerous gravels of sandstone with occasional bands of reddish brown sand at 1.2m. Sample taken at 0.8m.
1.0		
1.5	1.5	
		Moderately weak dark red highly weathered sandstone excavated as small angular gravels.
1.8		Moderately strong light grey/brown sandstone excavated as horizontally bedded gravels. Becoming difficult to excavate.
2.0	2.0	
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m and 0.8m
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 4

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.2	Dark brown topsoil.
		Soft/firm light brown sandy clay with numerous gravels of sandstone. Sample taken at 0.6m.
0.5		
1.0		
1.5		
	1.6	Sample taken at 1.6m.
		Firm/stiff reddish brown/grey sandy clay.
2.0		
2.5		
	2.6	
		Weak grey mudstone excavated as small angular gravels in a slightly clayey matrix.
3.0		
	3.1	
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.6 and 1.6m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 5

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.2	Dark brown topsoil. Sample taken at 0.2m.
0.5		Soft/becoming firm dark brown sandy clay. Sides unstable below 0.5m.
1.0		
1.5		
1.7		
1.7		
2.0		Firm reddish brown sandy clay.
2.4		
2.5	2.5	Moderately weak light grey sandstone excavated as angular gravels.
3.0		Trial pit abandoned sides collapsing.
3.5		
4.0		
4.0		
4.0		

REMARKS:

Ground water encountered during excavation	YES
Sample taken	YES at 0.2 and 1.6m.
Sides of excavation remained stable	NO
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 6

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
		Firm dark brown silty clay.
0.5		
		50mm diameter clay pipe at 600mm land drain. Sample taken 0.7m.
1.0		
	1.2	
1.5		Firm reddish brown sandy clay with pockets of grey sand.
	1.8	Water ingress from 1.8m sides unstable below 1.8m.
2.0		Weak reddish brown sandstone excavated as small angular gravels.
2.5		
	2.7	
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	YES
Sample taken	YES at 0.7m.
Sides of excavation remained stable	NO
Level	.....

NOTES:

.....
.....



Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Firth Building,
99-101, Leeds Road,
Dewsbury, WF12 7BU

t 01924 464342
f 01924 450662
e trevor.haigh@haighhuddleston.co.uk

FORM HHA 5

TRIAL HOLE NO. 7

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0	
0.3	Dark brown topsoil. Sample taken at 0.2m.
0.5	Soft to firm light brown very sandy clay.
0.8	
1.0	
1.5	1.5
1.9	Moderately weak reddish brown/grey mudstone.
2.0	Moderately weak grey Sandstone. Difficult to dig at 2.2m.
2.2	
2.5	
3.0	
3.5	
4.0	
4.0	
4.0	

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 8

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.22	Dark brown topsoil. Sample taken at 0.2m.
0.5	0.8	Firm light reddish brown sandy clay.
1.0	1.4	Moderately weak red/brown/grey mudstone.
1.5	2.65	Moderately weak grey sandstone excavated as gravels with occasional cobbles.
2.0		
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 9

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0

			Dark brown topsoil.
	0.3		
0.5			Firm light brown sandy clay.
1.0	1.0		Water ingress from sides at 1.1m.
1.5	1.6		Moderately weak grey sandstone excavated as angular gravels with occasional pockets of clay.
2.0			Moderately weak dark reddish brown mudstone.
2.5	2.5		Water ingress at base.
3.0			
3.5			
4.0			

REMARKS:

Ground water encountered during excavation	YES
Sample taken	NO
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 10

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.25	Dark brown topsoil. Sample taken at 0.2m.
		Firm light brown sandy clay.
0.5		
	0.7	
		Light reddish brown sand and sandstone gravels within a very sandy clay. Sample taken at 1.0m.
1.0		
1.5		
	1.9	
		Firm light brown sandy clay.
2.0		
2.5		
	2.6	Moderately weak light brown mudstone gravels within a sandy clay matrix.
	2.8	
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 0.2 and 1.0m
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 11

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		Dark grey topsoil.
	0.3	
0.5		Firm light reddish brown sandy clay with sandstone gravels.
		Water ingress from sides @ 0.7m – land drain 50mm diameter.
1.0		
	1.1	
1.5		Sample taken at 1.2m. Light reddish brown sands with gravels of sandstone.
2.0		
2.5		
	2.75	Moderately weak light grey mudstone.
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	YES
Sample taken	YES at 0.2 and 1.2m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Firth Building,
99-101, Leeds Road,
Dewsbury, WF12 7BU

t 01924 464342
f 01924 450662
e trevor.haigh@haighhuddleston.co.uk

FORM HHA 5

TRIAL HOLE NO. 12

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.25	Dark brown topsoil.
0.5		Firm light brown sandy clay with gravels of sandstone. Sides collapsing from 0.6m.
1.0		
1.5		Water ingress from sides at 1.5m.
2.0		
	2.1	
2.5		Light grey/red/brown wet sands and sandstone gravels.
	2.65	
	2.7	Moderately weak light grey mudstone.
3.0		Trial pit unstable – collapsed at 1.6m. No soakaway due to poor side stability.
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	YES
Sample taken	NO
Sides of excavation remained stable	NO
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 13

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
		Dark brown topsoil, some brick fragments, sandstone gravels and pottery.
0.5		
1.0	1.0	
		Firm light brown very sandy clay with occasional gravels of sandstone. Sides collapsing from 1.5m. Water ingress from sides at 1.7m.
1.5		
2.0	2.0	
		Light brown/red sands/gravels with soft light brown clay.
2.5	2.5	
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	YES
Sample taken	YES at 0.5m.
Sides of excavation remained stable	NO
Level	.....

NOTES:

.....
.....



Haigh Huddleston & Associates
Civil Structural Engineering Consultants

Firth Building,
99-101, Leeds Road,
Dewsbury, WF12 7BU

t 01924 464342
f 01924 450662
e trevor.haigh@haighhuddleston.co.uk

FORM HHA 5

TRIAL HOLE NO. 14

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0

		Dark brown topsoil, gravels, pottery and plastic.
	0.35	
0.5		Medium dense light reddish/brown sands and sandstone gravels. Sample taken at 1.0m.
1.0		
1.5	1.5	
		Moderately weak light grey mudstone excavated as small gravels.
	1.8	
2.0		
2.5		
3.0		
3.5		
4.0		

REMARKS:

Ground water encountered during excavation	NO
Sample taken	YES at 1.0m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....



FORM HHA 5

TRIAL HOLE NO. 15

Client :	HARRON HOMES	Job No :	6617
Site :	London Road, Retford	Date :	23rd March 2016

0.0		
	0.25	Dark brown topsoil. Sample taken at 0.2m.
0.5	0.7	Medium firm light brown sandy clay with gravels.
1.0	1.8	Medium dense light reddish brown sands and gravels within a clayey matrix.
1.5	2.0	Moderately weak light reddish grey mudstone.
2.0	2.4	Water ingress at sides at 2.3m.
2.5	3.0	
3.0	3.5	
3.5	4.0	

REMARKS:

Ground water encountered during excavation	YES
Sample taken	YES at 0.2m.
Sides of excavation remained stable	YES
Level	.....

NOTES:

.....
.....

Soil Permeability test

TP01

Site London Road, Retford

Date 23.03.16

Client Harron Homes

Job No. E16/6617

Pit dimensions m
 Length 1.8
 Width 0.5
 Depth 2.0

Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
9.25	0	1322	0.61020		4.01880	
9.28	3	1325	0.60750	0.00270	4.00500	0.00374
9.59	34	1290	0.63900	-0.03150	4.16600	-0.00415
10.10	45	1283	0.64530	-0.00630	4.19820	-0.00228
10.40	75	1243	0.68130	-0.03600	4.38220	-0.00466
11.33	128	1185	0.73350	-0.05220	4.64900	-0.00364
13.43	138	1085	0.82350	-0.09000	5.10900	-0.03074

RISE IN WATER LEVEL RECORDED

Average Permeability Value: -0.006954972 lit/ sq.m/sec

Soil Permeability test

TP02

Site London Road, Retford

Date 23.03.16

Client Harron Homes

Job No. E16/6617

Pit dimensions m
 Length 1.6
 Width 0.5
 Depth 1.9

Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
9.52	0	1085	0.65200		4.22300	
9.55	3	1068	0.66560	-0.01360	4.29440	-0.01774
10.12	20	1078	0.65760	0.00800	4.25240	0.00184
10.40	48	1070	0.66400	-0.00640	4.28600	-0.00089
11.30	98	1055	0.67600	-0.01200	4.34900	-0.00093
13.40	228	1040	0.68800	-0.01200	4.41200	-0.00035

RISE IN WATER LEVEL RECORDED

Average Permeability Value: -0.003615223 lit/ sq.m/sec

Soil Permeability test

TP04

Site London Road, Retford

Date 23.03.16

Client Harron Homes

Job No. E16/6617

Pit dimensions m
 Length 2.1
 Width 0.5
 Depth 3.1

Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
10.58	0	2370	0.76650		4.84600	
11.29	31	2360	0.77700	-0.01050	4.89800	-0.00116
13.38	160	2330	0.80850	-0.03150	5.05400	-0.00082

RISE IN WATER LEVEL RECORDED

Average Permeability Value: -0.000988287 lit/ sq.m/sec

Soil Permeability test

TP07

Site London Road, Retford

Date 23.03.16

Client Harron Homes

Job No. E16/6617

Pit dimensions m
 Length 1.5
 Width 0.5
 Depth 2.2

Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
12.34	0	1295	0.67875		4.37000	
13.50	76	1290	0.68250	-0.00375	4.39000	-0.00019
14.55	141	1270	0.69750	-0.01500	4.47000	-0.00087
15.30	176	1265	0.70125	-0.00375	4.49000	-0.00040

RISE IN WATER LEVEL RECORDED

Average Permeabilty Value: -0.000484853 lit/ sq.m/sec

Soil Permeability test

TP08

Site London Road, Retford

Date 23.03.16

Client Harron Homes

Job No. E16/6617

Pit dimensions m
 Length 1.2
 Width 0.52
 Depth 2.7

Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
14.15	0	1890	0.47424		3.23840	
14.58	43	1890	0.47424	0.00000	3.23840	0.00000
15.32	77	1910	0.46176	0.01248	3.16960	0.00191

NEGLIGIBLE DROP IN WATER LEVEL RECORDED

Average Permeability Value: 0.000954689 lit/ sq.m/sec

Soil Permeability test

TP10

Site London Road, Retford

Date 23.03.16

Client Harron Homes

Job No. E16/6617

Pit dimensions m
 Length 1.3
 Width 0.5
 Depth 2.8

Time	Time into Test Mins	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
15.00	0	2050	0.48750		3.35000	
15.35	35	2034	0.49790	-0.01040	3.40760	-0.00147

RISE IN WATER LEVEL RECORDED

Average Permeability Value: -0.001465722 lit/ sq.m/sec

Soil Permeability test

TP14

Site London Road, Retford

Date 24.03.16

Client Harron Homes

Job No. E16/6617

Pit dimensions m
 Length 1.6
 Width 0.6
 Depth 1.8

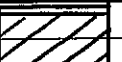
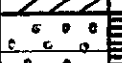
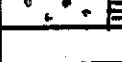
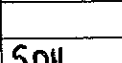
Time	Time into Test Mlns	Dip Reading mm	Vol cu.m	Vol Change cu.m	Contact area Avge sq.m	Permeability lit/ sq.m/sec
11.40	0	1380	0.40320		2.80800	
12.15	35	1380	0.40320	0.00000	2.80800	0.00000

NO CHANGE IN WATER LEVEL RECORDED

Average Permeability Value: 0.000000000 lit/ sq.m/sec

P.B. DRILLING BH LOG Client Co. Name: _____ Rig No. **WS3** SPT No. _____ BH No. **WS1 WS2**

Site Name: **RET FORD** Job No: _____ Day: **WED** Date: **23 / 3 / 16** Sheet 1 of 3 Digs Yes No

Depth (m)	Description	Sample/Test		Depth (m)		U Samples		Standard Penetration Tests							Casing Depth (m)	Water Level (m)
		Type	No.	From	To	Blows	Length	1	2	3	4	5	6	Pen		
	Start of Shift	WS	1	GL	1.00			4	5	4	5	6	8			
GL	SOIL	WS1	S	2	1.00	1.45										
0.50	RED FIRM CLAY	WS	3	1.00	2.00											
1.00	WATER	S	4	2.00	2.45			6	6	7	7	16	18			
2.00	RED SANDSTONE														20m	
	1 COVER & GAS VALVE															
		0.20 CONCRETE														
		0.80 BENTONITE														
		1M PLAIN														
		1M SLOTTED														
	1M GRAVEL															
GL	SOIL	WS2	WS	1	GL	1.00			1	2	2	2	2	4		
0.30	RED CLAY		C	2	1.00	1.45										
1.00	RED/GREY CLAY	WS	3	1.00	2.00											
1.20	RED MUDSTONE/SANDSTONE		C	4	2.00	2.45			5	11	29	21			15m	
	End of Shift - Borehole Complete/Incomplete															

Chiselling				
Depth (m)		Time		Hours
From	To	From	To	
Water Entries 1 2 3				
Depth Struck				
Casing Depth				
Depth 5 mins				
Depth 10 mins				
Depth 15 mins				
Depth 20 mins				
Cut off at				
Water Added	From	To	Qty	
Water Added				
Borehole Kept Full				
Casing Diameter (inches):				
Consumables Supplied by: <input checked="" type="checkbox"/> PBD <input type="checkbox"/> Client				
Pipe Supplied by: <input checked="" type="checkbox"/> PBD <input type="checkbox"/> Client				
Completed				Trial Pit Dug:
BH	Job	Yes	No	
Yes	No	Yes	No	Yes <input checked="" type="checkbox"/>
				No <input type="checkbox"/>

Remarks: (standing time, dayworks, weather etc.)

Backfill:						
Additional Equipment:						
Total Number of Samples						
C/SPT	U	D	B	W	CH	ES

Lead Driller: **PADDY** Asst. Driller: **DANNY** Eng. Name: **MARTIN** Eng. Signature: _____

PLEASE NOTE: No work at all can commence until the client has signed the Underground Services Form or the waiver form on the back of it. This form MUST be returned ASAP with your log sheet from the first day on the job. Then a trail pit must ALWAYS be dug to 1.2m unless the waiver form has been signed too. (ALL correct PPE must be worn at ALL times)

Depth (m)	Description	Sample/Test		Depth (m)		U Samples		Standard Penetration Tests							Casing Depth (m)	Water Level (m)
		Type	No.	From	To	Blows	Length	1	2	3	4	5	6	Pen		
	Start of Shift	WS	1	GL	1.00											
GL	SOIL	WS3	5	1.00	1.45			2	1	2	2	2	2			
0.10	BROWN CLAY	WS	3	1.00	2.00			10	11	16	19	15				
1.00	RED / GREY CLAY	S	4	2.00	2.45			/ 25m								
2.00	RED SANDSTONE															
GL	SOIL	WS4	WS	1	GL	1.00										
0.10	GREY / BROWN CLAY	S	2	1.00	1.45			3	3	4	4	4	4			
1.00	RED CLAY (WATER)	WS	3	1.00	2.00			8	13	25	25					
1.90	SANDSTONE SAMPLER REFUSED.	S	4	2.00	2.45			/ 15m								
GL	SOIL	WS5	WS	1	GL	1.00										
0.40	BROWN CLAY	S	2	1.00	1.65			3	3	3	3	4	4			
1.00	RED SANDY CLAY	WS	3	1.00	2.00			10	10	10	20	20				
1.80	RED / GREY SANDSTONE	S	4	2.00	2.45			/ 30m								
GL	SOIL	WS6	WS	1	GL	1.00										
0.30	RED CLAY	S	2	1.00	1.45			3	3	6	6	7	8			
1.70	GREY SANDSTONE (REFUSAL)	WS	3	1.00	1.70			25		50						
		S	4	1.70	2.15			/ 20m / 25m								
	End of Shift - Borehole Complete/Incomplete															

Chiselling				
Depth (m)		Time		Hours
From	To	From	To	
Water Entries 1 2 3				
Depth Struck				
Casing Depth				
Depth 5 mins				
Depth 10 mins				
Depth 15 mins				
Depth 20 mins				
Cut off at				
Water Added	From	To	Qty	
Water Added				
Borehole Kept Full				
Casing Diameter (inches):				
Consumables Supplied by: <input type="checkbox"/> PBD <input type="checkbox"/> Client				
Pipe Supplied by: <input type="checkbox"/> PBD <input type="checkbox"/> Client				
Completed				Trial Pit Dug:
BH	Job		Yes	<input checked="" type="checkbox"/>
Yes	No	Yes	No	<input checked="" type="checkbox"/>

Remarks: (standing time, dayworks, weather etc.)

Backfill:						
Additional Equipment:						
Total Number of Samples						
C/SPT	U	D	B	W	CH	ES

Lead Driller: **PRODY** Asst. Driller: **DANNY** Eng. Name: **MARTIN** Eng. Signature: _____

PLEASE NOTE: No work at all can commence until the client has signed the Underground Services Form or the waiver form on the back of it. This form MUST be returned ASAP with your log sheet from the first day on the job. Then a trail pit must ALWAYS be dug to 1.2m unless the waiver form has been signed too. (ALL correct PPE must be worn at ALL times)

Depth (m)	Description	Sample/Test		Depth (m)		U Samples		Standard Penetration Tests						Casing Depth (m)	Water Level (m)
		Type	No.	From	To	Blows	Length	1	2	3	4	5	6			Pen
	Start of Shift	GL	1-00												
0.30	SOIL	WS7	1-00	1-45				6	5	5	5	4	4		
0.30	SAND & GRAVEL		1-00	2-00				10	12	13	22	15			
1.40	RED GRAVELY CLAY		2-00	2-45											
1.90	WEATHERED SANDSTONE														
0.50	SOIL	WS8	GL	1-00	GL	1-00									
0.50	RED CLAY		S	2	1-00	1-45		5	6	5	6	7	10		
1.00	DENSE RED CLAY WITH GRAVEL	WS	3	1-00	1-50			25	50						
1.50	SAMPLER REFUSED.	S	4	1-50	1-95			40	60m						
0.10	SOIL	WS9	WS	1	GL	1-00									
0.10	RED CLAY		S	2	1-00	1-45		5	5	5	5	6	6		
1.80	MUDSTONE	WS	3	1-00	2-00			15	10	20	30				
1.80			S	4	2-00	2-45									
0.40	SOIL	WS10	WS	1	GL	1-00									
0.40	RED CLAY		S	2	1-00	1-45		10	15	50					
0.90	RED SANDSTONE														
0.90															
	End of Shift - Borehole Complete/Incomplete														

Chiselling						
Depth (m)		Time		Hours		
From	To	From	To			
Water Entries				1	2	3
Depth Struck						
Casing Depth						
Depth 5 mins						
Depth 10 mins						
Depth 15 mins						
Depth 20 mins						
Cut off at						
Water Added	From	To	Qty			
Water Added						
Borehole Kept Full						
Casing Diameter (inches):						
Consumables Supplied by: <input type="checkbox"/> PBD <input type="checkbox"/> Client						
Pipe Supplied by: <input type="checkbox"/> PBD <input type="checkbox"/> Client						
Completed				Trial Pit Dug:		
BH	Job		Yes	No	Yes	No
Yes	No	Yes	No	Yes	No	No

Remarks: (standing time, dayworks, weather etc.)

Backfill:						
Additional Equipment:						
Total Number of Samples						
C/SPT	U	D	B	W	CH	ES

Lead Driller: **PAOBY** Asst. Driller: **DANNY** Eng. Name: _____ Eng. Signature: _____

PLEASE NOTE: No work at all can commence until the client has signed the Underground Services Form or the waiver form on the back of it. This form MUST be returned ASAP with your log sheet from the first day on the job. Then a trail pit must ALWAYS be dug to 1.2m unless the waiver form has been signed too. (ALL correct PPE must be worn at ALL times)

APPENDIX C

Chemical Analysis of Samples
Geotechnical Analysis of Samples



Certificate of Analysis

Certificate Number 16-62266

05-Apr-16

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference 16-62266

Client Reference 6617

Order No (not supplied)

Contract Title London Road, Retford

Description 10 Soil samples.

Date Received 30-Mar-16

Date Started 30-Mar-16

Date Completed 05-Apr-16

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the scope of UKAS accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A black rectangular box redacting the signature of Rob Brown.

Rob Brown
Business Manager



Summary of Chemical Analysis

Matrix Descriptions

Our Ref 16-62266

Client Ref 6617

Contract Title London Road, Retford

Sample ID	Depth	Lab No	Completed	Matrix Description
TP01	0.2	965054	05/04/2016	Brown, gravelly, sandy CLAY
TP02	0.2	965055	05/04/2016	Brown, gravelly, sandy CLAY
TP03	0.2	965056	05/04/2016	Brown, gravelly, sandy CLAY
TP05	0.2	965057	05/04/2016	Brown, gravelly, sandy CLAY
TP07	0.2	965058	05/04/2016	Brown, gravelly, sandy CLAY
TP08	0.2	965059	05/04/2016	Brown, gravelly, sandy CLAY
TP10	0.2	965060	05/04/2016	Brown, gravelly, sandy CLAY
TP11	0.2	965061	05/04/2016	Brown, gravelly, sandy CLAY
TP13	0.5	965062	05/04/2016	Brown, gravelly, sandy CLAY
TP15	0.2	965063	05/04/2016	Brown, gravelly, sandy CLAY

Summary of Chemical Analysis

Soil Samples

Our Ref 16-62266

Client Ref 6617

Contract Title London Road, Retford

Lab No	965054	965055	965056	965057	965058	965059
Sample ID	TP01	TP02	TP03	TP05	TP07	TP08
Depth	0.20	0.20	0.20	0.20	0.20	0.20
Other ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	23/03/16	23/03/16	23/03/16	23/03/16	23/03/16	23/03/16
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	965054	965055	965056	965057	965058	965059
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	10	7.8	9.7	7.0	8.8	8.5
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	< 0.1	0.1	0.2	0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	26	18	17	14	18	17
Copper	DETSC 2301#	0.2	mg/kg	25	17	23	21	32	24
Lead	DETSC 2301#	0.3	mg/kg	32	24	28	29	37	31
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.05	0.07	0.06
Nickel	DETSC 2301#	1	mg/kg	22	14	14	12	15	14
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.7	0.7	< 0.5	0.5	0.7
Zinc	DETSC 2301#	1	mg/kg	94	56	72	52	75	59
Inorganics									
pH	DETSC 2008#			7.1	6.7	6.9	6.2	6.7	6.2
Thiocyanate	DETSC 2130#	0.6	mg/kg	6.8	6.9	7.9	11	4.1	1.3
Sulphide	DETSC 2024#	10	mg/kg	< 10	< 10	< 10	< 10	< 10	20
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.07	0.04	0.04	0.05	0.05	0.04
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Summary of Chemical Analysis

Soil Samples

Our Ref 16-62266

Client Ref 6617

Contract Title London Road, Retford

Lab No	965060	965061	965062	965063
Sample ID	TP10	TP11	TP13	TP15
Depth	0.20	0.20	0.50	0.20
Other ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sampling Date	23/03/16	24/03/16	24/03/16	24/03/16
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	6.0	7.2	10	9.7
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	< 0.1	3.3	0.2
Chromium	DETSC 2301#	0.15	mg/kg	13	12	13	9.2
Copper	DETSC 2301#	0.2	mg/kg	23	22	34	28
Lead	DETSC 2301#	0.3	mg/kg	32	35	100	63
Mercury	DETSC 2325#	0.05	mg/kg	0.05	0.05	0.15	0.16
Nickel	DETSC 2301#	1	mg/kg	9.6	8.2	10	8.7
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	0.8	< 0.5
Zinc	DETSC 2301#	1	mg/kg	62	44	180	76
Inorganics							
pH	DETSC 2008#			6.3	6.7	6.3	6.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.2	1.9	9.3	11
Sulphide	DETSC 2024#	10	mg/kg	< 10	20	12	< 10
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.04	0.05	0.07	0.06
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.8	0.4
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	1.0	0.5
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	2.2	< 1.6
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3

Summary of Asbestos Analysis

Soil Samples

Our Ref 16-62266

Client Ref 6617

Contract Title London Road, Retford

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
965054	TP01 0.20	SOIL	NAD	none	Michael Kay
965055	TP02 0.20	SOIL	NAD	none	Michael Kay
965056	TP03 0.20	SOIL	NAD	none	Michael Kay
965057	TP05 0.20	SOIL	NAD	none	Michael Kay
965058	TP07 0.20	SOIL	NAD	none	Michael Kay
965059	TP08 0.20	SOIL	NAD	none	Michael Kay
965060	TP10 0.20	SOIL	NAD	none	Michael Kay
965061	TP11 0.20	SOIL	NAD	none	Michael Kay
965062	TP13 0.50	SOIL	NAD	none	Michael Kay
965063	TP15 0.20	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 16-62266
 Client Ref 6617
 Contract London Road, Retford

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
965054	TP01 0.20 SOIL	23/03/16	PT 1L		Naphthalene, PAH FID
965055	TP02 0.20 SOIL	23/03/16	GJ 250ml, PT 1L		
965056	TP03 0.20 SOIL	23/03/16	GJ 250ml, PT 1L		
965057	TP05 0.20 SOIL	23/03/16	GJ 250ml, PT 1L		
965058	TP07 0.20 SOIL	23/03/16	GJ 250ml, PT 1L		
965059	TP08 0.20 SOIL	23/03/16	GJ 250ml, PT 1L		
965060	TP10 0.20 SOIL	23/03/16	GJ 250ml, PT 1L		
965061	TP11 0.20 SOIL	24/03/16	GJ 250ml, PT 1L		
965062	TP13 0.50 SOIL	24/03/16	GJ 250ml, PT 1L		
965063	TP15 0.20 SOIL	24/03/16	GJ 250ml, PT 1L		

Key: P-Plastic T-Tub G-Glass J-Jar

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETSC2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.



Certificate of Analysis

Certificate Number 16-62267

05-Apr-16

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference 16-62267

Client Reference 6617

Order No (not supplied)

Contract Title London Road, Retford

Description 7 Soil samples.

Date Received 30-Mar-16

Date Started 30-Mar-16

Date Completed 05-Apr-16

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the scope of UKAS accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Rob Brown
Business Manager



Summary of Chemical Analysis

Matrix Descriptions

Our Ref 16-62267

Client Ref 6617

Contract Title London Road, Retford

Sample ID	Depth	Lab No	Completed	Matrix Description
TP05	1.6	965064	05/04/2016	Brown, gravelly, sandy CLAY
TP03	0.8	965065	05/04/2016	Brown, gravelly, sandy CLAY
TP04	0.6	965066	05/04/2016	Brown, gravelly, sandy CLAY
TP11	1.2	965067	05/04/2016	Brown, gravelly, sandy CLAY
TP01	0.6	965068	05/04/2016	Brown, gravelly, sandy CLAY
TP10	1	965069	05/04/2016	Brown, gravelly, sandy CLAY
TP14	1	965070	05/04/2016	Brown, gravelly, sandy CLAY

Summary of Chemical Analysis

Soil Samples

Our Ref 16-62267

Client Ref 6617

Contract Title London Road, Retford

Lab No	965064	965065	965066	965067	965068	965069	965070
Sample ID	TP05	TP03	TP04	TP11	TP01	TP10	TP14
Depth	1.60	0.80	0.60	1.20	0.60	1.00	1.00
Other ID							
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	23/03/16	23/03/16	23/03/16	24/03/16	23/03/16	23/03/16	24/03/16
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units							
Metals										
Arsenic	DETSC 2301#	0.2	mg/kg	14	5.2	6.8	6.1	4.6	4.8	13
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.4
Chromium	DETSC 2301#	0.15	mg/kg	38	25	18	17	17	13	16
Copper	DETSC 2301#	0.2	mg/kg	38	16	15	13	6.7	7.4	25
Lead	DETSC 2301#	0.3	mg/kg	7.5	6.2	12	7.3	9.2	6.7	18
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Nickel	DETSC 2301#	1	mg/kg	39	22	15	16	14	11	21
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	79	52	46	37	36	34	62
Inorganics										
pH	DETSC 2008#			6.9	6.9	6.4	6.7	6.6	6.5	7.1
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.1	1.0	0.9	0.7	0.6	< 0.6	< 0.6
Sulphide	DETSC 2024#	10	mg/kg	12	< 10	< 10	< 10	< 10	< 10	12
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.01	< 0.01	0.02	< 0.01	0.02	0.01	0.01
PAHs										
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Information in Support of the Analytical Results

Our Ref 16-62267
 Client Ref 6617
 Contract London Road, Retford

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
965064	TP05 1.60 SOIL	23/03/16	PT 1L		Naphthalene, PAH FID
965065	TP03 0.80 SOIL	23/03/16	PT 1L		Naphthalene, PAH FID
965066	TP04 0.60 SOIL	23/03/16	GJ 250ml, PT 1L		
965067	TP11 1.20 SOIL	24/03/16	GJ 250ml, PT 1L		
965068	TP01 0.60 SOIL	23/03/16	PT 1L		Naphthalene, PAH FID
965069	TP10 1.00 SOIL	23/03/16	GJ 250ml, PT 1L		
965070	TP14 1.00 SOIL	24/03/16	GJ 250ml, PT 1L		

Key: P-Plastic T-Tub G-Glass J-Jar

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS 2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

TESTING VERIFICATION CERTIFICATE



1774

The test results included in this report are certified as:-

ISSUE STATUS: FINAL

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **25/04/2016 09:21:16**.

Testing reported after this date is not covered by this Verification Certificate.



Approved Signatory
Mark Athorne (Laboratory Quality Manager)

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

Contract:

**Harron Homes, London Road,
Retford**

Job No:

782036





STRUCTURAL SOILS LTD
TEST REPORT



Report No. 782036 R1

1774

Date 22-April-2016 Contract Harron Homes, London Road, Retford

Client Haigh Huddleston Associates
Address Firth Building
99-101 Leeds Road
Dewsbury
WF12 7BU

For the Attention of Martin Huddleston

Samples submitted by client	08/04/2016	Client Reference	
Testing Started	11/04/2016	Client Order No.	
Testing Completed	22/04/2016	Instruction Type	Written

UKAS Accredited Tests Undertaken

- Moisture Content (oven drying method) BS1377:Part 2:1990,clause 3.2 (superseded)**
- Liquid Limit (definitive method) BS1377:Part 2:1990,clause 4.3
- Plastic Limit BS1377:Part 2:1990,clause 5.3
- Plasticity Index Derivation BS1377:Part 2:1990,clause 5.4

* Tests were undertaken on samples 'as received' unless otherwise stated

**This clause of BS1377 no longer most up-to-date due to publication of ISO 17892

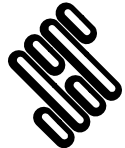
Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of

Approved signatories: Mark Athorne (Laboratory Manager) Richard Clarkson

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with clauses 3.2,4.3,4.4,5.3,5.4,7.2,8.2,8.3 of BS1377:Part 2:1990

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
TP04	1	D	1.60	20	40	20	20	100	Brown slightly gravelly sandy CLAY
TP06	1	D	0.70	31	75	27	48	100	Brown slightly sandy slightly gravelly CLAY
TP15	1	D	0.50	15	23	13	10	73	Brown sandy gravelly CLAY



**STRUCTURAL
SOILS LTD**

Contract:

Harron Homes, London Road, Retford

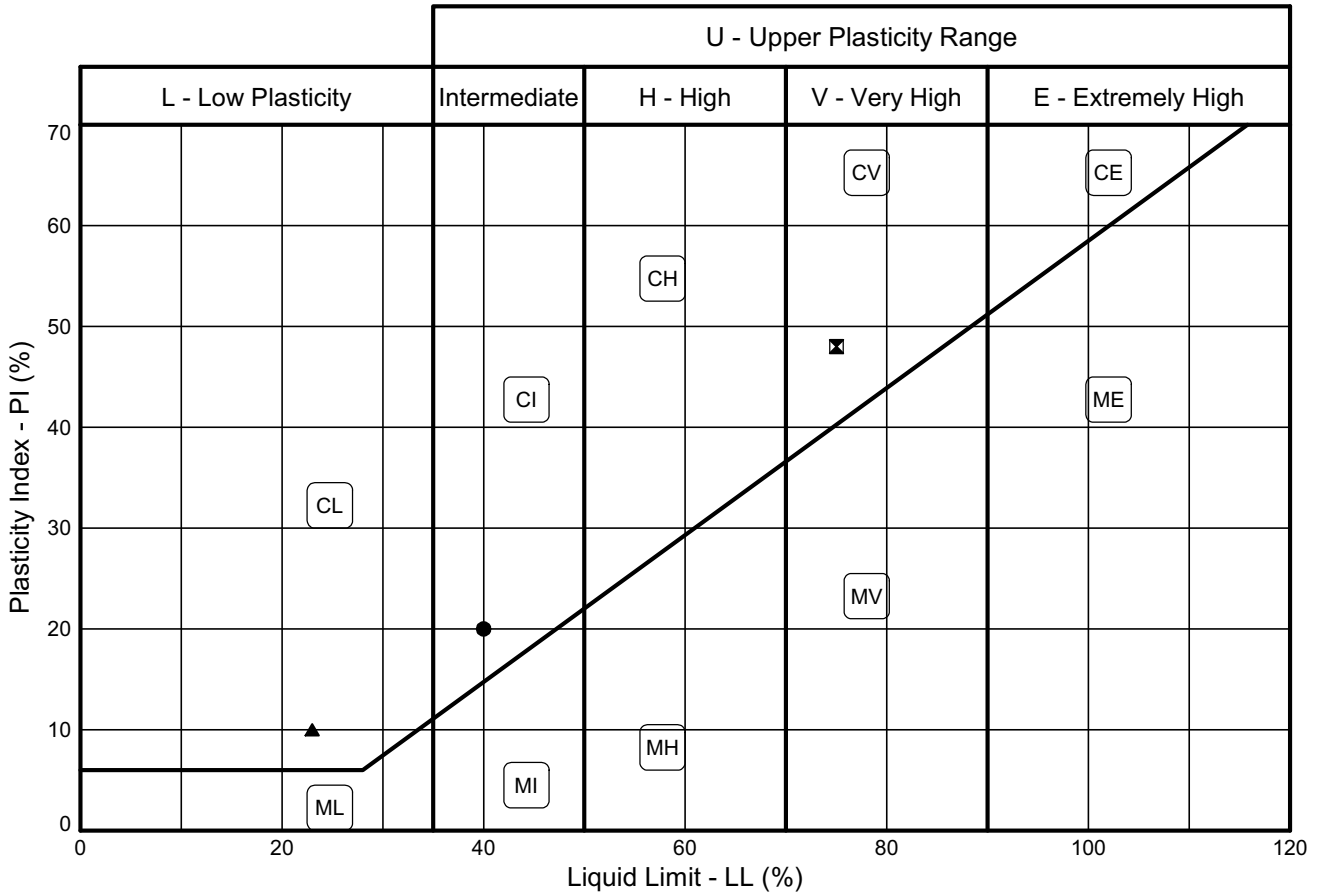
Contract Ref:

782036



PLASTICITY CHART - PI Vs LL

In accordance with clause 42.3 of BS5930:1999
Testing in accordance with BS1377-2:1990



Sample Identification			BS Test Method #	Preparation Method +	MC %	LL %	PL %	PI %	<425um %	Lab location	
Exploratory Position ID	Sample	Depth (m)									
●	TP04	1D	1.60	3.2/4.3/5.3/5.4	4.2.4	20	40	20	20	100	C
⊠	TP06	1D	0.70	3.2/4.3/5.3/5.4	4.2.3	31	75	27	48	100	C
▲	TP15	1D	0.50	3.2/4.3/5.3/5.4	4.2.4	15	23	13	10	73	C

Tested in accordance with the following clauses of BS1377-2:1990.

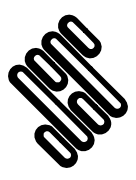
- 3.2 - Moisture Content
- 4.3 - Cone Penetrometer Method
- 4.4 - One Point Cone Penetrometer Method
- 4.6 - One Point Casagrande Method
- 5.3 - Plastic Limit Method
- 5.4 - Plasticity Index

+ Tested in accordance with the following clauses of BS1377-2:1990.

- 4.2.3 - Natural State
- 4.2.4 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)



STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
<i>M. Fisher</i>		22/04/16
Contract		Contract Ref:
Harron Homes, London Road, Retford		782036



GINT_LIBRARY_v8_06_GLB LibVersion: v8_06_008 ProjVersion: v8_06 - Core+Geotech Lab-Castleford - Dev 025 | Graph L - ALINE STANDARD - A4P | 782036 - HARRON HOMES, RETFORD.GPJ - v8_06
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ, Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk | 22/04/16 - 15:42 | MF1 |

APPENDIX D

Coal Authority Report

Geological Report



The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

KENILWORTH NURSERIES
LONDON ROAD
RETFORD
DN22 7JE

Date of enquiry: 15 April 2016
Date enquiry received: 15 April 2016
Issue date: 15 April 2016

Our reference: 51001144593001
Your reference: HARRON 6617



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

HAIGH HUDDLESTON & ASSOCIATES

Enquiry address

KENILWORTH NURSERIES, LONDON ROAD,
RETFORD, DN22 7JE


How to contact us


0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.gov.uk/coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2016. All rights reserved.

Ordnance Survey Licence number: 100020315

Summary

Has the enquiry boundary identified evidence of		
1	Past underground coal mining	No
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	No
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is not within a surface area that could be affected by past underground mining.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

Disclaimer

The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database rights. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

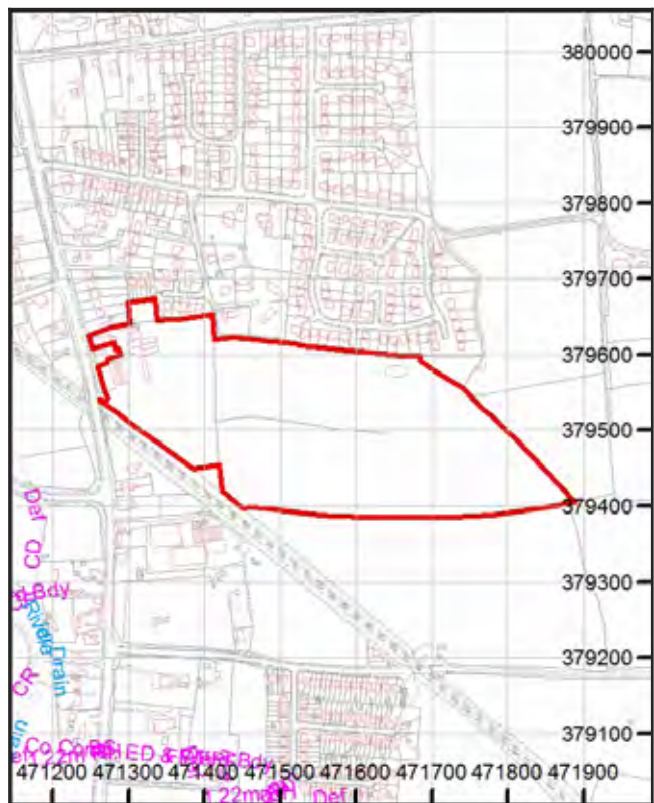
Alternative formats

If you would like this report in an alternative format, please contact our communications team.

Enquiry boundary

Key

Approximate position of enquiry boundary shown




How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.gov.uk/coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2016. All rights reserved.

Ordnance Survey Licence number: 100020315

VAT receipt	
Issued by:	The Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG
Tax point date:	15 April 2016
Issued to:	HAIGH HUDDLESTON & ASSOCIATES 99-101 LEEDS ROAD DEWSBURY WF12 7BU
Property search for:	KENILWORTH NURSERIES LONDON ROAD RETFORD DN22 7JE
Reference number:	51001144593001
Date of issue:	15 April 2016
Cost:	£77.00
VAT @ 20%:	£15.40
Total received:	£92.40
VAT registration:	598 5850 68



Haigh Huddleston & Associates

99-101, LEEDS ROAD,
DEWSBURY, WF12 7BU

Groundsure Reference: GS-2865359

Your Reference: HARRON_HOMES_6617

Report Date 22 Mar 2016

Report Delivery Method: Email - pdf

Groundsure Geoinsight

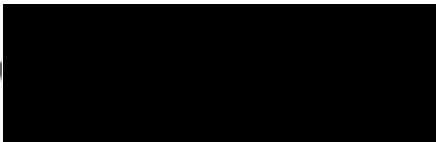
Address: LONDON ROAD, RETFORD, DN22 7JE

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geoinsight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geoinsight



Groundsure Geoinsight

Address: LONDON ROAD, RETFORD, DN22 7JE
Date: 22 Mar 2016
Reference: GS-2865359
Client: Haigh Huddleston & Associates

NW N NE



W E

SW S SE

Aerial Photograph Capture date: 19-Jul-2013
Grid Reference: 471533,379517
Site Size: 10.68ha

Contents Page

Overview of Findings.....	5
1 Geology.....	8
1.1 Artificial Ground Map.....	8
1 Geology.....	9
1.1 Artificial Ground.....	9
1.1.1 Artificial/ Made Ground.....	9
1.1.2 Permeability of Artificial Ground.....	9
1.2 Superficial Deposits and Landslips Map.....	10
1.2 Superficial Deposits and Landslips.....	11
1.2.1 Superficial Deposits/ Drift Geology.....	11
1.2.2 Permeability of Superficial Ground.....	11
1.2.3 Landslip.....	11
1.2.4 Landslip Permeability.....	12
1.3 Bedrock and Faults Map.....	13
1.3 Bedrock, Solid Geology & Faults.....	14
1.3.1 Bedrock/ Solid Geology.....	14
1.3.2 Permeability of Bedrock Ground.....	14
1.3.3 Faults.....	14
1.4 Radon Data.....	15
1.4.1 Radon Affected Areas.....	15
1.4.2 Radon Protection.....	15
2 Ground Workings Map.....	16
2 Ground Workings.....	17
2.1 Historical Surface Ground Working Features derived from Historical Mapping.....	17
2.2 Historical Underground Working Features derived from Historical Mapping.....	17
2.3 Current Ground Workings.....	18
3 Mining, Extraction & Natural Cavities Map.....	19
3 Mining, Extraction & Natural Cavities.....	20
3.1 Historical Mining.....	20
3.2 Coal Mining.....	20
3.3 Johnson Poole and Bloomer.....	20
3.4 Non-Coal Mining.....	20
3.5 Non-Coal Mining Cavities.....	21
3.6 Natural Cavities.....	21
3.7 Brine Extraction.....	21
3.8 Gypsum Extraction.....	21
3.9 Tin Mining.....	21
3.10 Clay Mining.....	22
4 Natural Ground Subsidence.....	23
4.1 Shrink-Swell Clay Map.....	23
4.2 Landslides Map.....	24
4.3 Ground Dissolution Soluble Rocks Map.....	25
4.4 Compressible Deposits Map.....	26
4.5 Collapsible Deposits Map.....	27
4.6 Running Sand Map.....	28
4 Natural Ground Subsidence.....	29
4.1 Shrink-Swell Clays.....	29
4.2 Landslides.....	29
4.3 Ground Dissolution of Soluble Rocks.....	29

4.4 Compressible Deposits.....	30
4.5 Collapsible Deposits.....	30
4.6 Running Sands.....	30
5 Borehole Records Map.....	31
5 Borehole Records.....	32
6 Estimated Background Soil Chemistry.....	33
7 Railways and Tunnels Map.....	34
7 Railways and Tunnels.....	35
7.1 Tunnels	35
7.2 Historical Railway and Tunnel Features	35
7.3 Historical Railways.....	36
7.4 Active Railways.....	36
7.5 Railway Projects.....	36

Overview of Findings

The Groundsure Geosight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow Mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1:Geology

1.1 Artificial Ground	1.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	Yes
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	Yes
	1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	1.2.4 Are there any records relating to permeability of landslips within the study site boundary?	No
1.3 Bedrock, Solid Geology & Faults	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records relating to permeability of bedrock within the study site boundary?	Yes
	1.3.3 Are there any records of faults within 500m of the study site boundary?	No
1.4 Radon data	1.4.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level
	1.4.2 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary

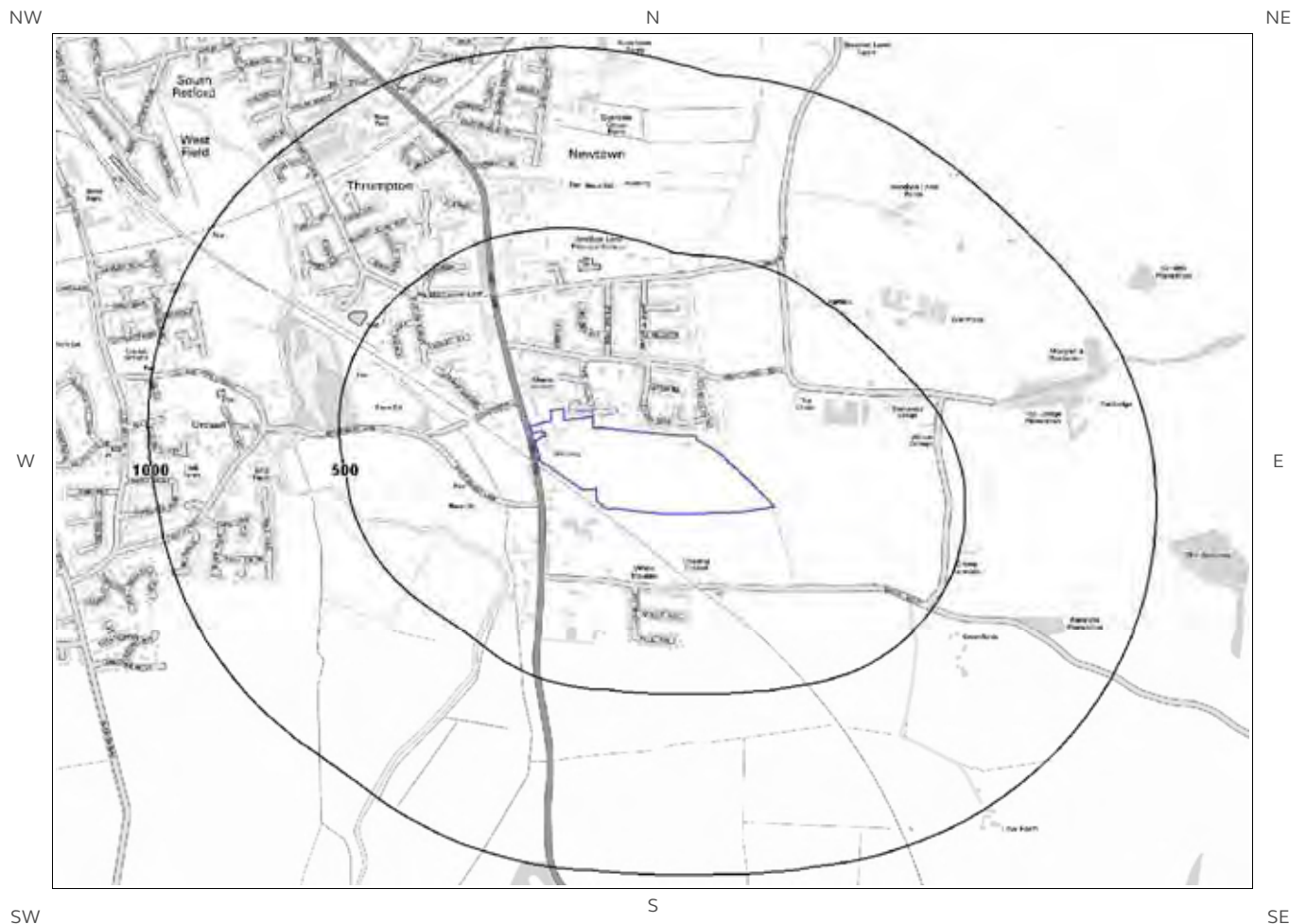
Section 2:Ground Workings	On-site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	1	9	0	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	0	0	3

Section 3: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0
3.2 Coal Mining	1	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining	0	0	0	0	0
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0
Section 4: Natural Ground Subsidence	On-site				
4.1 Shrink Swell Clay	Very Low				
4.2 Landslides	Very Low				
4.3 Ground Dissolution of Soluble Rocks	Negligible				
4.4 Compressible Deposits	Negligible				
4.5 Collapsible Deposits	Very Low				
4.6 Running Sand	Very Low				
Section 5: Borehole Records	On-site	0-50m	51-250		
5 BGS Recorded Boreholes	0	0	0		
Section 6: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
6 Records of Background Soil Chemistry	7	1	9		
Section 7: Railways and Tunnels	On-site	0-50m	51-250	251-500	
7.1 Tunnels	0	0	0	Not Searched	
7.2 Historical Railway and Tunnel Features	0	3	0	Not Searched	
7.3 Historical Railways	0	0	0	Not Searched	
7.4 Active Railways	0	6	2	Not Searched	

Section 7:Railways and Tunnels	On-site	0-50m	51-250	251-500
7.5 Railway Projects	0	0	0	0

1 Geology

1.1 Artificial Ground Map



Artificial Ground Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



1 Geology

1.1 Artificial Ground

1.1.1 Artificial/ Made Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:101

Are there any records of Artificial/Made Ground within 500m of the study site boundary? No

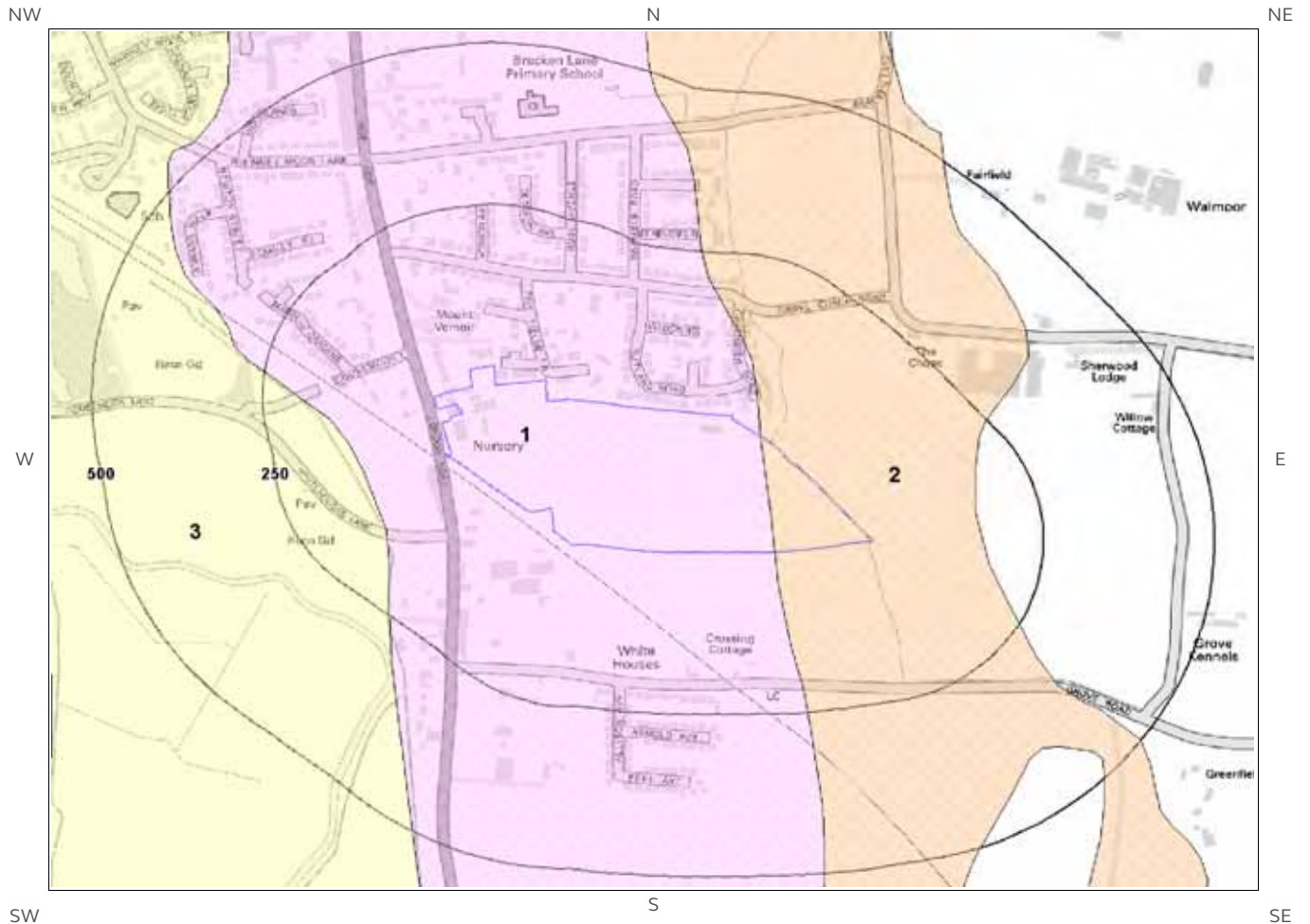
Database searched and no data found.

1.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

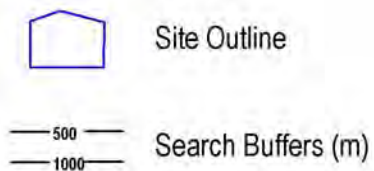
Database searched and no data found.

1.2 Superficial Deposits and Landslips Map



Superficial Deposits and Landslips Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



1.2 Superficial Deposits and Landslips

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	GFDMP	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
2	0.0	On Site	RTD1	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
3	121.0	W	ALV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]

1.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	High
0.0	On Site	Intergranular	Very High	High

1.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

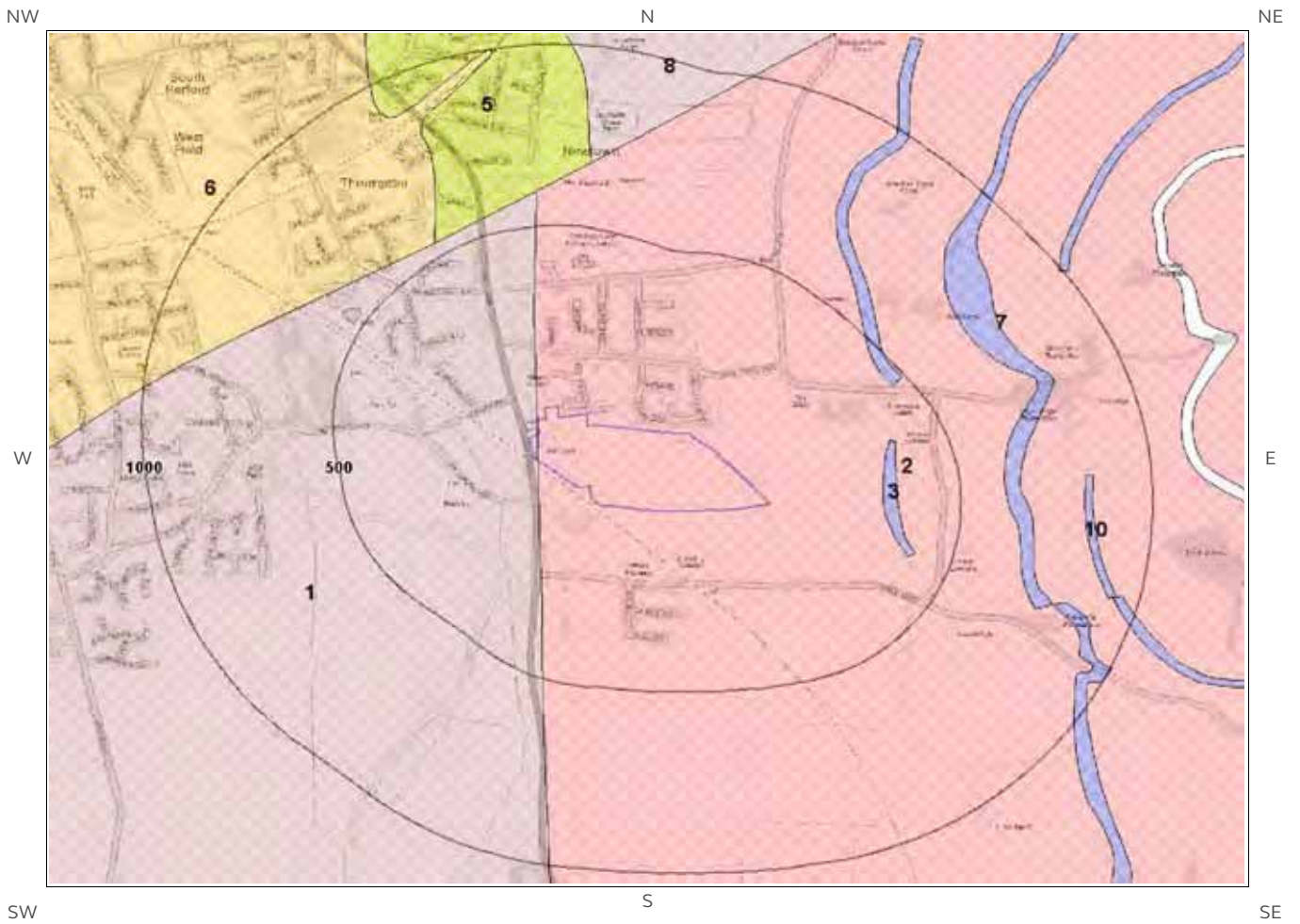
1.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site** boundary? No

Database searched and no data found.

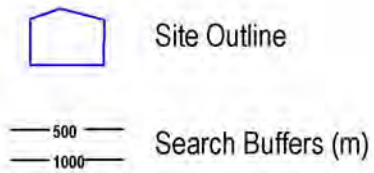
* This includes an automatically generated 50m buffer zone around the site

1.3 Bedrock and Faults Map



Bedrock and Faults Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:101

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/ Solid Geology within 500m of the study site boundary:

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	TPSF-SIMS	Tarporley Siltstone Formation - Siltstone, Mudstone And Sandstone	Anisian / Olenekian
2	0.0	On Site	MMG-MDST	Mercia Mudstone Group - Mudstone	Rhaetian /
3	296.0	E	MMG-DSLST	Mercia Mudstone Group - Siltstone, Dolomitic	Rhaetian /
4	456.0	NE	MMG-DSLST	Mercia Mudstone Group - Siltstone, Dolomitic	Rhaetian /

1.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site* boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Low	Low
0.0	On Site	Fracture	Moderate	Low

1.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

* This includes an automatically generated 50m buffer zone around the site

1.4 Radon Data

1.4.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level

1.4.2 Radon Protection

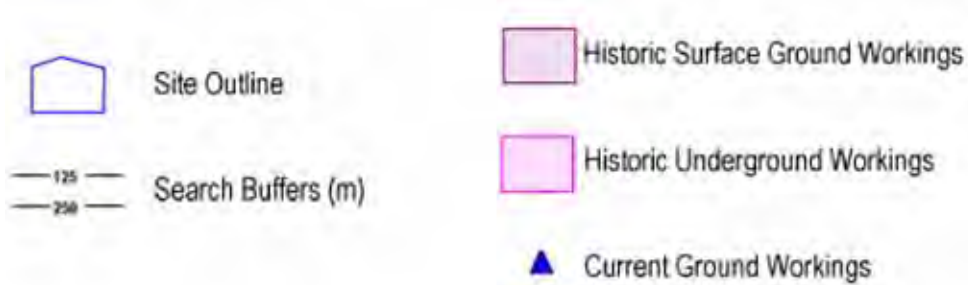
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary

2 Ground Workings Map



Ground Workings Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



2 Ground Workings

2.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping.

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

The following Historical Surface Ground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
1A	0.0	On Site	471447 379379	Cuttings	1974
2B	7.0	SW	471467 379354	Cuttings	1951
3A	8.0	SW	471423 379383	Cuttings	1884
4B	10.0	SW	471442 379367	Cuttings	1947
5	11.0	SW	471335 379459	Cuttings	1898
6C	14.0	W	471237 379542	Cuttings	1974
7C	16.0	W	471231 379540	Cuttings	1951
8D	40.0	N	471352 379727	Pond	1947
9D	40.0	N	471352 379727	Pond	1884
10D	40.0	N	471352 379727	Pond	1898

2.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

2.3 Current Ground Workings

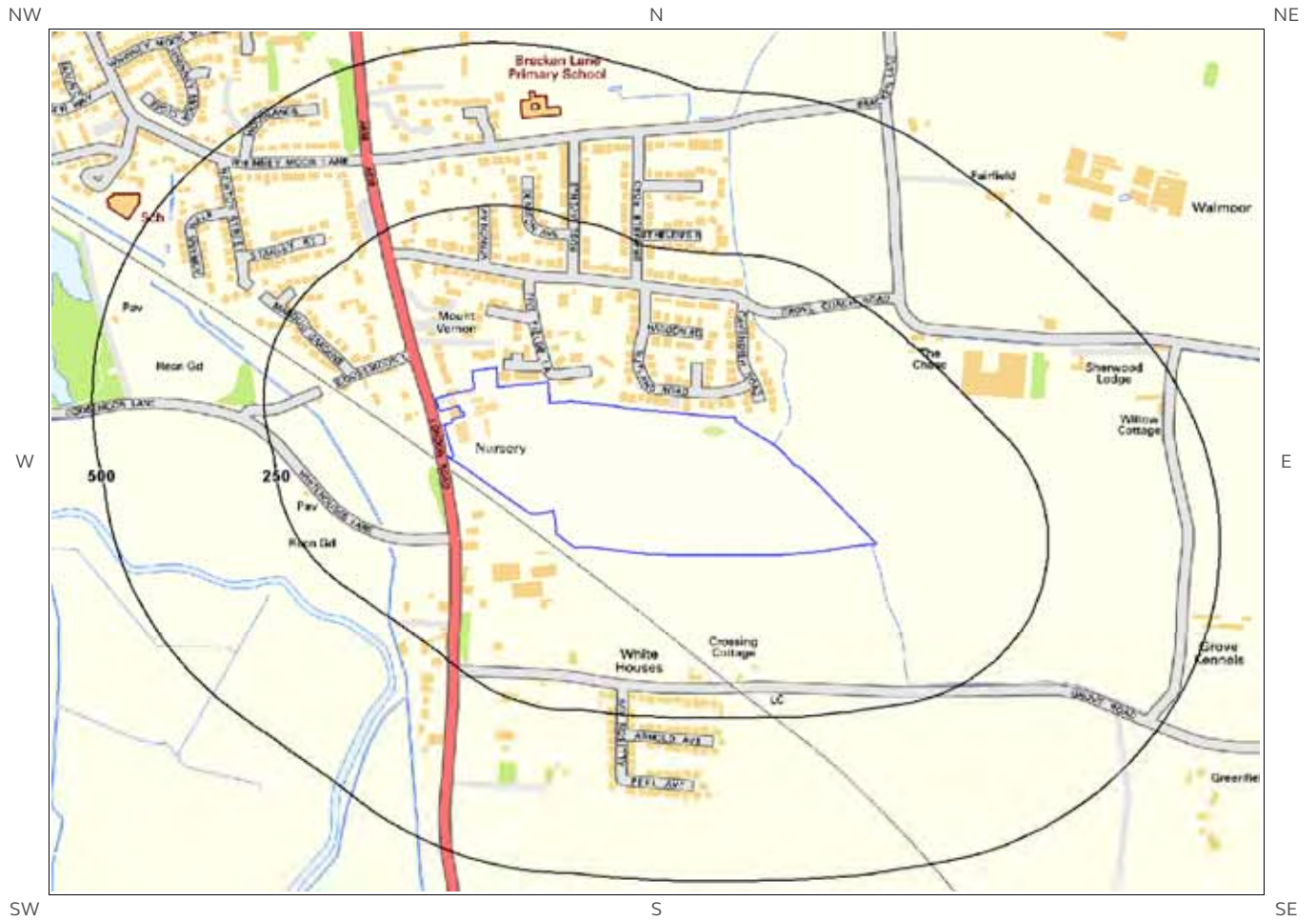
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	591.0	W	470671 379758	Sand & Gravel	Goosemoor Lane Gravel Pits	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	884.0	N	471332 380558	Clay & Shale	Newtown Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	980.0	N	471290 380653	Clay & Shale	Pottery Lane Brick Yard	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

3 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

© Crown copyright and database rights 2016. Ordnance Survey license 100035207.



3 Mining, Extraction & Natural Cavities

3.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

3.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

3.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

3.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

3.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level.

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

3.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

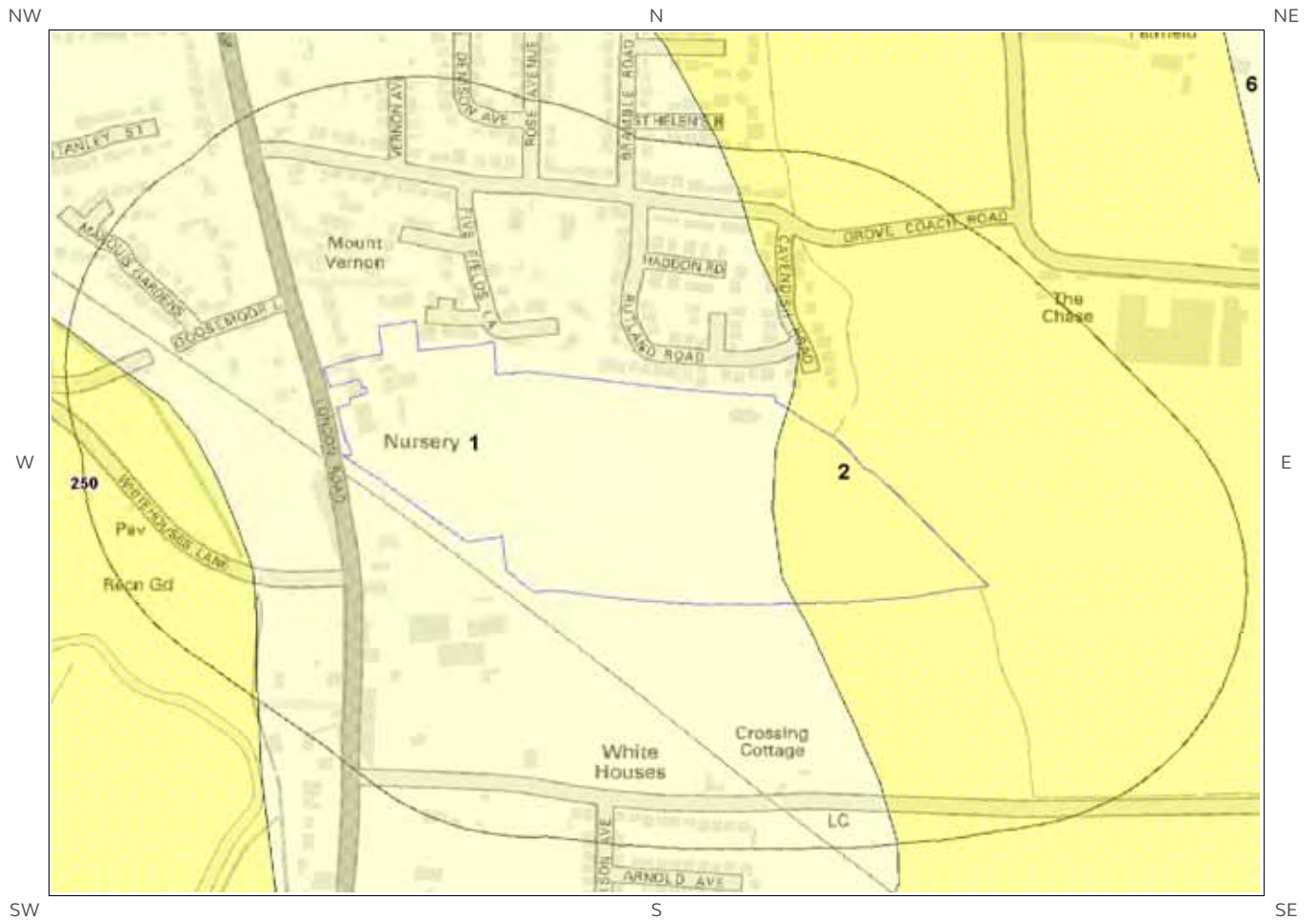
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

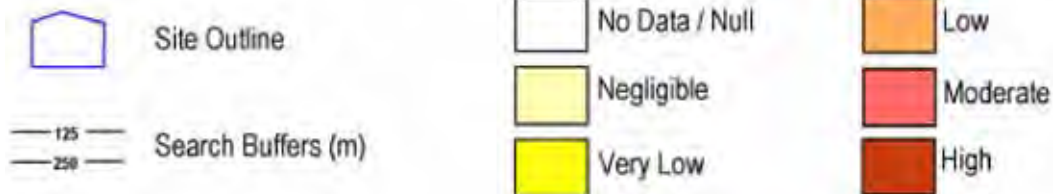
4 Natural Ground Subsidence

4.1 Shrink-Swell Clay Map



Shrink Swell Clay Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



4.2 Landslides Map

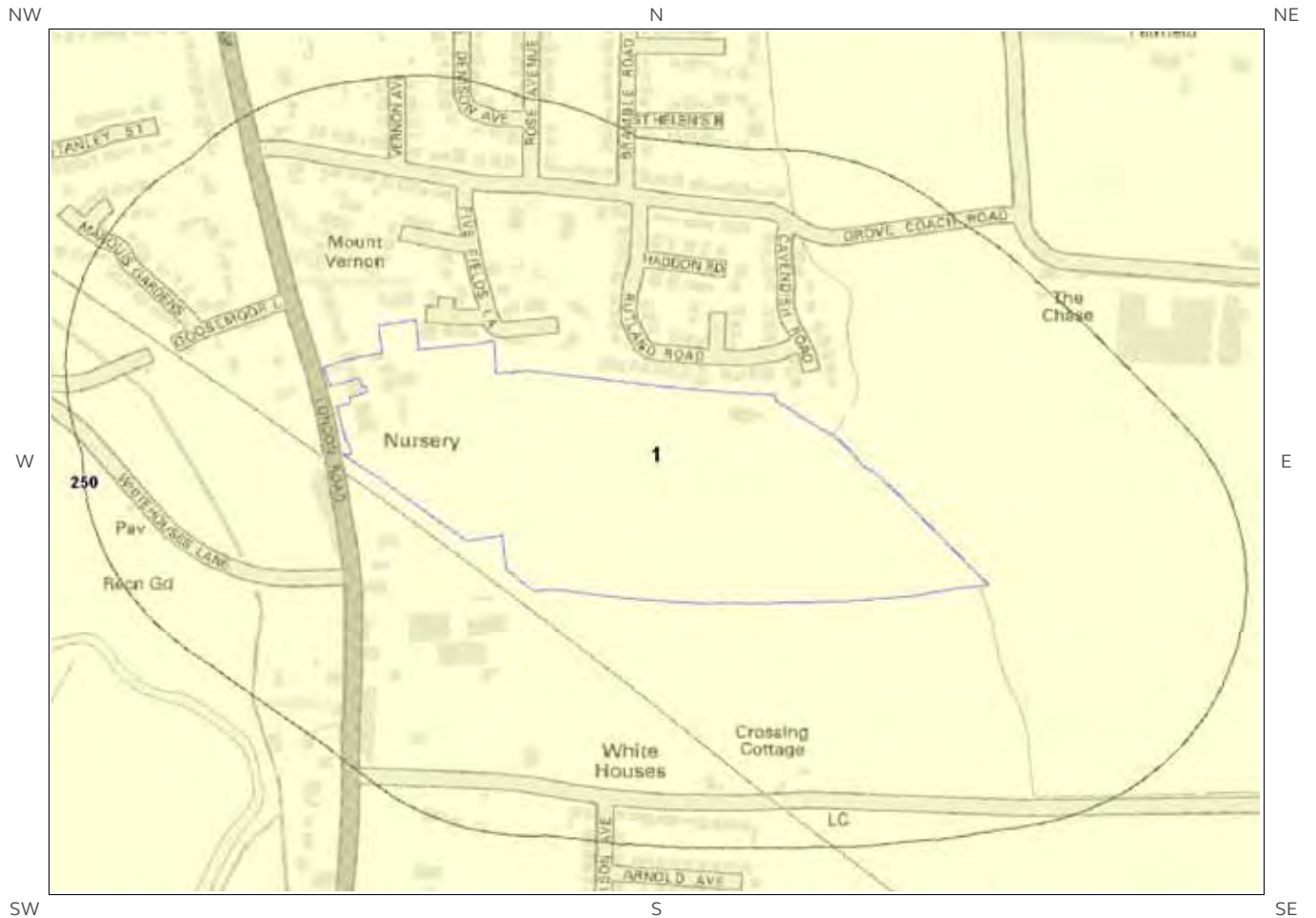


Landslides Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.

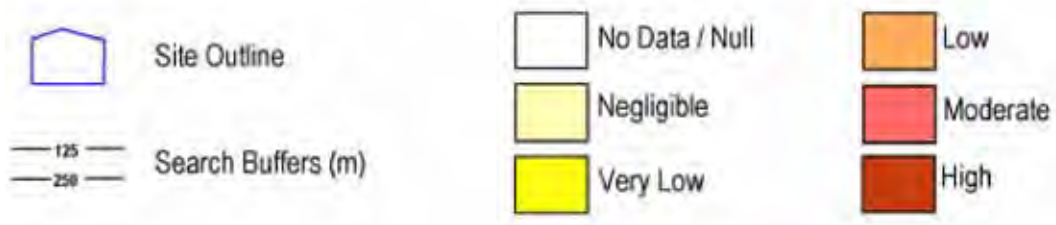


4.3 Ground Dissolution Soluble Rocks Map

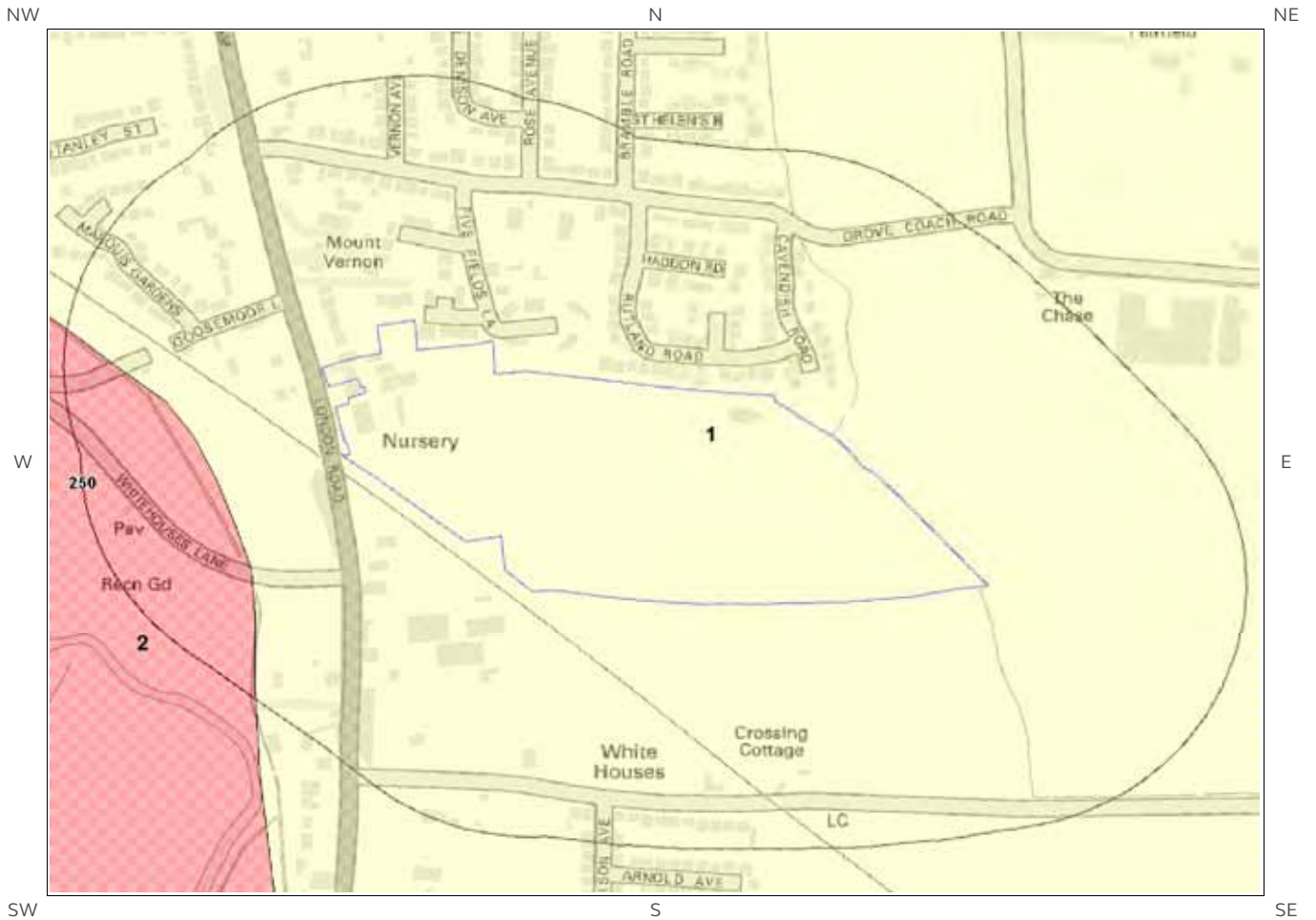


Ground Dissolution Soluble Rocks Legend

© Crown copyright and database rights 2016. Ordnance Survey license 100035207.

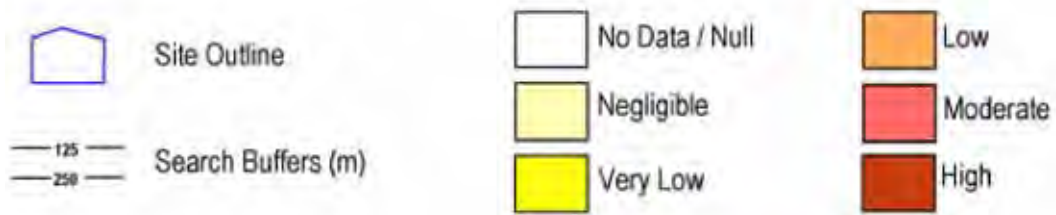


4.4 Compressible Deposits Map

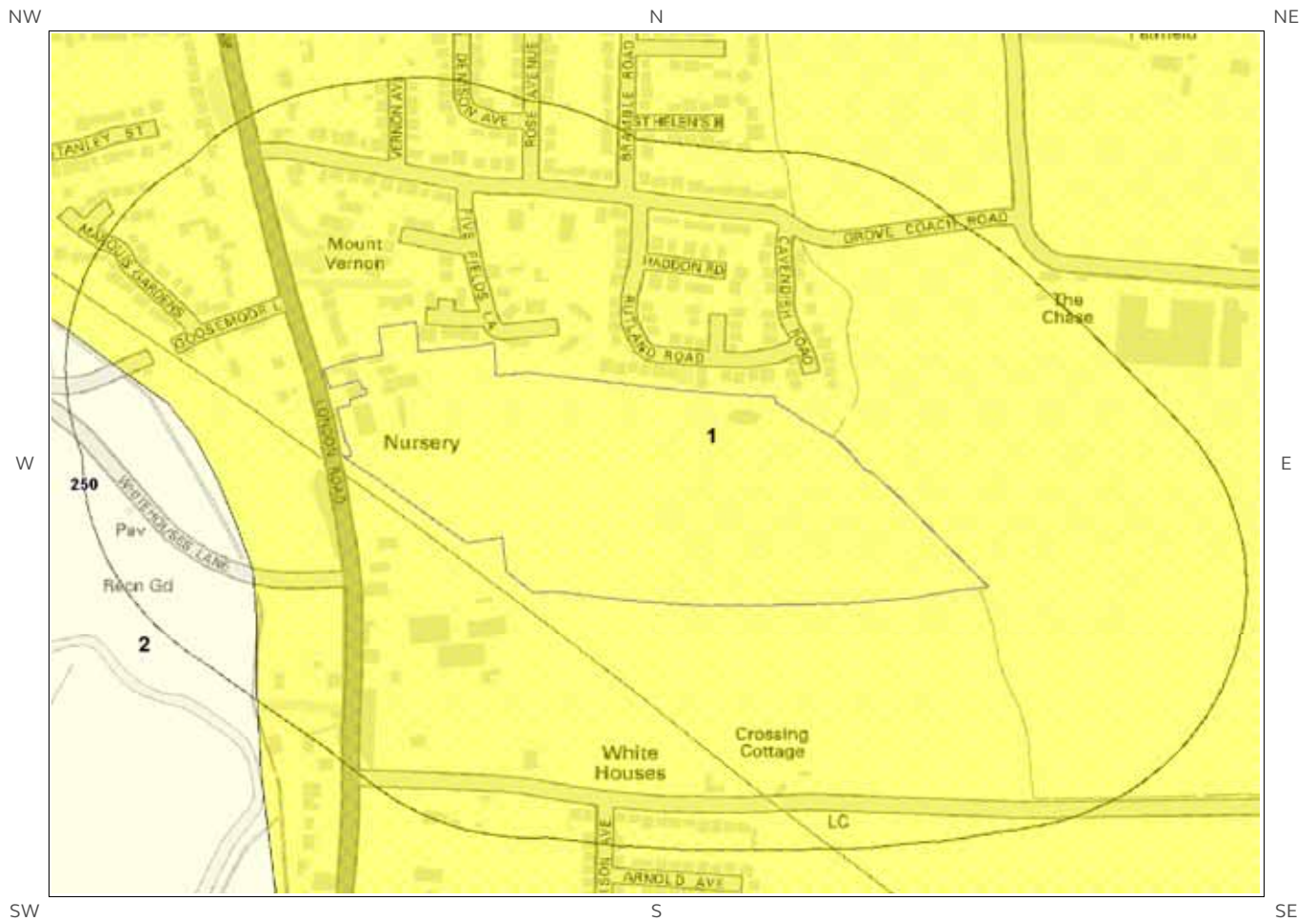


Compressible Deposits Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.

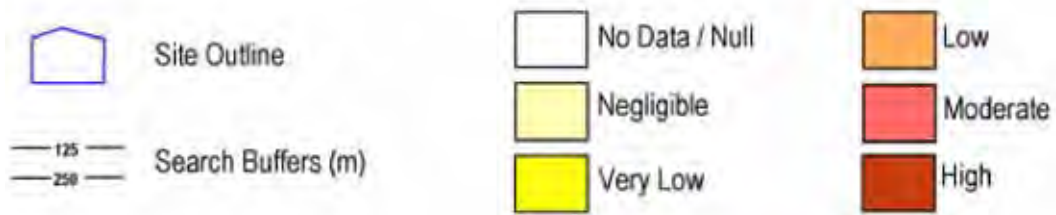


4.5 Collapsible Deposits Map



Collapsible Deposits Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.

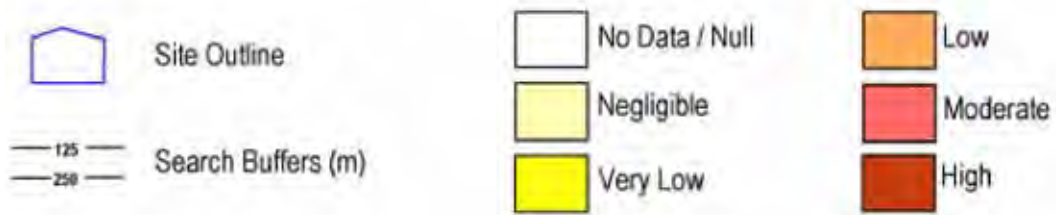


4.6 Running Sand Map



Running Sand Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



4 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? Very Low

4.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

4.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

4.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This includes an automatically generated 50m buffer zone around the site

4.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible ground identified. No special actions required to avoid problems due to compressible ground. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible ground.

4.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

4.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

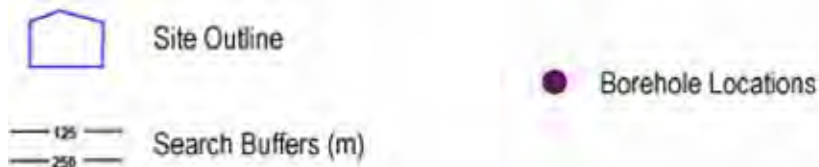
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

5 Borehole Records Map



Borehole Records Legend

© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



5 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 0

Database searched and no data found.

6 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

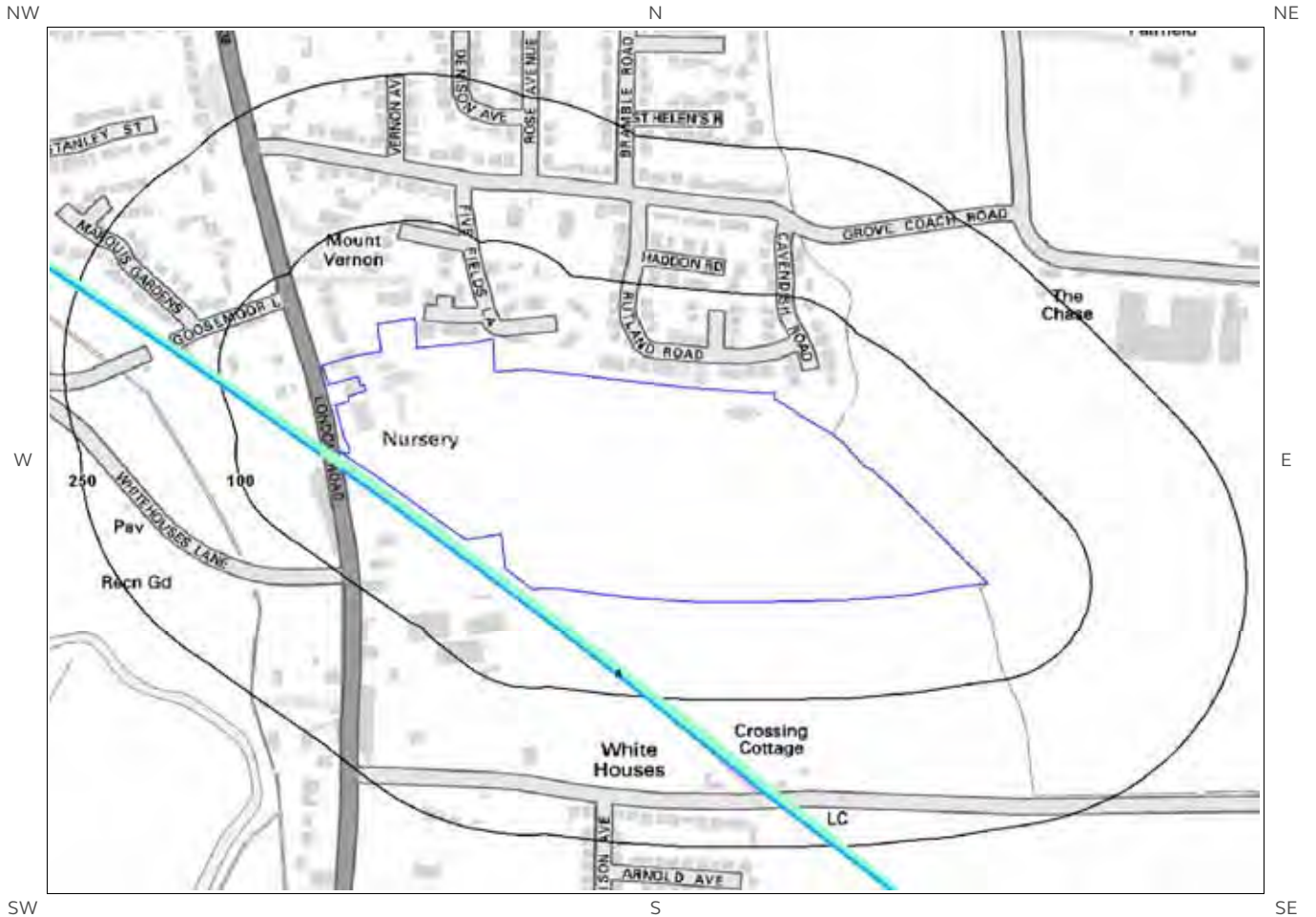
17

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geosight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
21.0	SW	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
111.0	E	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
111.0	E	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
121.0	W	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
121.0	W	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
147.0	NE	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
147.0	NE	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
157.0	E	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
179.0	NE	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
247.0	W	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

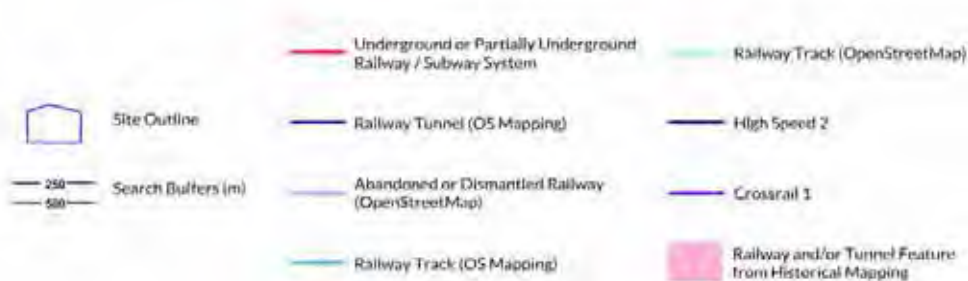
*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

7 Railways and Tunnels Map



Railways and Tunnels Legend

© Crown copyright and database rights 2016.
 Ordnance Survey license 100035207.
 © OpenStreetMapContributors



7 Railways and Tunnels

7.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

7.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1A	12	SW	471541 379304	Railway Sidings	1886
2A	12	SW	471541 379304	Railway Sidings	1920
3A	12	SW	471541 379304	Railway Sidings	1900

Any records that have been identified are represented on the Railways and Tunnels Map.

7.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

- Have any historical railway lines been identified within the study site boundary? No
- Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Note: multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

7.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

- Have any active railway lines been identified within the study site boundary? No
- Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
7	SW	East Coast Main Line	Rail
7	SW	East Coast Main Line	Rail
11	SW	East Coast Main Line	Rail
11	SW	East Coast Main Line	Rail
14	SW	Not given	Multi Track
18	W	Not given	Multi Track
71	S	East Coast Main Line	Rail
75	S	East Coast Main Line	Rail

Note: multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

7.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

- Is the study site within 5km of the route of the High Speed 2 rail project? No
- Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Contact Details



Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com



British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettel Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email: enquiries.gs@jpb.co.uk
Website: www.jpb.co.uk



Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505
Website: <http://www.ordnancesurvey.co.uk/>



Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website: <http://www1.getmapping.com/>



Contact Details



Peter Brett Associates

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN

Tel: +44 (0)118 950 0761 E-mail: reading@pba.co.uk
Website: <http://www.peterbrett.com/home>



Acknowledgements: Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028]. This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

“Beneficiary” means the person or entity for whose benefit the Client has obtained the Services.

“Client” means the party or parties entering into a Contract with Groundsure.

“Commercial” means any building or property which is not Residential.

“Confidential Information” means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by Groundsure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

“Support Services” means Support Services provided by Groundsure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

“Contract” means the contract between Groundsure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

“Third Party Data Provider” means any third party providing Third Party Content to Groundsure.

“Data Reports” means reports comprising factual data with no accompanying interpretation.

“Fees” has the meaning set out in clause 5.1.

“Groundsure” means Groundsure Limited, a company registered in England and Wales under number 03421028.

“Groundsure Materials” means all materials prepared by Groundsure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

“Intellectual Property” means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

“Mapping” means a map, map data or a combination of historical maps of various ages, time periods and scales.

“Order” means an electronic, written or other order form submitted by the Client requesting Services from Groundsure in respect of a specified Site.

“Ordnance Survey” means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

“Order Website” means the online platform through which Orders may be placed by the Client and accepted by Groundsure.

“Report” means a Risk Screening Report or Data Report for Commercial or Residential property.

“Residential” means any building or property used as or intended to be used as a single dwelling.

“Risk Screening Report” means a risk screening report comprising factual data with an accompanying interpretation by Groundsure.

“Services” means any Report, Mapping and/or Support Services which Groundsure has agreed to provide by accepting an Order pursuant to clause 2.6.

“Site” means the area of land in respect of which the Client has requested Groundsure to provide the Services.

“Third Party Content” means data, database information or other information which is provided to Groundsure by a Third Party Data Provider.

“User Guide” means the user guide, as amended from time to time, available upon request from Groundsure and on the website (www.Groundsure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 Groundsure agrees to provide the Services in accordance with the Contract.

2.2 Groundsure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of Groundsure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, Groundsure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and Groundsure will have no liability therefor. In addition you acknowledge and agree that Groundsure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 Groundsure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by Groundsure.

Groundsure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by Groundsure. Groundsure's acceptance of an Order shall be binding only when made in writing and signed by Groundsure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to Groundsure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to Groundsure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as Groundsure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable Groundsure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the Groundsure Materials, or use the Groundsure Materials in a manner for which they were not intended. The Client may make the Groundsure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that Groundsure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by Groundsure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by Groundsure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

(i) the Beneficiary,
(ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),
(iv) the first purchaser or first tenant of the Site, and
(v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by Groundsure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 Groundsure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by Groundsure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together “Fees”).

5.2 The Client shall pay all outstanding Fees to Groundsure in full without deduction, counterclaim or set off within 30 days of the date of Groundsure's invoice or such other period as may be agreed in writing between Groundsure and the Client (“Payment Date”). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of Groundsure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and
(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the Groundsure Materials.

6.2 All Intellectual Property in the Groundsure Materials are and shall remain owned by Groundsure or Groundsure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure

acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the Groundsure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to Groundsure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the Groundsure Materials in order to advise the Beneficiary in a professional capacity. However, Groundsure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify Groundsure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of Groundsure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by Groundsure or its employees, agents or subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 Groundsure shall not be liable for

(i) loss of profits;

(ii) loss of business;

(iii) depletion of goodwill and/or similar losses;

(iv) loss of anticipated savings;

(v) loss of goods;

(vi) loss of contract;

(vii) loss of use;

(viii) loss or corruption of data or information;

(ix) business interruption;

(x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the Groundsure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the Groundsure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of Groundsure's internet ordering service.

7.5 Groundsure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 Groundsure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of Groundsure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against Groundsure in relation to the Services or other matters arising pursuant to the Contract.

8 Groundsure's right to suspend or terminate

8.1 If Groundsure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, Groundsure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 Groundsure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to Groundsure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon Groundsure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are

(a) supplied to the Client's specification(s) and in any event
(b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) Groundsure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in Groundsure's possession or control; and

(ii) the Client shall pay to Groundsure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay Groundsure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of Groundsure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to Groundsure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through Groundsure.

12.3 Groundsure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of Groundsure.

12.4 No failure on the part of Groundsure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 Groundsure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

- (i) the Client or Beneficiary's failure to provide facilities, access or information;
- (ii) fire, storm, flood, tempest or epidemic;
- (iii) Acts of God or the public enemy;
- (iv) riot, civil commotion or war;
- (v) strikes, labour disputes or industrial action;
- (vi) acts or regulations of any governmental or other agency;
- (vii) suspension or delay of services at public registries by Third Party Data Providers;
- (viii) changes in law; or
- (ix) any other reason beyond Groundsure's reasonable control.

In the event that Groundsure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then Groundsure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 Groundsure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at Groundsure who will respond in a timely manner. In the event you are not satisfied with Groundsure's complaints handling process or you are unable to resolve the complaint, at your discretion you may refer the complaint to The Property Ombudsman Scheme at the following URL/email: website www.tpos.co.uk or email: admin@tpos.co.uk

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law

APPENDIX E

Groundsure Report

Historical Maps



Haigh Huddleston & Associates
99-101, LEEDS ROAD,
DEWSBURY, WF12 7BU

Groundsure Reference: GS-2865358
Your Reference: HARRON_HOMES_6617

Report Date 22 Mar 2016

Report Delivery Method: Email - pdf

Groundsure Enviroinsight

Address: LONDON ROAD, RETFORD, DN22 7JE

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviroinsight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

A large black rectangular redaction box covering the signature area. To the left of the box is a small, faint circular mark, and to the right is a small, faint horizontal line.

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight



Groundsure Envirosight

Address: LONDON ROAD, RETFORD, DN22 7JE
Date: 22 Mar 2016
Reference: GS-2865358
Client: Haigh Huddleston & Associates



Aerial Photograph Capture date: 19-Jul-2013
Grid Reference: 471533,379517
Site Size: 10.68ha

Report Reference: GS-2865358
Client Reference: HARRON_HOMES_6617

Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	12
1.3 Additional Information – Historical Energy Features Database	13
1.4 Additional Information – Historical Petrol and Fuel Site Database	13
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	13
1.6 Potentially Infilled Land	14
2. Environmental Permits, Incidents and Registers Map	15
2. Environmental Permits, Incidents and Registers	16
2.1 Industrial Sites Holding Licences and/or Authorisations	16
2.1.1 Records of historic IPC Authorisations within 500m of the study site	16
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	16
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	16
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	16
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	16
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	17
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	17
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	17
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	19
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	19
2.2 Dangerous or Hazardous Sites	19
2.3 Environment Agency Recorded Pollution Incidents	19
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	19
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	20
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	20
3. Landfill and Other Waste Sites Map	21
3. Landfill and Other Waste Sites	22
3.1 Landfill Sites	22
3.1.1 Records from Environment Agency landfill data within 1000m of the study site	22
3.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site	22
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	22
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	23
3.2 Other Waste Sites	23
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	23
3.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site	23
4. Current Land Use Map	24
4. Current Land Uses	25
4.1 Current Industrial Data	25
4.2 Petrol and Fuel Sites	25
4.3 National Grid High Voltage Underground Electricity Transmission Cables	26
4.4 National Grid High Pressure Gas Transmission Pipelines	26
5. Geology	27
5.1 Artificial Ground and Made Ground	27

5.2 Superficial Ground and Drift Geology	27
5.3 Bedrock and Solid Geology	27
6 Hydrogeology and Hydrology	28
6a. Aquifer Within Superficial Geology	28
6b. Aquifer Within Bedrock Geology and Abstraction Licenses	29
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses	30
6d. Hydrogeology – Source Protection Zones within confined aquifer	31
6e. Hydrology – Detailed River Network and River Quality	32
6. Hydrogeology and Hydrology	33
6.1 Aquifer within Superficial Deposits.....	33
6.2 Aquifer within Bedrock Deposits.....	33
6.3 Groundwater Abstraction Licences.....	34
6.4 Surface Water Abstraction Licences.....	35
6.5 Potable Water Abstraction Licences.....	36
6.6 Source Protection Zones.....	37
6.7 Source Protection Zones within Confined Aquifer.....	37
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	38
6.9 River Quality.....	38
6.9.1 Biological Quality:.....	38
6.9.2 Chemical Quality:.....	38
6.10 Detailed River Network.....	39
6.11 Surface Water Features.....	40
7a. Environment Agency Flood Map for Planning (from rivers and the sea)	41
7b. Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) Map	42
7 Flooding	43
7.1 River and Coastal Zone 2 Flooding.....	43
7.2 River and Coastal Zone 3 Flooding.....	43
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	43
7.4 Flood Defences.....	43
7.5 Areas benefiting from Flood Defences.....	44
7.6 Areas benefiting from Flood Storage.....	44
7.7 Groundwater Flooding Susceptibility Areas.....	44
7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes.....	44
7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?.....	44
7.8 Groundwater Flooding Confidence Areas.....	44
8. Designated Environmentally Sensitive Sites Map	45
8. Designated Environmentally Sensitive Sites	46
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	46
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	46
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	46
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	46
8.5 Records of Ramsar sites within 2000m of the study site:.....	47
8.6 Records of Ancient Woodland within 2000m of the study site:	47
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	47
8.8 Records of World Heritage Sites within 2000m of the study site:.....	47
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	48
8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	48
8.11 Records of National Parks (NP) within 2000m of the study site:	48
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	48
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	48

8.14 Records of Green Belt land within 2000m of the study site:.....	49
9. Natural Hazards Findings	50
9.1 Detailed BGS GeoSure Data.....	50
9.1.1 Shrink Swell.....	50
9.1.2 Landslides.....	50
9.1.3 Soluble Rocks.....	50
9.1.4 Compressible Ground.....	51
9.1.5 Collapsible Rocks.....	51
9.1.6 Running Sand.....	51
9.2 Radon.....	51
9.2.1 Radon Affected Areas.....	51
9.2.2 Radon Protection.....	52
10. Mining	53
10.1 Coal Mining.....	53
10.2 Non-Coal Mining.....	53
10.3 Brine Affected Areas	53
Contact Details	54
Standard Terms and Conditions	56

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	2	12	3	5
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	12	6
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	4
1.6 Potentially Infilled Land	1	10	0	1
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	1
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	2	8
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	1	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency Historic Landfill Sites	0	0	0	0	1	2
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	4	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	1
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	6
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	1	1	1	9
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
6.6 Source Protection Zones (within 500m of the study site)	1	0	0	1	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	0	1	2	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500

Section 6: Hydrogeology and Hydrology

0-500m

6.9 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	Yes
6.10 Detailed River Network entries within 500m of the site	1	0	2	10	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes
7.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site	No
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low
7.4 Are there any Flood Defences within 250m of the study site?	No
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	4
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	5
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	2	0	0	2	0	5
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 What is the maximum risk of natural ground subsidence?

Very Low

9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?

Very Low

9.1.2 What is the maximum Landslides hazard rating identified on the study site?

Very Low

9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?

Negligible

9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?

Negligible

9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?

Very Low

9.1.6 What is the maximum Running Sand hazard rating identified on the study site?

Very Low

9.2 Radon

9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?

No radon protective measures are necessary.

Section 10: Mining

10.1 Are there any coal mining areas within 75m of the study site?

Yes

10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?

No

10.3 Are there any brine affected areas within 75m of the study site?

No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 22

ID	Distance [m]	Direction	Use	Date
1	0	On Site	Nurseries	1974
2A	0	On Site	Cuttings	1974
3B	7	SW	Cuttings	1951
4A	8	SW	Cuttings	1884
5B	8	SW	Cuttings	1938
6A	10	SW	Cuttings	1947
7O	11	SW	Cuttings	1898
8C	14	W	Cuttings	1974
9C	16	W	Cuttings	1951
10D	31	SW	Nurseries	1974
11D	35	SW	Nurseries	1951
12D	36	SW	Nurseries	1938
13D	37	SW	Nurseries	1947
14D	37	SW	Nurseries	1898
15E	160	S	Nursery	1951
16E	212	S	Nursery	1938
17E	213	S	Nursery	1947
18F	363	NW	Nurseries	1938
19F	377	NW	Nurseries	1951
20G	423	S	Railway Building	1938
21G	423	S	Railway Building	1898
22G	423	S	Railway Building	1947

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 0

Database searched and no data found.

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary:

18

ID	Distance (m)	Direction	Use	Date
23H	84	NW	Electricity Transformer Station	1970
24H	89	NW	Electricity Transformer Station	1989
25H	89	NW	Electricity Transformer Station	1968
26I	138	N	Electricity Substation	1970
27I	139	N	Electricity Substation	1989
28I	139	N	Electricity Substation	1968
29K	212	S	Electricity Transformer Station	1970
30J	214	SW	Electricity Substation	1968
31J	214	SW	Electricity Substation	1989
32K	218	S	Electricity Substation	1989
33K	218	S	Electricity Substation	1968
34J	221	SW	Electricity Transformer Station	1970
35L	365	NE	Electricity Substation	1968
36L	365	NE	Electricity Substation	1989
37L	366	NE	Electricity Transformer	1970
38M	391	NW	Electricity Substation	1989
39M	391	NW	Electricity Substation	1971
40M	392	NW	Electricity Substation	1987

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary:

0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 4

ID	Distance (m)	Direction	Use	Date
41N	325	SW	Garage	1989
42N	325	SW	Garage	1968
43N	326	SW	Garage	1963
44N	326	SW	Garage	1970

1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 12

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
45A	0	On Site	Cuttings	1974
46B	7	SW	Cuttings	1951
47A	8	SW	Cuttings	1884
48A	8	SW	Cuttings	1938
49A	10	SW	Cuttings	1947
50O	11	SW	Cuttings	1898
51C	14	W	Cuttings	1974
52C	16	W	Cuttings	1951
53P	40	N	Pond	1898
54P	40	N	Pond	1947
55P	40	N	Pond	1884
56	480	W	Pond	1951

2. Environmental Permits, Incidents and Registers Map



© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

1

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
12	363	SW	471239 379102	Address: Whitehouse Service Station, London Road, Retford, Nottinghamshire, DN22 7JG Process: Petrol Vapour Recovery Process Status: Current Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

10

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
2A	214	SW	471100 379400	Address: GOOSEMOOR LANE DIVERSION SWS, GOOSEMOOR LANE DIVERSION, EAST RETFORD, NOTTS Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: T/74/02342/O Permit Version: 1 Receiving Water: Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 05/09/1968 Effective Date: 05-Sep-1968 Revocation Date: 31/03/2000
3A	214	SW	471100 379400	Address: GOOSEMOOR LANE DIVERSION SWS, GOOSEMOOR LANE DIVERSION, EAST RETFORD, NOTTS Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: T/74/02342/O Permit Version: 1 Receiving Water: Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 05/09/1968 Effective Date: 05-Sep-1968 Revocation Date: 31/03/2000
4	263	SW	471170 379280	Address: LONDON ROAD STORM OVERFLOW, LONDON ROAD, RETFORD Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: T/74/21615/O Permit Version: 1 Receiving Water: Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 22/06/1992 Effective Date: 22-Jun-1992 Revocation Date: -

ID	Distance (m)	Direction	NGR	Details	
5	310	SW	471200 379200	Address: RIVERSIDE LODGE BUNGALOW, LONDON ROAD, RETFORD, NOTTINGHAMSHIRE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: WQ/72/1725 Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 03/04/1978 Effective Date: 03-Apr-1978 Revocation Date: -
6B	365	W	470900 379500	Address: GOOSEMOOR LANE DIVERSION SWS, GOOSEMOOR LANE DIVERSION, EAST RETFORD, NOTTS Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: T/74/02342/O Permit Version: 1	Receiving Water: Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 05/09/1968 Effective Date: 05-Sep-1968 Revocation Date: 31/03/2000
7B	365	W	470900 379500	Address: GOOSEMOOR LANE DIVERSION SWS, GOOSEMOOR LANE DIVERSION, EAST RETFORD, NOTTS Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: T/74/02342/O Permit Version: 1	Receiving Water: Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 05/09/1968 Effective Date: 05-Sep-1968 Revocation Date: 31/03/2000
8	369	SW	471100 379200	Address: BRACKEN LANE/WHITEHOUSES/STM/OF/SWS, BRACKEN LANE, WHITEHOUSES, EAST RETFORD, NOTTS Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: T/74/02460/O Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 10/03/1969 Effective Date: 10-Mar-1969 Revocation Date: -
9	394	N	471600 380000	Address: BRACKEN LANE/WHITEHOUSES/STM/OF/SWS, BRACKEN LANE, WHITEHOUSES, EAST RETFORD, NOTTS Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: T/74/02460/O Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 10/03/1969 Effective Date: 10-Mar-1969 Revocation Date: -
10C	472	N	471680 380070	Address: BRACKEN LANE PUMPING STATION, BRACKEN LANE, BRACKEN LANE, RETFORD, NOTTINGHAMSHIRE Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: T/74/08826/O Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 05/04/1982 Effective Date: 05-Apr-1982 Revocation Date: -
11C	473	N	471680 380071	Address: BRACKEN LN PS, RETFORD, BRACKEN LN PS, RETFORD, DN22 7EX Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: TSC3136 Permit Version: 1	Receiving Water: Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03-Sep-2010 Revocation Date: 12/08/2011

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

2.3 Environment Agency Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

1

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	210	NE	471786 379781	Incident Date: 20-Mar-2003 Incident Identification: 144468 Pollutant: Agricultural Materials and Wastes Pollutant Description: Slurry and Dilute Slurry	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:

3

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
Not shown	789	W	470300 379800	Site Address: Bridon Wire Ropes, Ollerton Road, Retford, Nottinghamshire Waste Licence: - Site Reference: - Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: - First Recorded: - Last Recorded: -
Not shown	1184	W	470000 379100	Site Address: Ollerton Road, Retford, Nottinghamshire Waste Licence: - Site Reference: - Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: - First Recorded: - Last Recorded: -
Not shown	1497	N	470900 381100	Site Address: Retford Gas Holder Station, Raglan Road, Retford Waste Licence: Yes Site Reference: 76, 1/77/58/78SW Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 25-Nov-1977 Licence Surrendered: 31-Dec-1985 Licence Hold Address: Distribution Department, Church Way, Doncaster Operator: - First Recorded: 31-Dec-1976 Last Recorded: 31-Dec-1985

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

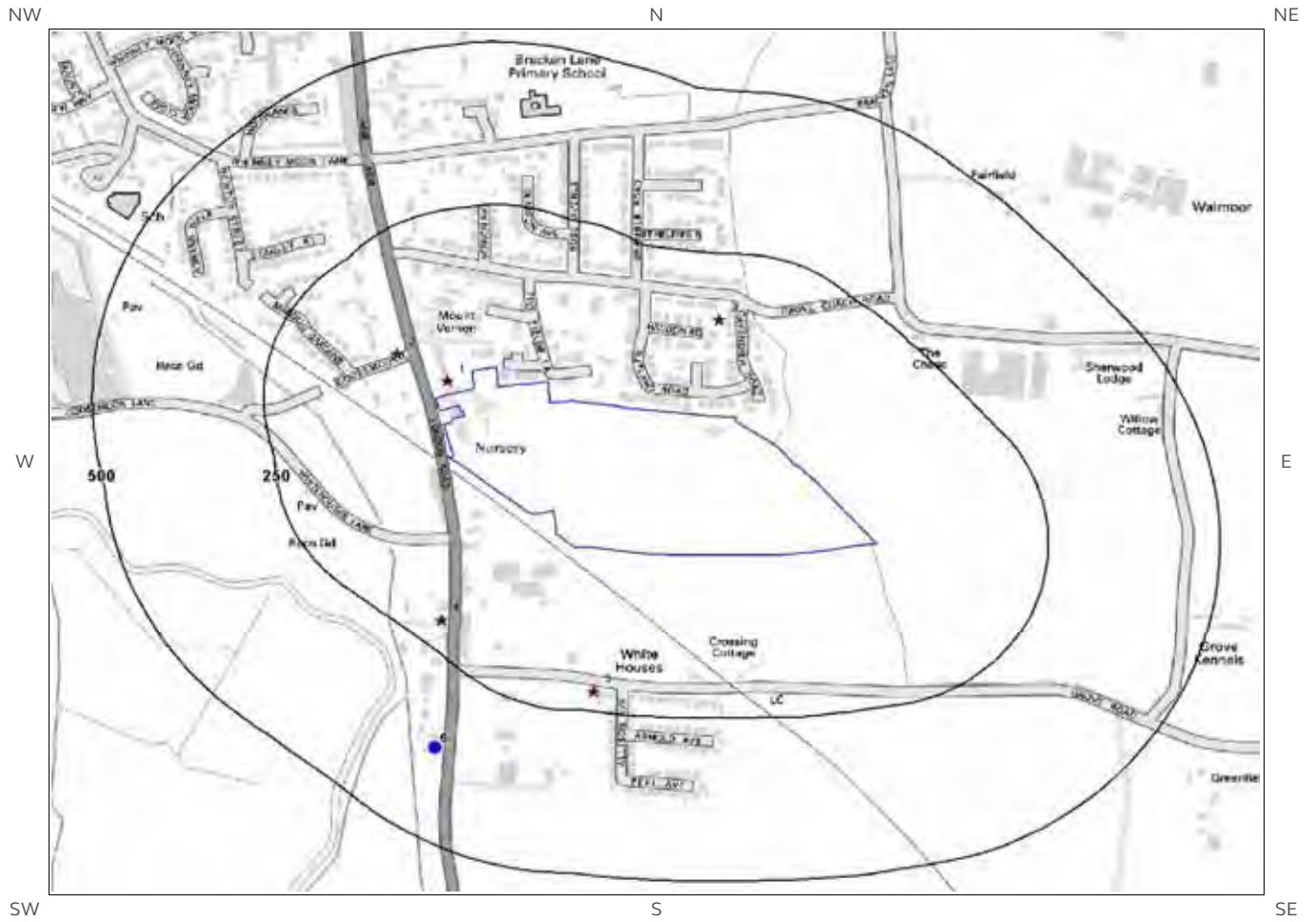
Database searched and no data found.

3.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

0

Database searched and no data found.

4. Current Land Use Map



© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.

- | | | | | | |
|---|--------------------|---|--------------------------|--|---------------------------------|
|  | Site Outline |  | Current Industrial Sites |  | Electricity Transmission Cables |
|  | Search Buffers (m) |  | Petrol & Fuel Sites |  | Gas Transmission Pipelines |

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 5

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	21	N	Custom Aircraft Interiors	471264 379653	Red Roofs, London Road, Retford, DN22 7JE	Aeroplanes	Industrial Products
2	89	NW	Electricity Sub Station	471191 379695	DN22	Electrical Features	Infrastructure and Facilities
3	148	N	Electricity Sub Station	471660 379747	DN22	Electrical Features	Infrastructure and Facilities
4	207	SW	Electricity Sub Station	471256 379287	DN22	Electrical Features	Infrastructure and Facilities
5	219	S	Electricity Sub Station	471477 379177	DN22	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
6	369	SW	471246 379090	Jet	Whitehouses Service Station, London Road, London Road, Retford, Nottinghamshire, DN22 7JG	No	Open

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
GFDMP	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
RTD1	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]

5.3 Bedrock and Solid Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
TPSF-SIMS	TARPORLEY SILTSTONE FORMATION	SILTSTONE, MUDSTONE AND SANDSTONE
MMG-MDST	MERCIA MUDSTONE GROUP	MUDSTONE

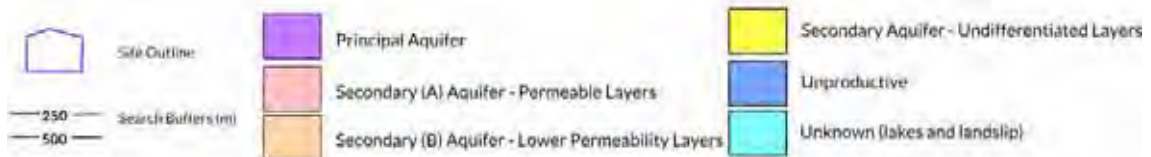
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

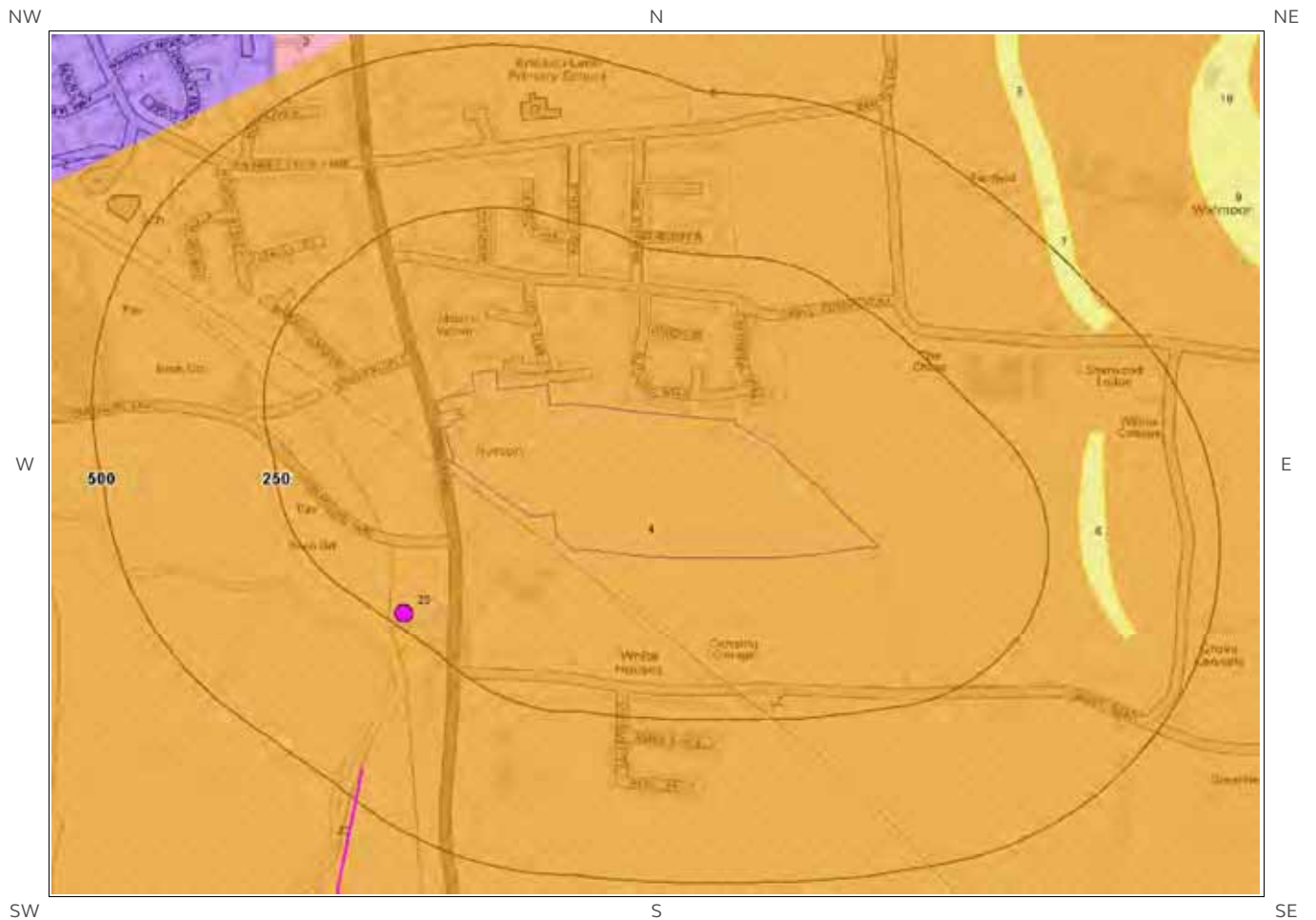
6a. Aquifer Within Superficial Geology



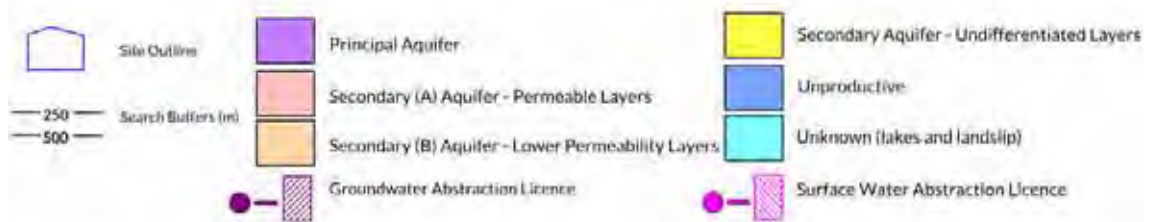
© Crown copyright and database rights 2016
Ordnance Survey license 100035207.



6b. Aquifer Within Bedrock Geology and Abstraction Licenses



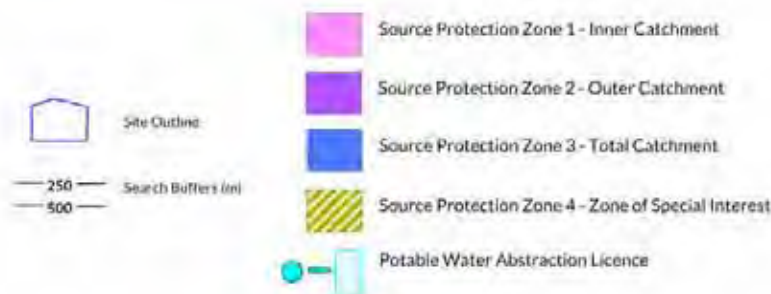
© Crown copyright and database rights 2016
Ordnance Survey license 100035207.



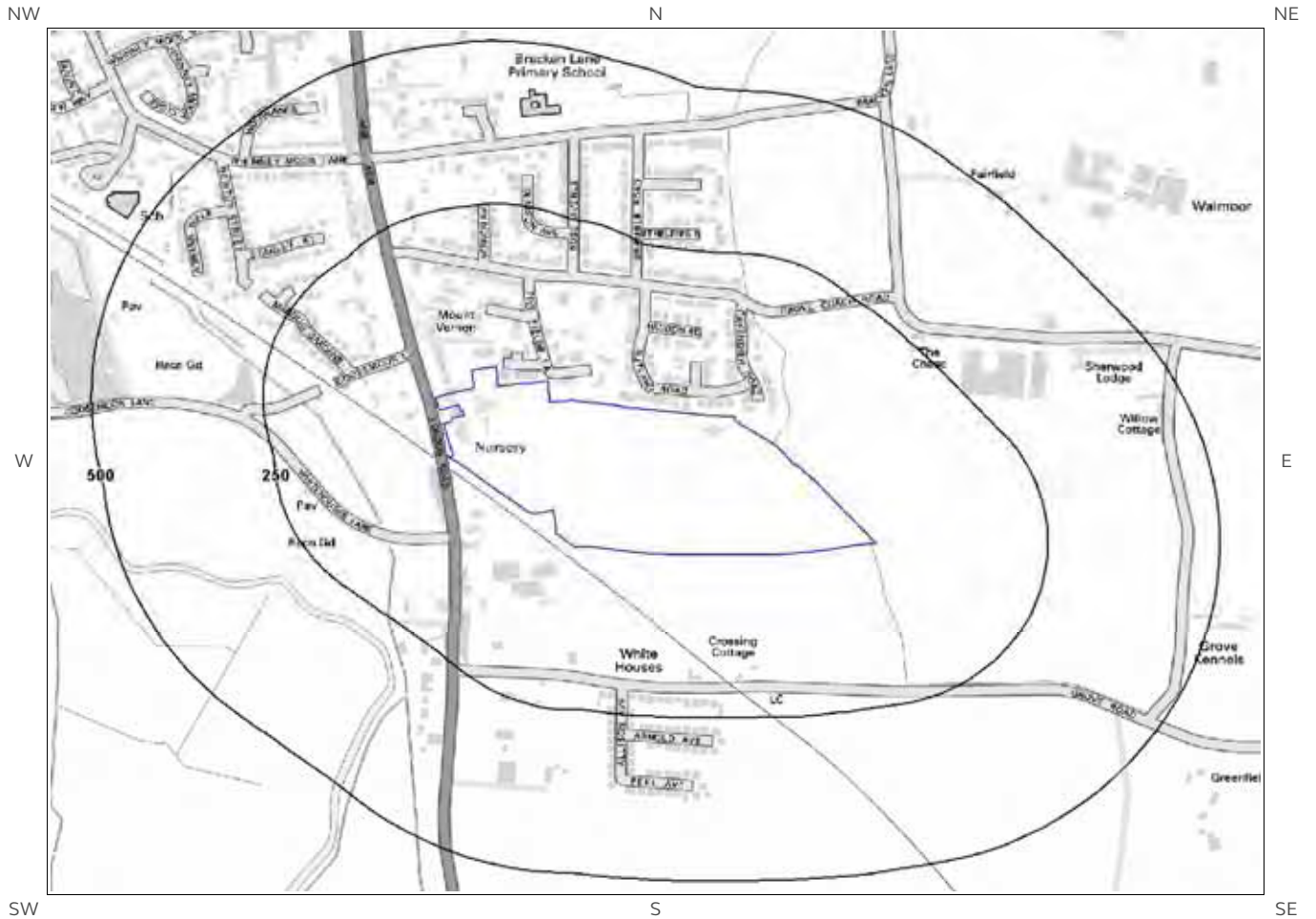
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



© Crown copyright and database rights 2016
Ordnance Survey license 100035207.



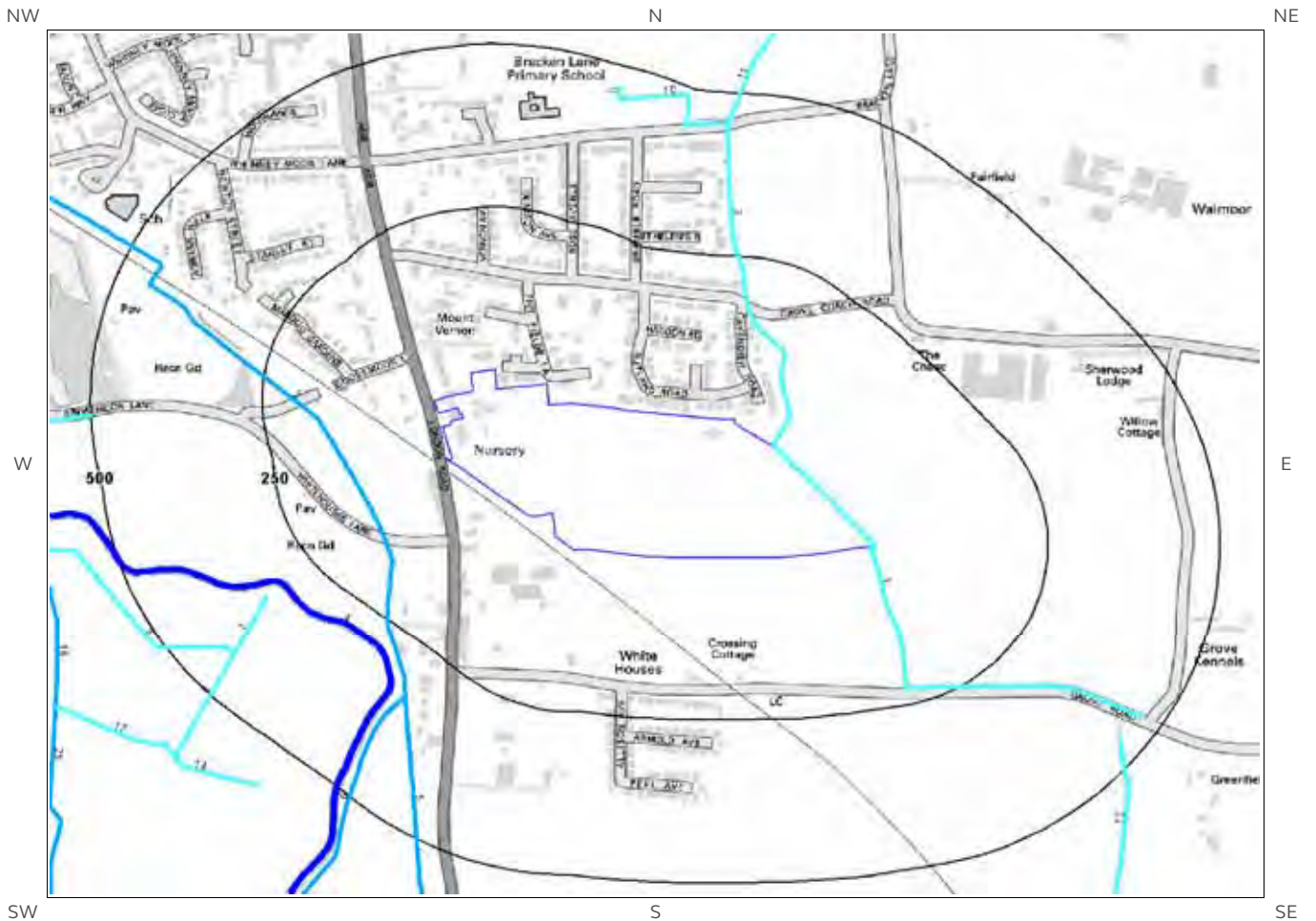
6d. Hydrogeology – Source Protection Zones within confined aquifer



© Crown copyright and database rights 2016
 Ordnance Survey license 100035207.



6e. Hydrology – Detailed River Network and River Quality



© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	326	N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
4	0	On Site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
6	296	E	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
5	326	N	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
7	456	NE	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

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1147	W	470170 380020	Status: Historical Licence No: 03/28/74/0019 Details: Non-Evaporative Cooling Direct Source: Groundwater Midlands Region Point: Ordsall Premises, Notts - Borehole Data Type: Point Name: BRIDON INTERNATIONAL LTD Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/2/1966 Expiry Date: - Issue No: 100 Version Start Date: 22/9/1997 Version End Date:
Not shown	1147	W	470170 380020	Status: Historical Licence No: 03/28/74/0019 Details: Process water Direct Source: Groundwater Midlands Region Point: Ordsall Premises, Notts - Borehole Data Type: Point Name: BRIDON INTERNATIONAL LTD Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/2/1966 Expiry Date: - Issue No: 100 Version Start Date: 22/9/1997 Version End Date:
Not shown	1326	W	470003 380125	Status: Historical Licence No: MD/028/0074/003 Details: General Use Relating To Secondary Category (Very Low Loss) Direct Source: Groundwater Midlands Region Point: Abstraction Area 2 Data Type: Region Name: Evonik Degussa UK Holdings Limited Annual Volume (m ³): 14600 Max Daily Volume (m ³): 40 Original Application No: NPS/WR/010072 Original Start Date: 6/7/2012 Expiry Date: 31/3/2015 Issue No: 1 Version Start Date: 6/7/2012 Version End Date:
Not shown	1334	NW	469999 380176	Status: Historical Licence No: MD/028/0074/003 Details: General Use Relating To Secondary Category (Very Low Loss) Direct Source: Groundwater Midlands Region Point: Abstraction Area 1 Data Type: Region Name: Evonik Degussa UK Holdings Limited Annual Volume (m ³): 14600 Max Daily Volume (m ³): 40 Original Application No: NPS/WR/010072 Original Start Date: 6/7/2012 Expiry Date: 31/3/2015 Issue No: 1 Version Start Date: 6/7/2012 Version End Date:
Not shown	1432	NW	470300 380700	Status: Historical Licence No: 03/28/74/0024 Details: Process water Direct Source: Groundwater Midlands Region Point: Albert Road, Retford - Borehole Data Type: Point Name: ST REGIS PAPER CO LTD Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 1/3/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/9/1992 Version End Date:
Not shown	1779	W	469550 380160	Status: Active Licence No: 03/28/74/0003 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: Ordsall Road - Boreholes 1&2 Data Type: Point Name: ANGLIAN WATER SERVICES LTD Annual Volume (m ³): 4977870 Max Daily Volume (m ³): 16370 Original Application No: NPS/WR/006700 Original Start Date: 22/11/1965 Expiry Date: - Issue No: 103 Version Start Date: 1/4/2011 Version End Date:

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
20	230	SW	471200 379300	Status: Active Licence No: 03/28/74/0021 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: Ordsall - Tributary Of The River Idle Data Type: Point Name: T J BARKER & SON Annual Volume (m ³): 1818.4 Max Daily Volume (m ³): 72.7 Application No: - Original Start Date: 24/2/1966 Expiry Date: - Issue No: 100 Version Start Date: 1/4/2008 Version End Date:
21	457	SW	470850 377520	Status: Active Licence No: 03/28/74/0029 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: Eaton,notts - River Idle Data Type: Line Name: W R & E BOWNESS & SONS Annual Volume (m ³): 94511 Max Daily Volume (m ³): 3000 Application No: - Original Start Date: 14/4/1966 Expiry Date: - Issue No: 100 Version Start Date: 15/7/1997 Version End Date:
Not shown	748	SW	470900 378000	Status: Active Licence No: 03/28/74/0016 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: Near Eaton, Notts - River Idle Data Type: Line Name: C J HOWCROFT & SONS Annual Volume (m ³): 9091 Max Daily Volume (m ³): 681.8 Application No: - Original Start Date: 20/1/1966 Expiry Date: - Issue No: 101 Version Start Date: 1/4/2006 Version End Date:
Not shown	1006	NW	470500 380300	Status: Active Licence No: 03/28/74/0017 Details: Non-Evaporative Cooling Direct Source: Surface Water Midlands Region Point: Retford - River Idle Data Type: Point Name: ICON POLYMER LIMITED Annual Volume (m ³): 204570 Max Daily Volume (m ³): 818.3 Application No: - Original Start Date: 31/1/1966 Expiry Date: - Issue No: 102 Version Start Date: 1/10/2005 Version End Date:
Not shown	1353	NW	470287 380579	Status: Historical Licence No: 03/28/74/0068/1 Details: Lake & Pond Throughflow Direct Source: Surface Water Midlands Region Point: Carr Dyke, East Retford - River Idle Transfer Data Type: Point Name: ENVIRONMENT AGENCY Annual Volume (m ³): 1576800 Max Daily Volume (m ³): 4320 Application No: A/28/74/28 Original Start Date: 16/2/2006 Expiry Date: 31/3/2014 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:
Not shown	1353	NW	470287 380579	Status: Active Licence No: MD/028/0074/009 Details: Lake & Pond Throughflow Direct Source: Surface Water Midlands Region Point: Carr Dyke, East Retford - River Idle Transfer Data Type: Point Name: ENVIRONMENT AGENCY Annual Volume (m ³): 1576800 Max Daily Volume (m ³): 4320 Application No: NPS/WR/012448 Original Start Date: 16/2/2006 Expiry Date: 31/3/2019 Issue No: 1 Version Start Date: 1/4/2014 Version End Date:
Not shown	1358	NW	470280 380580	Status: Historical Licence No: 03/28/74/0068/1 Details: Lake & Pond Throughflow Direct Source: Surface Water Midlands Region Point: Carr Dyke, East Retford - River Idle Transfer Data Type: Point Name: ENVIRONMENT AGENCY Annual Volume (m ³): 1576800 Max Daily Volume (m ³): 4320 Application No: A/28/74/28 Original Start Date: 16/2/2006 Expiry Date: 31/3/2014 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1358	NW	470280 380580	Status: Historical Licence No: 03/28/74/0068 Details: Lake & Pond Throughflow Direct Source: Surface Water Midlands Region Point: Carr Dyke, East Retford - River Idle Transfer Data Type: Point Name: ENVIRONMENT AGENCY	Annual Volume (m ³): 1576800 Max Daily Volume (m ³): 4320 Application No: - Original Start Date: 2/8/1994 Expiry Date: - Issue No: 100 Version Start Date: 2/8/1994 Version End Date:
Not shown	1586	NW	470300 380900	Status: Active Licence No: 03/28/74/0018 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: King's Park, Retford - River Idle Data Type: Point Name: BASSETLAW DISTRICT COUNCIL	Annual Volume (m ³): 1745.66 Max Daily Volume (m ³): 109.1 Application No: - Original Start Date: 18/2/1966 Expiry Date: - Issue No: 103 Version Start Date: 12/11/2003 Version End Date:
Not shown	1960	N	470600 381500	Status: Historical Licence No: 03/28/74/0014 Details: Non-Evaporative Cooling Direct Source: Surface Water Midlands Region Point: Moorgate, East Retford - River Idle Data Type: Point Name: LITTON RETFORD	Annual Volume (m ³): - Max Daily Volume (m ³): - Application No: - Original Start Date: 20/1/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/3/1995 Version End Date:
Not shown	1960	N	470600 381500	Status: Historical Licence No: 03/28/74/0014 Details: Process water Direct Source: Surface Water Midlands Region Point: Moorgate, East Retford - River Idle Data Type: Point Name: LITTON RETFORD	Annual Volume (m ³): - Max Daily Volume (m ³): - Application No: - Original Start Date: 20/1/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/3/1995 Version End Date:
Not shown	1975	S	470900 377500	Status: Active Licence No: 03/28/74/0031 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: Eaton, Near Retford - River Idle Data Type: Point Name: C HOWCROFT & SONS	Annual Volume (m ³): 30912.8 Max Daily Volume (m ³): 1145.59 Application No: - Original Start Date: 14/4/1966 Expiry Date: - Issue No: 100 Version Start Date: 1/11/1994 Version End Date:

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details	
Not shown	1779	W	469550 380160	Status: Active Licence No: 03/28/74/0003 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: Ordsall Road - Boreholes 1&2 Data Type: Point Name: ANGLIAN WATER SERVICES LTD	Annual Volume (m ³): 4977870 Max Daily Volume (m ³): 16370 Original Application No: NPS/WR/006700 Original Start Date: 22/11/1965 Expiry Date: - Issue No: 103 Version Start Date: Version End Date:

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

Yes

The following Source Protection Zones records are represented on the SPZ and Potable Water Abstraction Map (6c):

ID	Distance (m)	Direction	Zone	Description
1	0	On Site	3	Total catchment
2	326	N	3	Total catchment

6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site?

No

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site?

Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
121	SW	Minor Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
364	N	Minor Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
367	N	Minor Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

6.9 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site?

Yes

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1416	NW	470290 380670	River Name: Idle R Reach: B6387 Rd Br Gamston To Retford End/Start of Stretch: Sample Point NGR	B	B	A	A	A

6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details
1	0	On Site	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
2	132	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
3	185	N	River Name: Retford Beck Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
4	290	SW	River Name: River Idle Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
5	330	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
6	330	SW	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
7	335	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
8	430	SW	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
9	430	SW	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
10	445	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
11	454	N	River Name: Retford Beck Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
12	465	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
13	497	W	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined

6.11 Surface Water Features

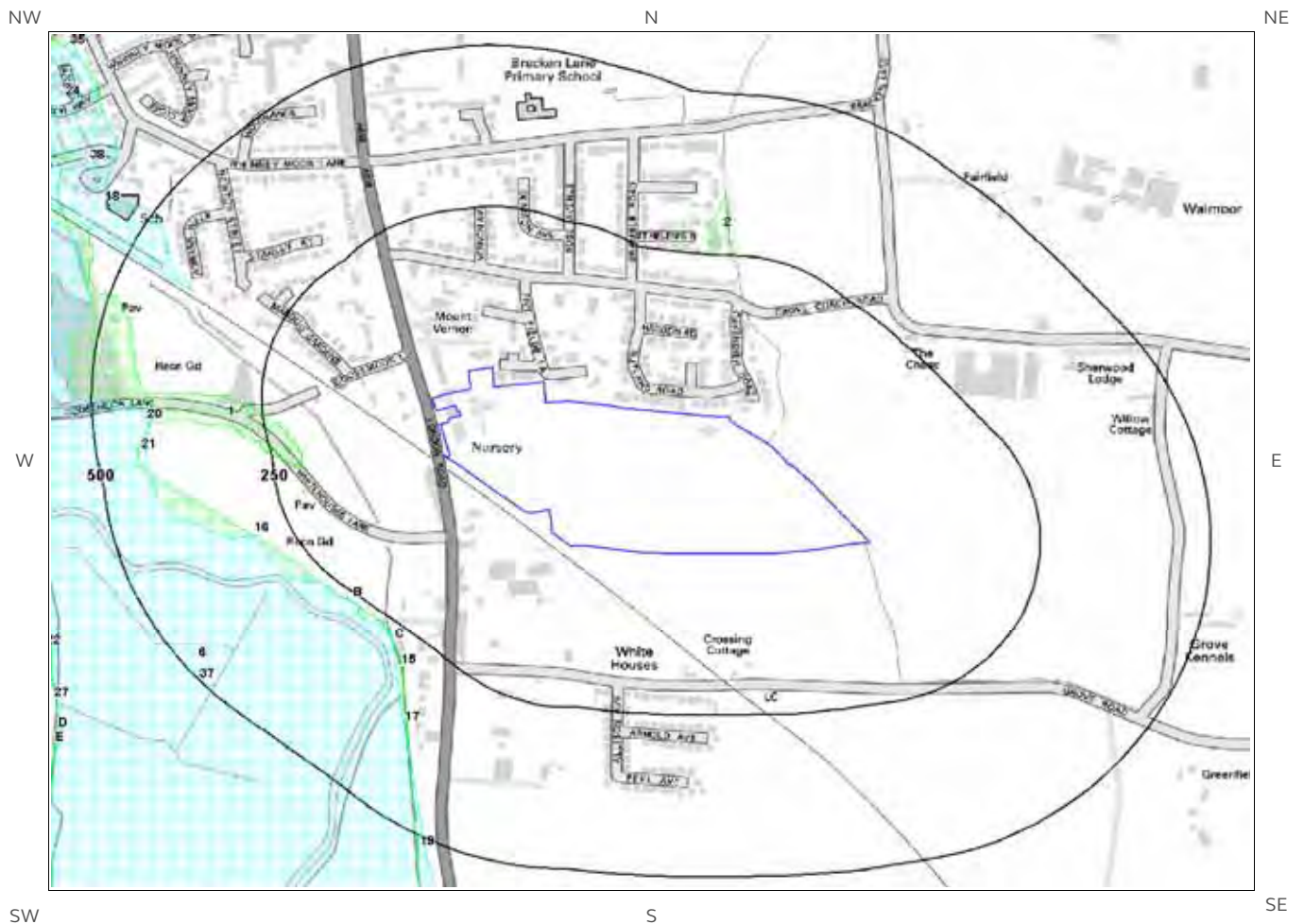
Are there any surface water features within 250m of the study site?

Yes

The following surface water records are not represented on mapping:

Distance (m)	Direction
0	On Site
0	On Site
35	NE
130	SW
161	SW
185	N
206	W
229	S

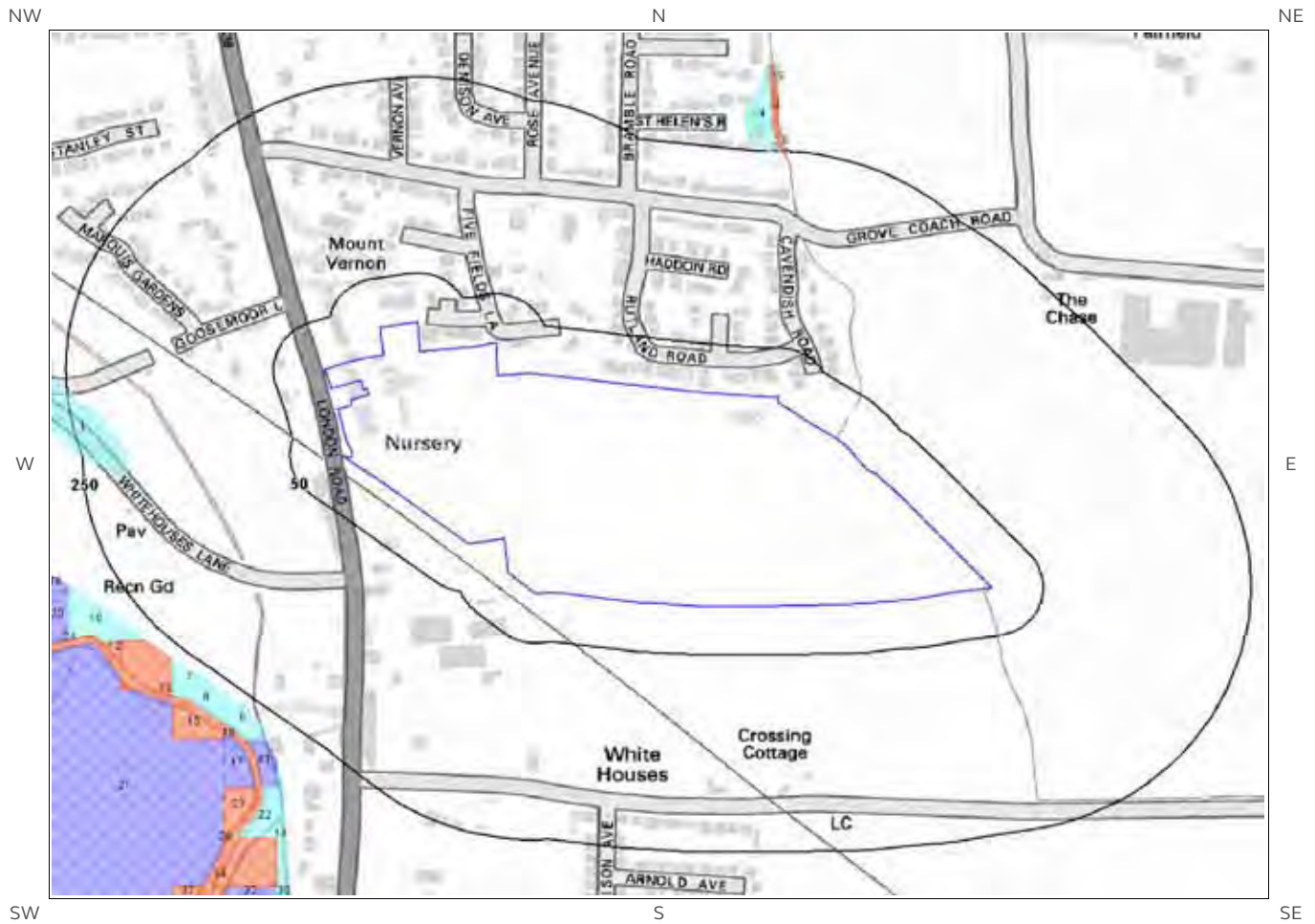
7a. Environment Agency Flood Map for Planning (from rivers and the sea)



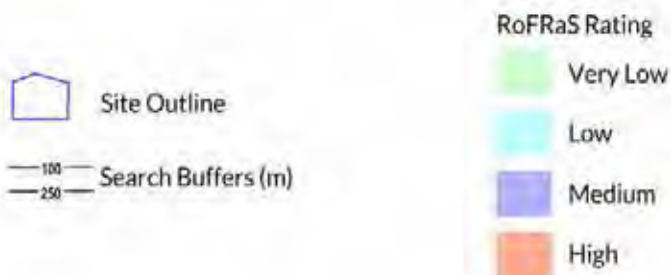
© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



7b. Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) Map



© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency Zone 2 floodplain? Yes

Environment Agency Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	207	W	08-Feb-2016	Zone 2 - (Fluvial /Tidal Models)
2	249	N	08-Feb-2016	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency Zone 3 floodplain? No

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

What is the highest risk of flooding onsite? Very Low

The Environment Agency RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



© Crown copyright and database rights 2016.
Ordnance Survey license 100035207.



8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

4

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1525	NE	Castle Hill Wood	Natural England
Not shown	1705	SE	Gamston & Eaton Woods & Roadside Verges	Natural England
Not shown	1994	S	Gamston & Eaton Woods & Roadside Verges	Natural England
Not shown	1998	NE	Castle Hill Wood	Natural England

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

5

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
Not shown	1551	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1705	SE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1725	SE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1765	NE	UNKNOWN	Ancient Replanted Woodland
Not shown	1998	NE	UNKNOWN	Ancient and Semi-Natural Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1949	NW	Retford Cemetery	Natural England

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

9

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
6	0	On Site	Existing	DEFRA
7	0	On Site	Existing	DEFRA
8	326	N	Existing	DEFRA
9	332	N	Existing	DEFRA
10	1179	E	Existing	DEFRA
Not shown	1247	W	Existing	DEFRA
Not shown	1247	W	Existing	DEFRA
Not shown	1302	W	Existing	DEFRA
Not shown	1302	W	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

Database searched and no data found.

0

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure GeoInsight**, available from our [website](#). The following information has been found:

9.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

9.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

* This indicates an automatically generated 50m buffer and site.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing

ones as described in publication BR211 by the Building Research Establishment?

No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

Yes

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary?

No

Database searched and no data found.

10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:

Web:www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 08708 506 506

Web:www.environment-agency.gov.uk

Email:enquiries@environment-agency.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe

Email:enquiries@phe.gov.uk

Main switchboard: 020 7654 8000

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority

Authority: Bassetlaw District Council
Phone: 01909 533 533

Web: <http://www.bassetlaw.gov.uk/>

Address: Queen s Buildings, Potter Street, Worksop, Nottinghamshir,

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England who retain the Copyright and Intellectual Property Rights for the data.

PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].

This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

“Beneficiary” means the person or entity for whose benefit the Client has obtained the Services.

“Client” means the party or parties entering into a Contract with Groundsure.

“Commercial” means any building or property which is not Residential.

“Confidential Information” means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by Groundsure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

“Support Services” means Support Services provided by Groundsure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

“Contract” means the contract between Groundsure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

“Third Party Data Provider” means any third party providing Third Party Content to Groundsure.

“Data Reports” means reports comprising factual data with no accompanying interpretation.

“Fees” has the meaning set out in clause 5.1.

“Groundsure” means Groundsure Limited, a company registered in England and Wales under number 03421028.

“Groundsure Materials” means all materials prepared by Groundsure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

“Intellectual Property” means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

“Mapping” means a map, map data or a combination of historical maps of various ages, time periods and scales.

“Order” means an electronic, written or other order form submitted by the Client requesting Services from Groundsure in respect of a specified Site.

“Ordnance Survey” means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

“Order Website” means the online platform through which Orders may be placed by the Client and accepted by Groundsure.

“Report” means a Risk Screening Report or Data Report for Commercial or Residential property.

“Residential” means any building or property used as or intended to be used as a single dwelling.

“Risk Screening Report” means a risk screening report comprising factual data with an accompanying interpretation by Groundsure.

“Services” means any Report, Mapping and/or Support Services which Groundsure has agreed to provide by accepting an Order pursuant to clause 2.6.

“Site” means the area of land in respect of which the Client has requested Groundsure to provide the Services.

“Third Party Content” means data, database information or other information which is provided to Groundsure by a Third Party Data Provider.

“User Guide” means the user guide, as amended from time to time, available upon request from Groundsure and on the website (www.Groundsure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 Groundsure agrees to provide the Services in accordance with the Contract.

2.2 Groundsure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of Groundsure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client’s order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, Groundsure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and Groundsure will have no liability therefor. In addition you acknowledge and agree that Groundsure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 Groundsure’s quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by Groundsure. Groundsure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by Groundsure. Groundsure’s acceptance of an Order shall be binding only when made in writing and signed by Groundsure’s authorised representative or when accepted through the Order Website.

3 The Client’s obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to Groundsure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary’s needs.

3.3 The Client shall supply to Groundsure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as Groundsure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client’s approval or decision is required to enable Groundsure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the Groundsure Materials, or use the Groundsure Materials in a manner for which they were not intended. The Client may make the Groundsure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that Groundsure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by Groundsure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by Groundsure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

(i) the Beneficiary,

(ii) the Beneficiary’s professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),

(iv) the first purchaser or first tenant of the Site, and

(v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by Groundsure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 Groundsure shall charge and the Client shall pay fees at the rate and

frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by Groundsure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to Groundsure in full without deduction, counterclaim or set off within 30 days of the date of Groundsure's invoice or such other period as may be agreed in writing between Groundsure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of Groundsure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the Groundsure Materials.

6.2 All Intellectual Property in the Groundsure Materials are and shall remain owned by Groundsure or Groundsure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the Groundsure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to Groundsure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the Groundsure Materials in order to advise the Beneficiary in a professional capacity. However, Groundsure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify Groundsure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of Groundsure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by Groundsure or its employees, agents or

subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 Groundsure shall not be liable for

(i) loss of profits;

(ii) loss of business;

(iii) depletion of goodwill and/or similar losses;

(iv) loss of anticipated savings;

(v) loss of goods;

(vi) loss of contract;

(vii) loss of use;

(viii) loss or corruption of data or information;

(ix) business interruption;

(x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the Groundsure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the Groundsure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of Groundsure's internet ordering service.

7.5 Groundsure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 Groundsure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of Groundsure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against Groundsure in relation to the Services or other matters arising pursuant to the Contract.

8 Groundsure's right to suspend or terminate

8.1 If Groundsure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, Groundsure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 Groundsure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to Groundsure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon Groundsure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are

- (a) supplied to the Client's specification(s) and in any event
- (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) Groundsure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in Groundsure's possession or control; and

(ii) the Client shall pay to Groundsure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay Groundsure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of Groundsure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to Groundsure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through Groundsure.

12.3 Groundsure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of Groundsure.

12.4 No failure on the part of Groundsure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 Groundsure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

(i) the Client or Beneficiary's failure to provide facilities, access or information;

(ii) fire, storm, flood, tempest or epidemic;

(iii) Acts of God or the public enemy;

(iv) riot, civil commotion or war;

(v) strikes, labour disputes or industrial action;

(vi) acts or regulations of any governmental or other agency;

(vii) suspension or delay of services at public registries by Third Party Data Providers;

(viii) changes in law; or

(ix) any other reason beyond Groundsure's reasonable control.

In the event that Groundsure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then Groundsure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

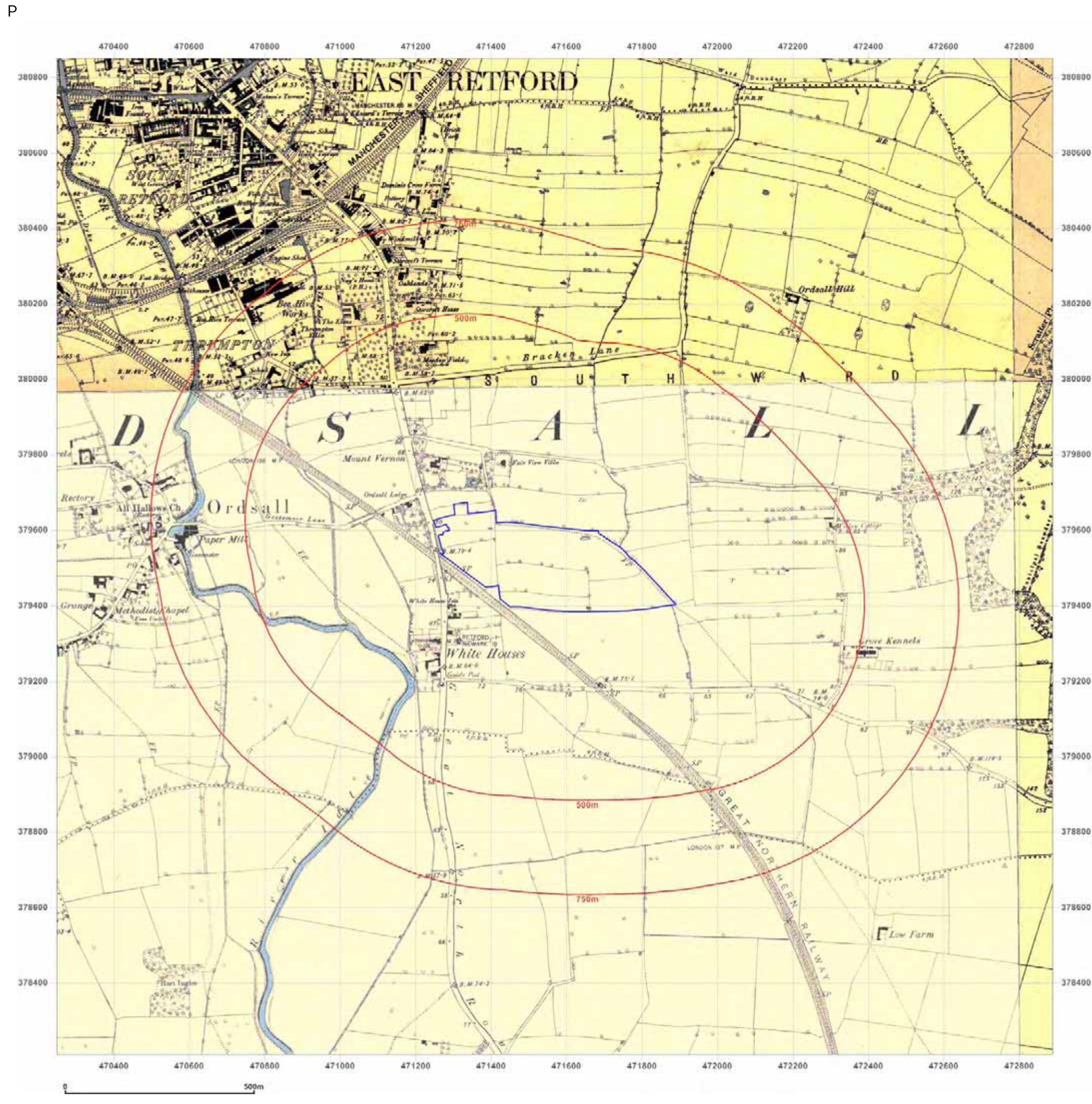
12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 Groundsure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

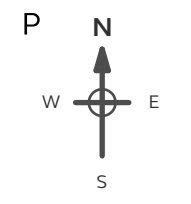
12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at Groundsure who will respond in a timely manner. In the event you are not satisfied with Groundsure's complaints handling process or you are unable to resolve the complaint, at your discretion you may refer the complaint to The Property Ombudsman Scheme at the following URL/email: website www.tpos.co.uk or email: admin@tpos.co.uk

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law. © Groundsure Limited June 2013



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360
Grid Ref: P 47R568, 379530

Map Name: P County Series P
Map Date: P 1884-1885
Scale: P 1:10,560
Printed at: P 1:10,560

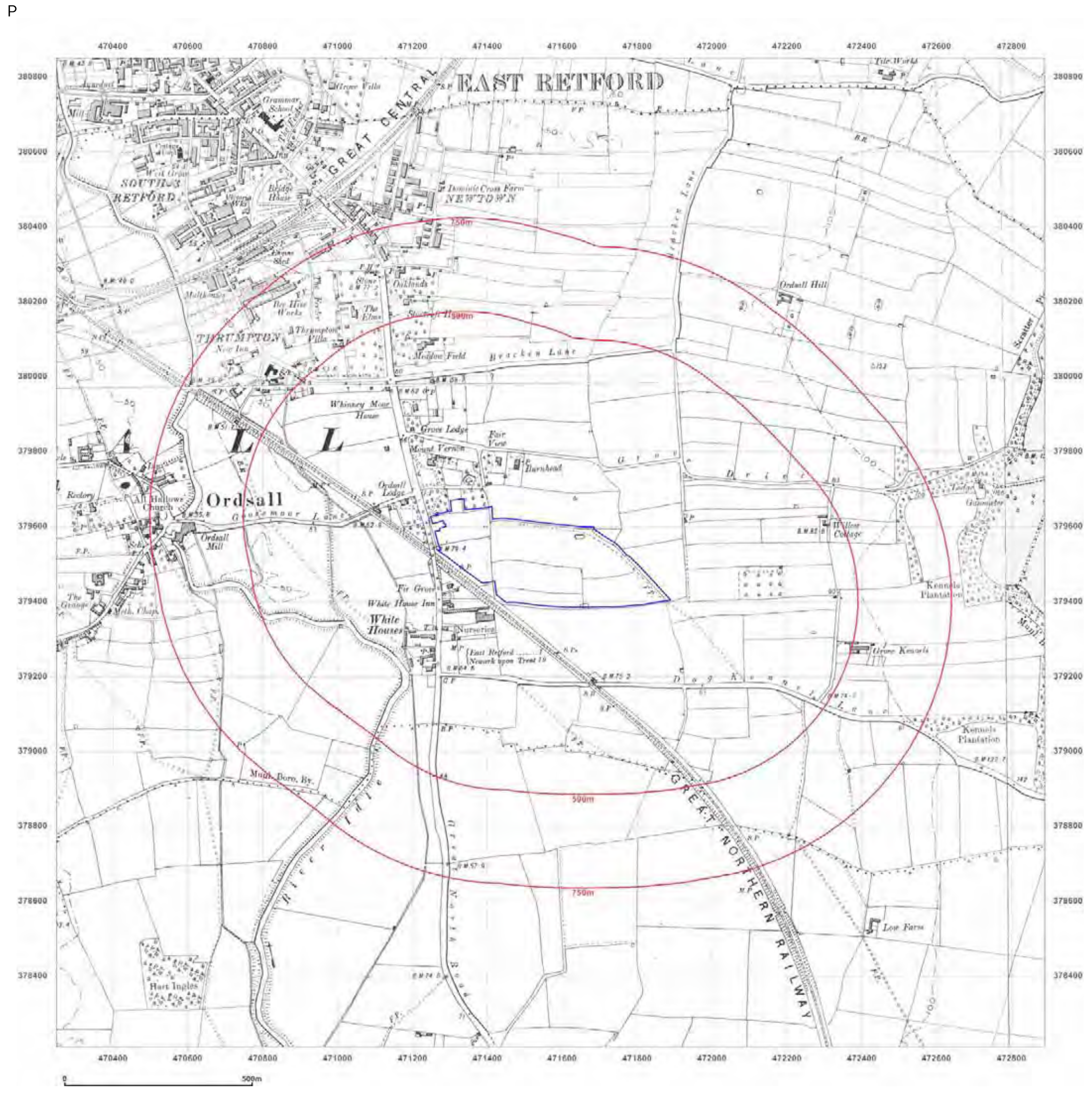


Surveyed 1884 Revised 1884 Edition N/A Copyright N/A Levelled N/A	Surveyed 1885 Revised 1885 Edition N/A Copyright N/A Levelled N/A
Surveyed 1884 Revised N/A Edition N/A Copyright N/A Levelled N/A	Surveyed 1884 Revised 1884 Edition N/A Copyright N/A Levelled N/A

Powered by
Produced by P
 Groundsure Insights P
 T: 08444 59000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

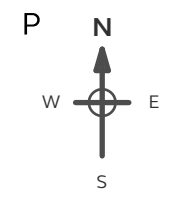
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360
Grid Ref: P 47P568, 379530

Map Name: P County Series P
Map Date: P 1898
Scale: P P 1:10,560
Printed at: P 1:10,560



Surveyed 1884 Revised 1898 Edition N/A Copyright N/A Levelled N/A	Surveyed 1884 Revised 1898 Edition N/A Copyright N/A Levelled N/A
Surveyed 1884 Revised 1898 Edition N/A Copyright N/A Levelled N/A	Surveyed 1884 Revised 1898 Edition N/A Copyright N/A Levelled N/A

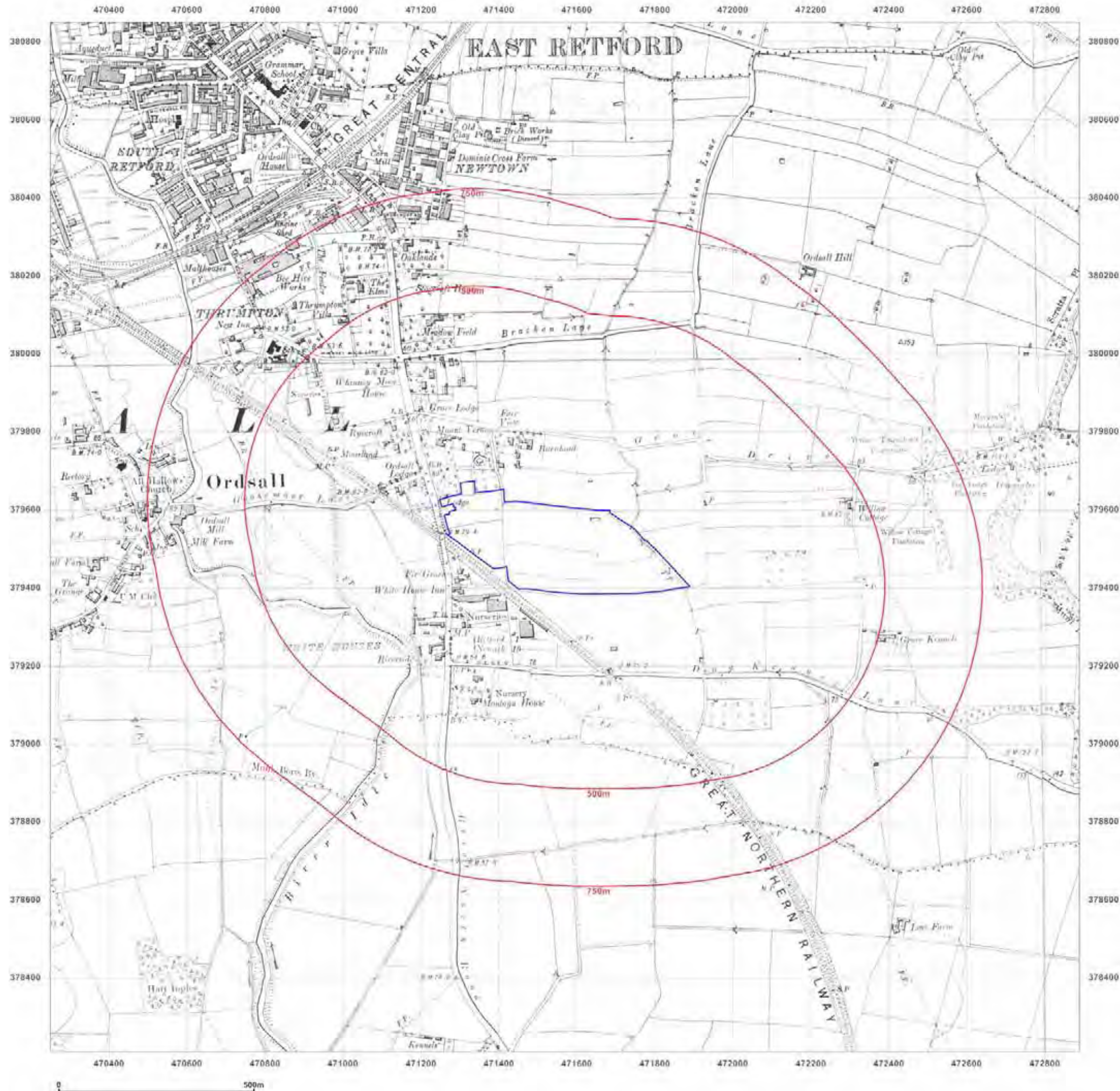


Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P

P



P



Site Details:

P LONDON ROAD, RETFORD,
P DN22 7JE

P
P
P
P
P
P

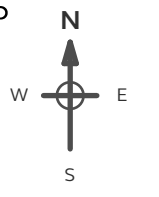
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360
Grid Ref: P 47P568, 379530

Map Name: P County Series P

Map Date: P 1916-1921

Scale: P 1:10,560

Printed at: P 1:10,560



P

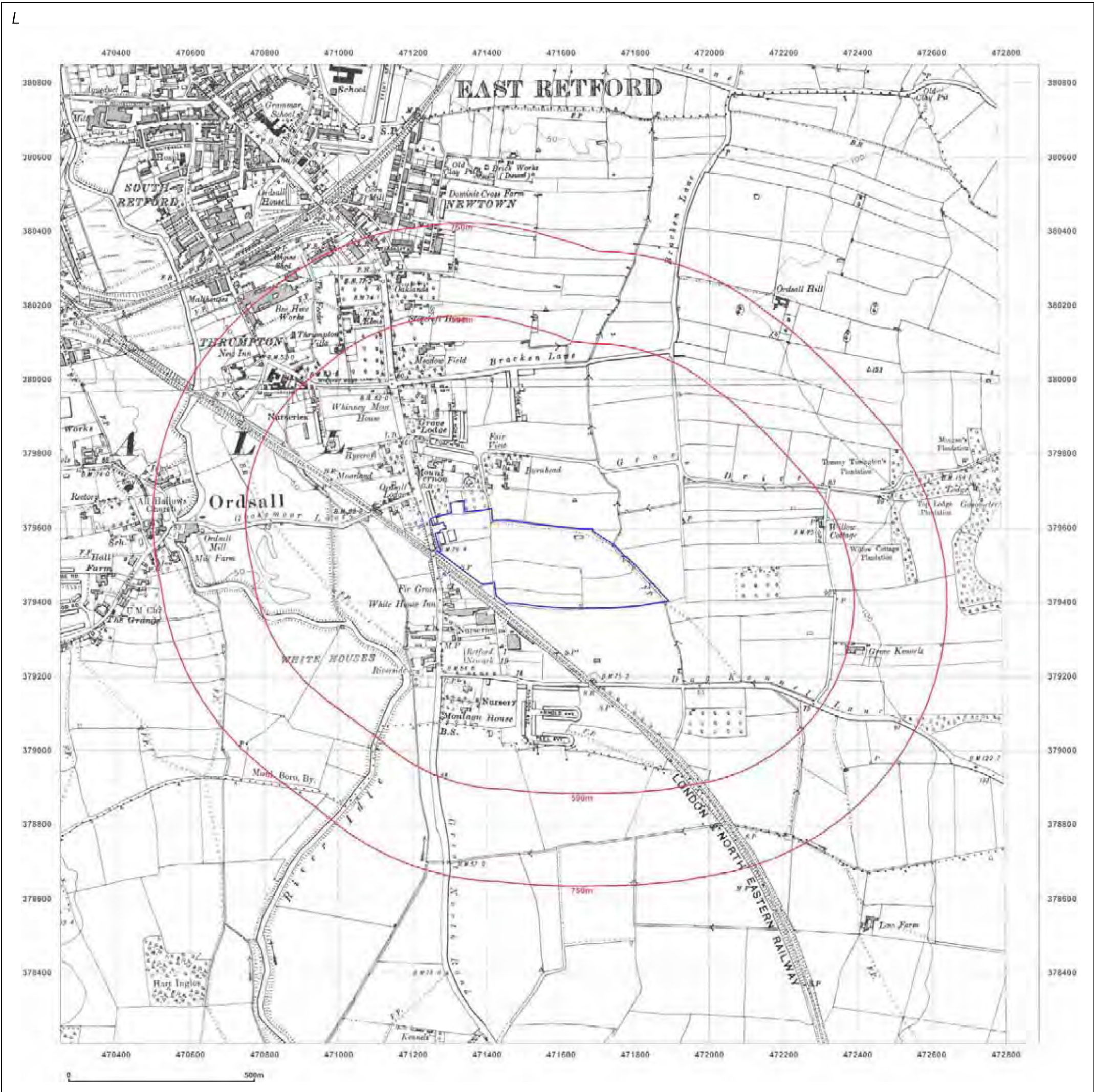
<p>Surveyed 1884 Revised 1916 Edition N/A Copyright N/A Levelled N/A</p>	<p>Surveyed 1884 Revised 1921 Edition 1921 Copyright N/A Levelled N/A</p>
<p>Surveyed 1884 Revised 1916 Edition N/A Copyright N/A Levelled N/A</p>	<p>Surveyed 1884 Revised 1916 Edition N/A Copyright N/A Levelled N/A</p>



Produced by P
Groundsure Insights P
T: P 08444 P 59000 P
E: P info@groundsure.com P
W: P www.groundsure.com P

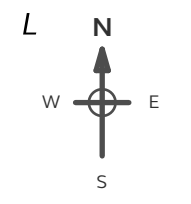
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
P
To view map legend click here P Legend P



Site/Details:
 L LONDON ROAD, RETFORD,
 L DN22 7JE
 L
 L
 L
 L
 L
 L
 L
 L
Client/Ref: HARRON_HOMES_6617
Report/Ref: GS-2865360
Grid/Ref: 471568, 379530

Map/Name: County Series
Map/date: 1988
Scale: 1:10,560
Printed at: 1:10,560



Surveyed 1884
 Revised 1938
 Edition 1938
 Copyright N/A
 Levelled N/A

Surveyed 1884
 Revised 1938
 Edition 1938
 Copyright N/A
 Levelled N/A

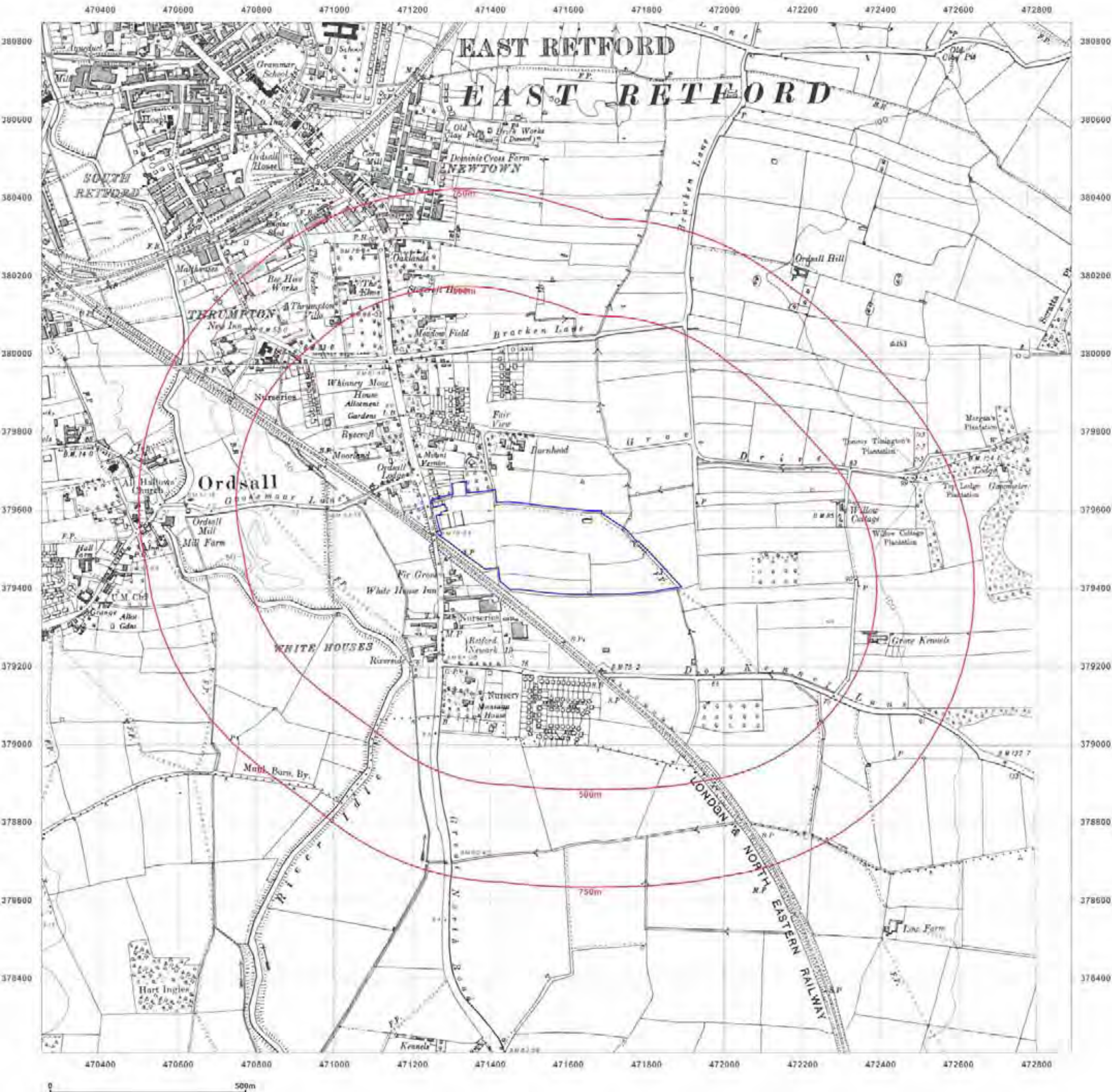


Produced by
 Groundsure Insights
 T: 08444 159000
 E: info@groundsure.com
 W: www.groundsure.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207L

Production date: 22 March 2016
 To view map legend click here [Legend](#)

P



P



Site Details:

P
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P

Client Ref: P HARRON_HOMES_6617
 Report Ref: P PGS-2865360
 Grid Ref: P 47P568, 379530
 P

Map Name: P County Series P

Map Date: P 1947-1948

Scale: P 1:10,560

Printed at: P 1:10,560



P

Surveyed 1884
 Revised 1948
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1884
 Revised 1947
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1884
 Revised 1947
 Edition N/A
 Copyright N/A
 Levelled N/A



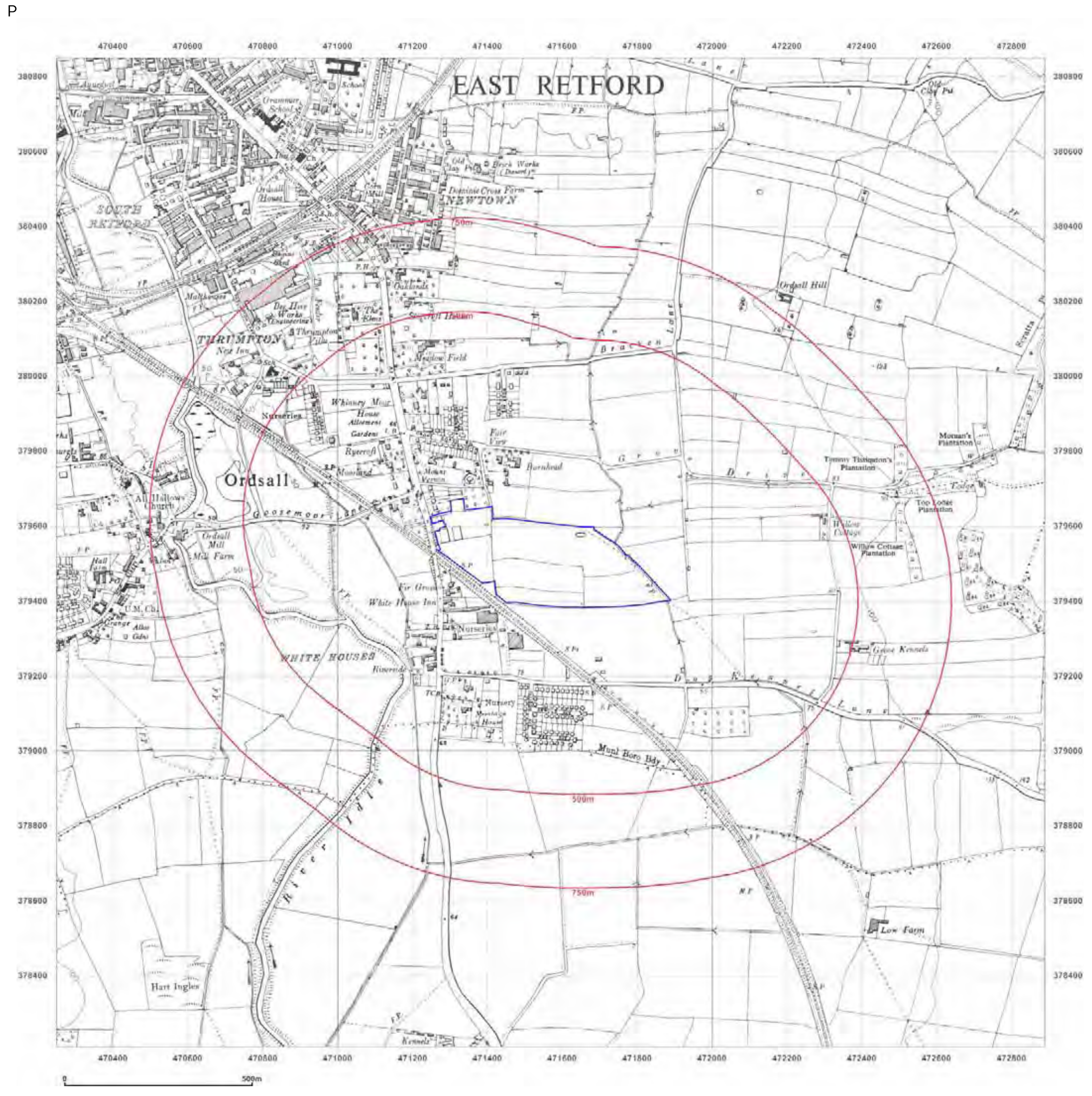
Produced by P
 Groundsure Insights P
 T: P 08444 159000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016

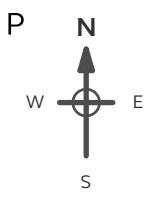
P

To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360
Grid Ref: P 47P568, 379530

Map Name: P Provisional P
 P
Map Date: P 1956
 P
Scale: P 1:10,560
 P
Printed at: P 1:10,560



P

Surveyed N/A
 Revised 1955
 Edition N/A
 Copyright 1956
 Levelled N/A

Surveyed N/A
 Revised 1955
 Edition N/A
 Copyright 1956
 Levelled N/A

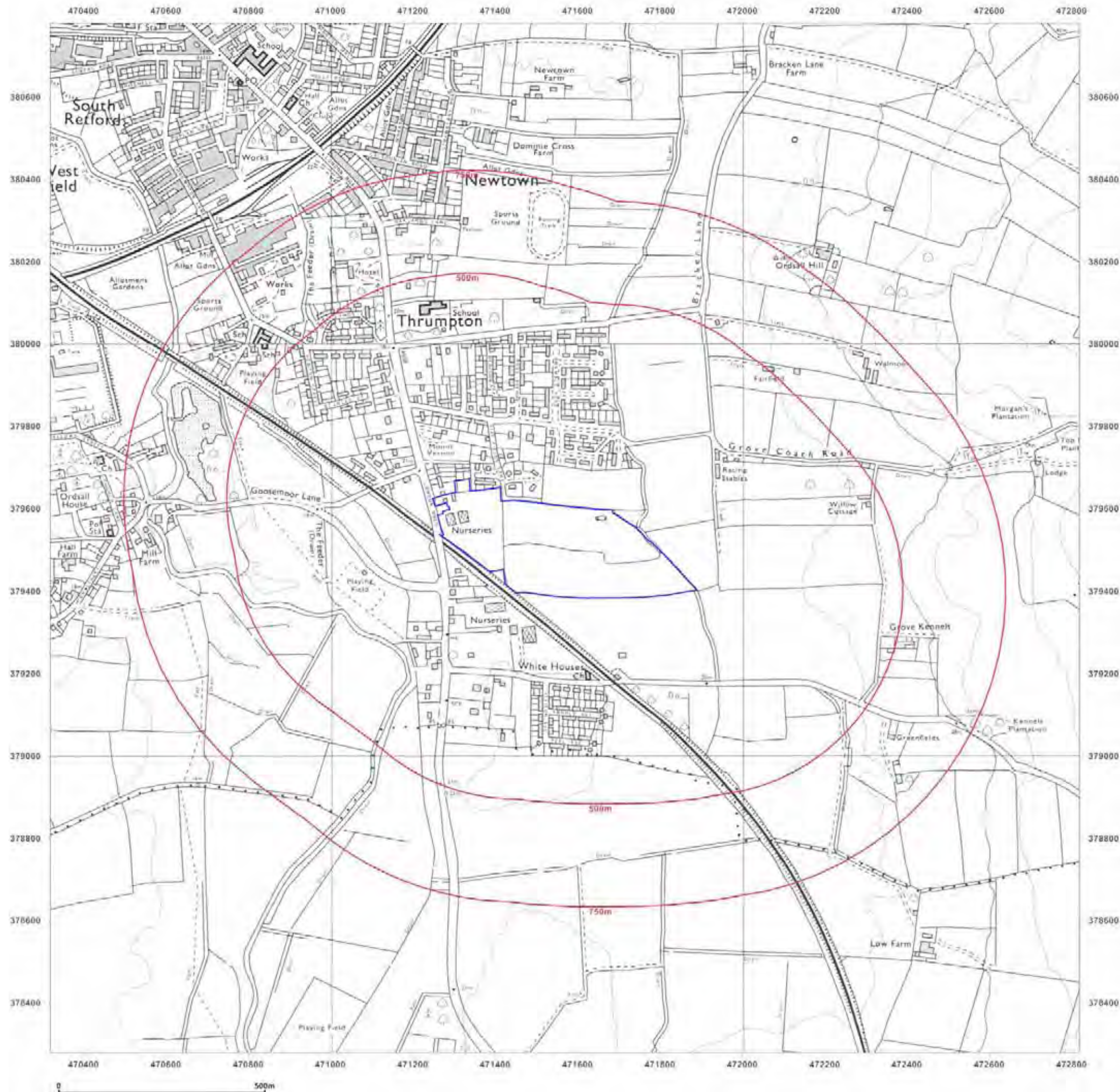


Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P

P



P



Site Details:

P
P LONDON ROAD, RETFORD,
P DN22 7JE

P
P
P
P
P
P

Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360
Grid Ref: P 47P568, 379530

Map Name: P National Grid P

P

Map Date: P 1973-1974

P

Scale: P P 1:10,000

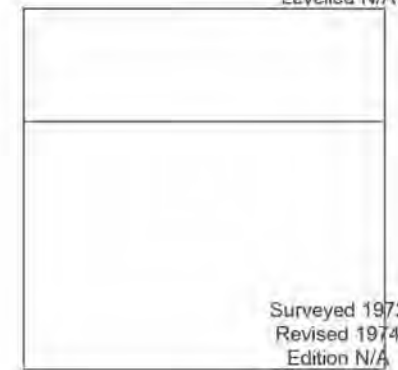
P

Printed at: P 1:10,000



P

Surveyed 1972
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1972
Revised 1974
Edition N/A
Copyright N/A
Levelled N/A



Produced by P
Groundsure Insights P
T: P 08444 P 59000 P
E: P info@groundsure.com P
W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016

P

To view map legend click here P [Legend](#) P

P



P



Site Details:

P
P LONDON ROAD, RETFORD,
P DN22 7JE

P
P
P
P
P
P

Client Ref: HARRON_HOMES_6617

Report Ref: PGS-2865360

Grid Ref: 47P568, 379530

Map Name: National Grid

P

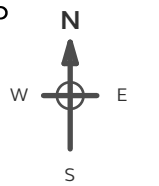
Map Date: 1991

P

Scale: 1:10,000

P

Printed at: 1:10,000



P

Surveyed 1989
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

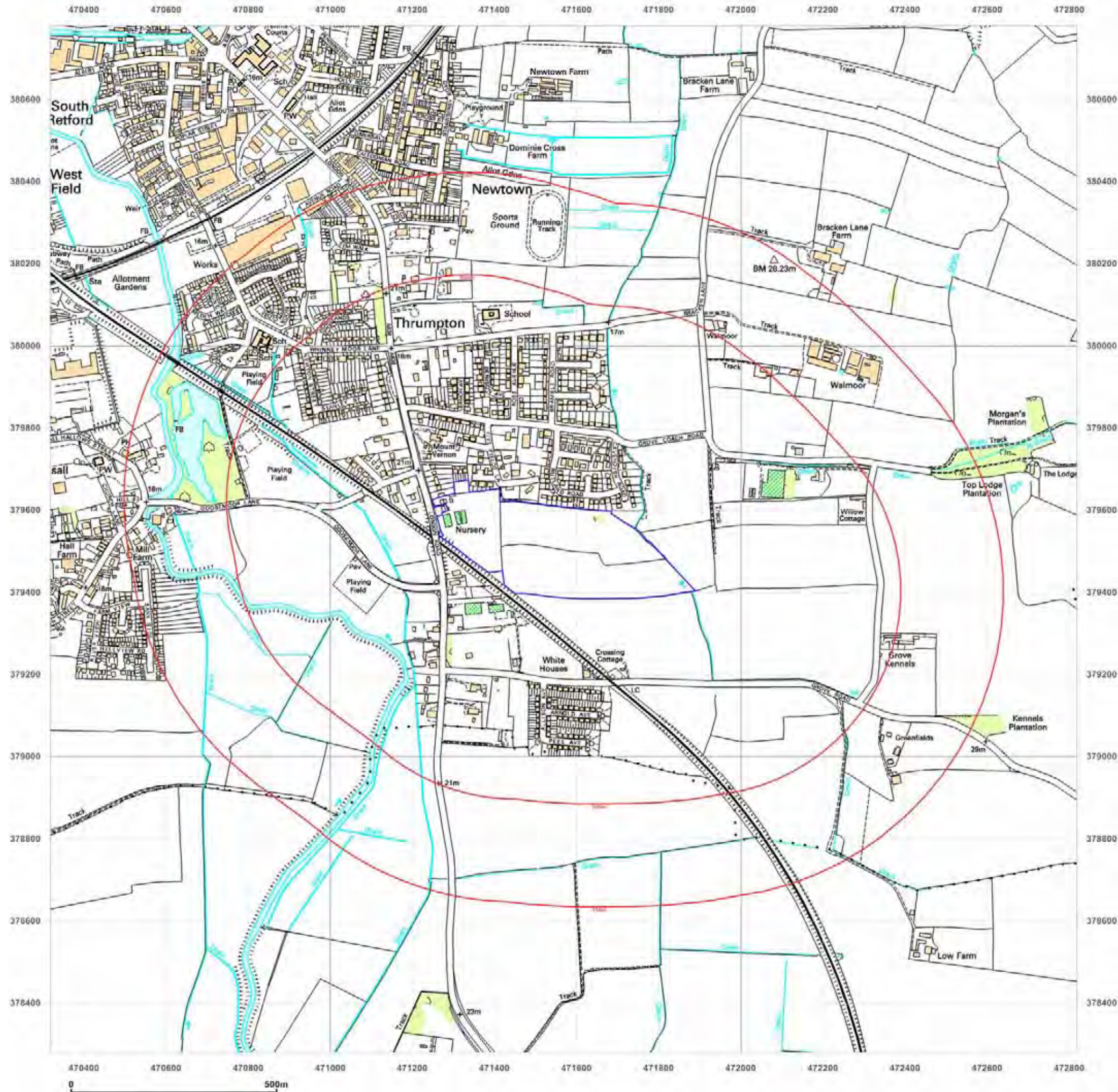
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207P

Production Date: 22 March 2016

P

To view map legend click here [Legend](#)

P



P



Site Details:

P LONDON ROAD, RETFORD,
P DN22 7JE

P
P
P
P
P
P

Client Ref: HARRON_HOMES_6617

Report Ref: GS-2865360

Grid Ref: 470568, 379530

Map Name: 1:10,000 Raster

P

Map Date: 2002

P

Scale: 1:10,000

P

Printed at: 1:10,000



P



Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

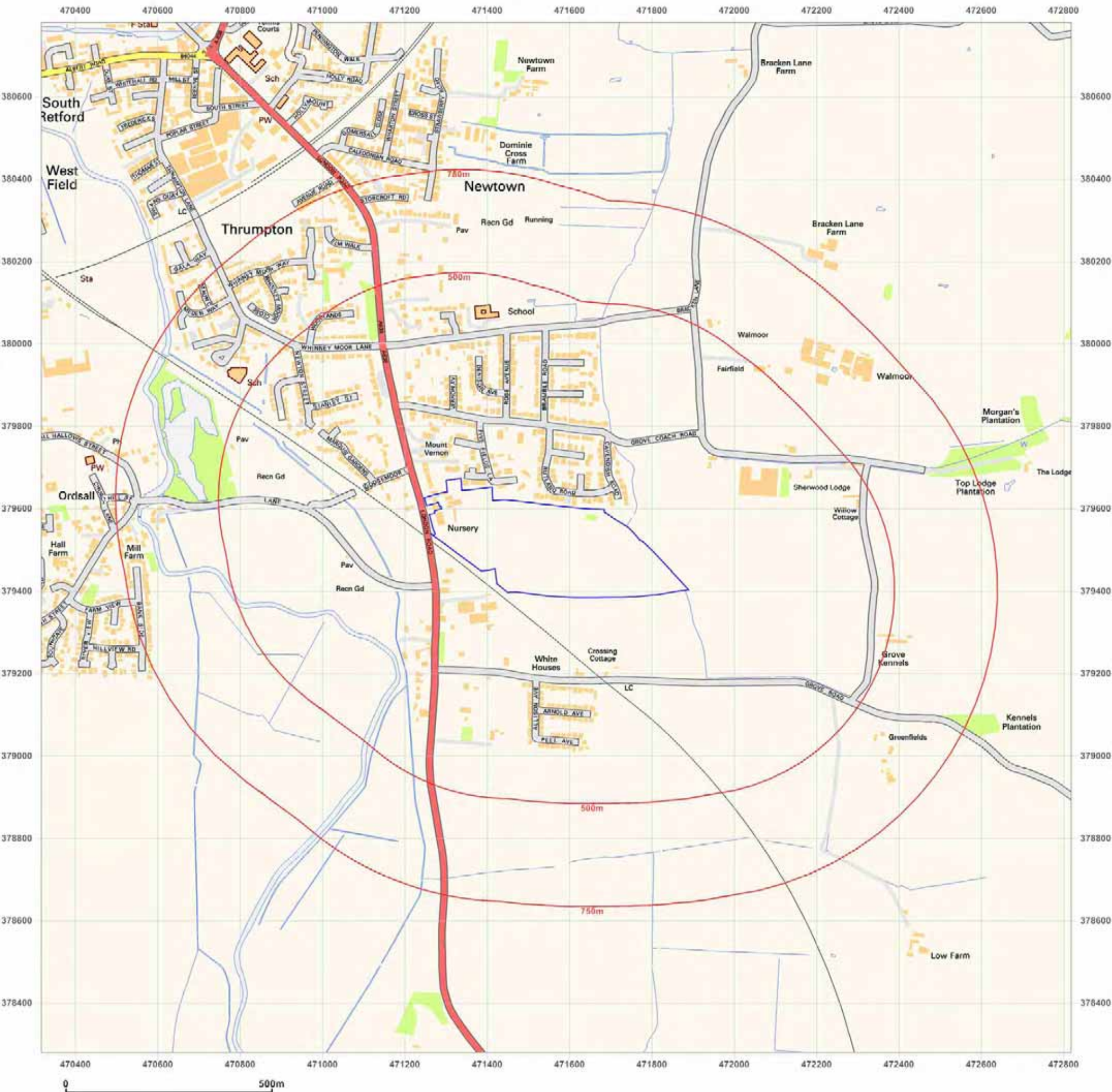
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207P

Production Date: 22 March 2016

P

To view map legend click here [Legend](#)

P



P



Site Details:

P
P LONDON ROAD, RETFORD,
P DN22 7JE

P
P
P
P
P
P

Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360
Grid Ref: P 470568, 379530

Map Name: P National Grid P

P

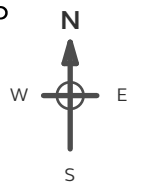
Map Date: P 2010

P

Scale: P 1:10,000

P

Printed at: P 1:10,000



P



Produced by P
Groundsure Insights P
T: 08444 159000 P
E: info@groundsure.com P
W: www.groundsure.com P

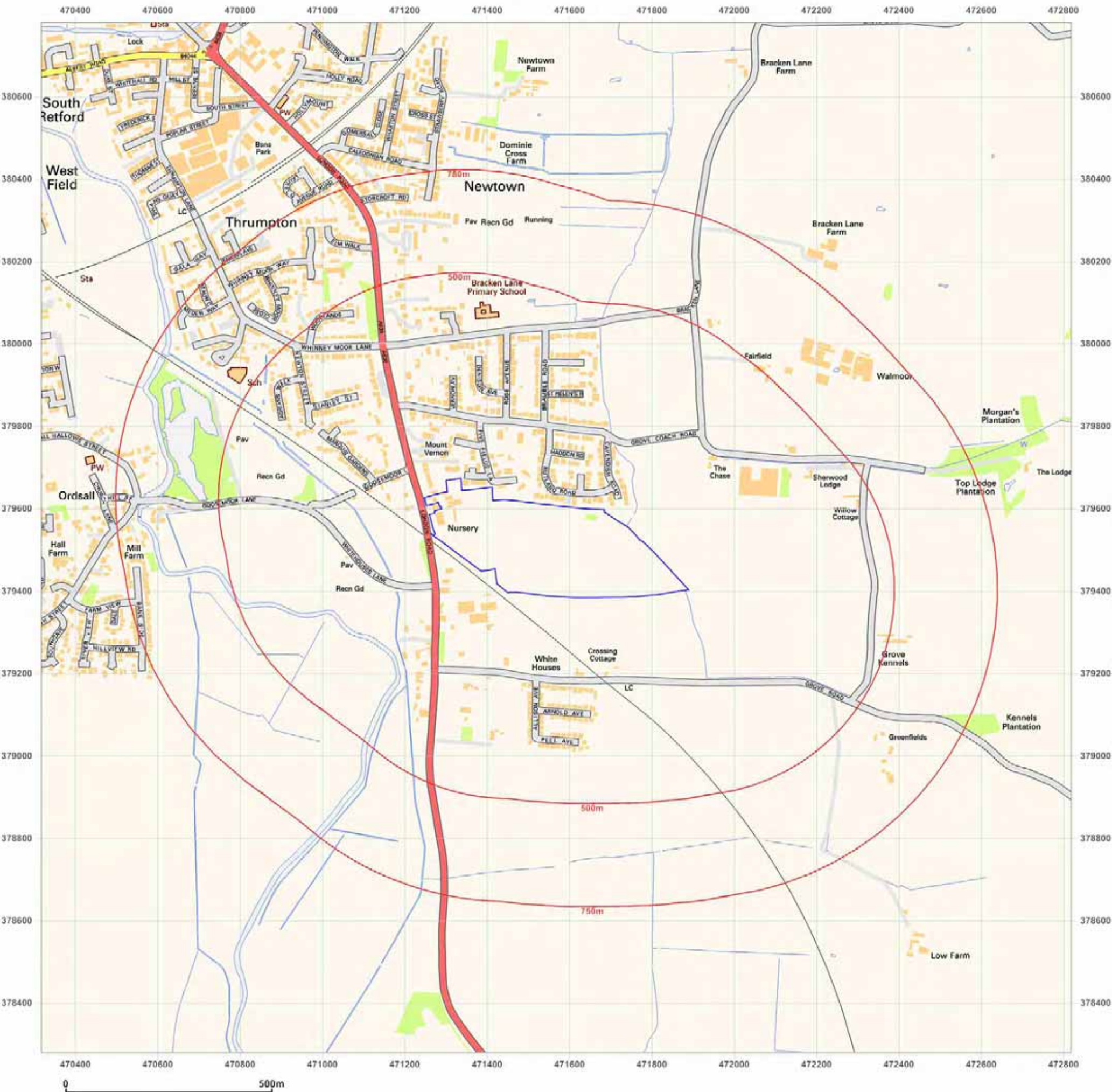
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016

P

To view map legend click here P [Legend](#) P

P



P



Site Details:

P LONDON ROAD, RETFORD,
P DN22 7JE

P
P
P
P
P

Client Ref: P HARRON_HOMES_6617

Report Ref: P GS-2865360

Grid Ref: P 47P568, 379530

Map Name: P National Grid P

Map Date: P 2014

Scale: P 1:10,000

Printed at: P 1:10,000



P



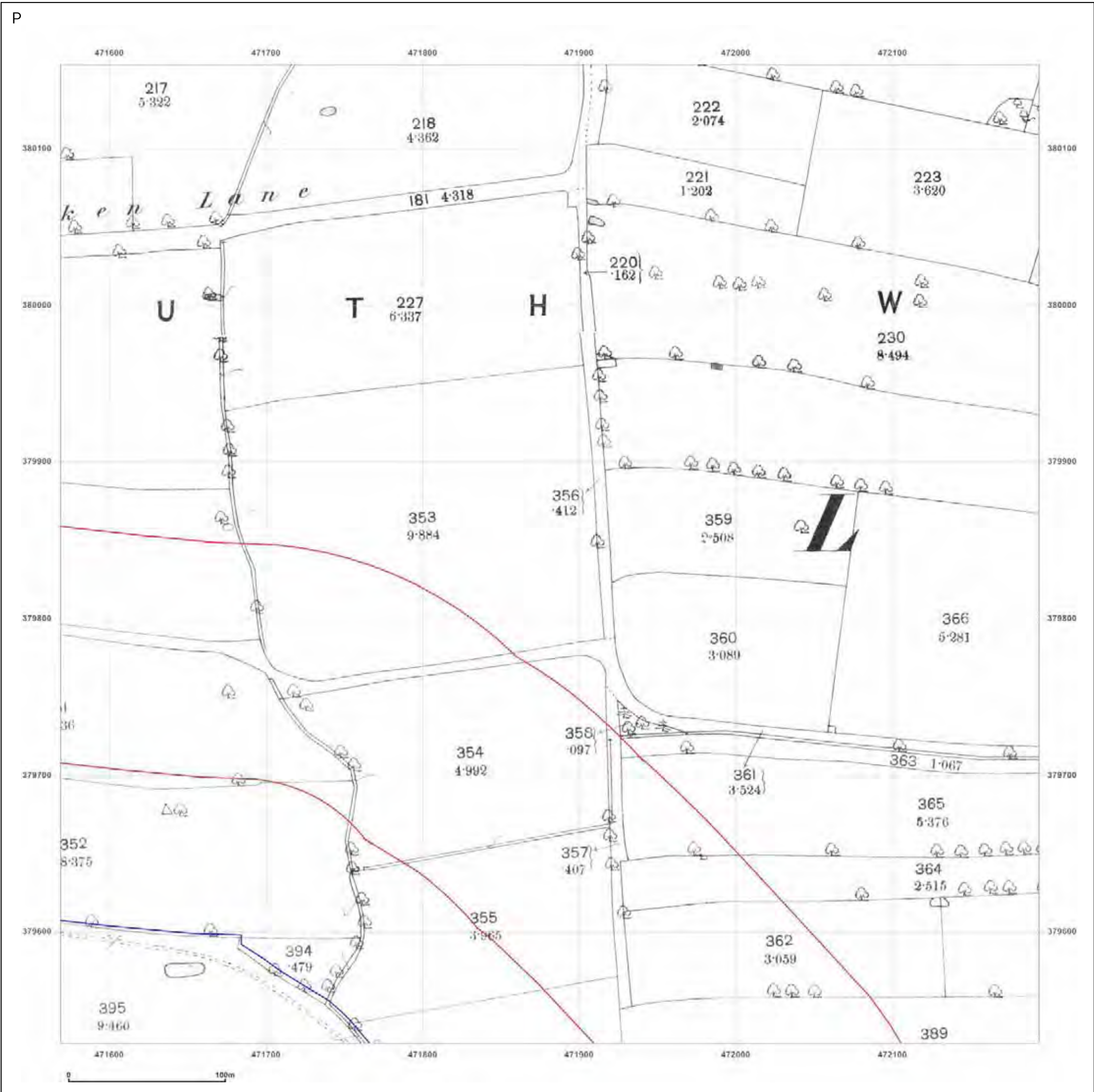
Produced by P
Groundsure Insights P
T: P 08444 P 59000 P
E: P info@groundsure.com P
W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016

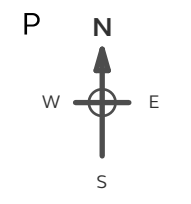
P

To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_2_2
Grid Ref: P 471881, 379841

Map Name: P County Series P
Map Date: P 1886
Scale: P 1:2,500
Printed at: P 1:2,500



Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A

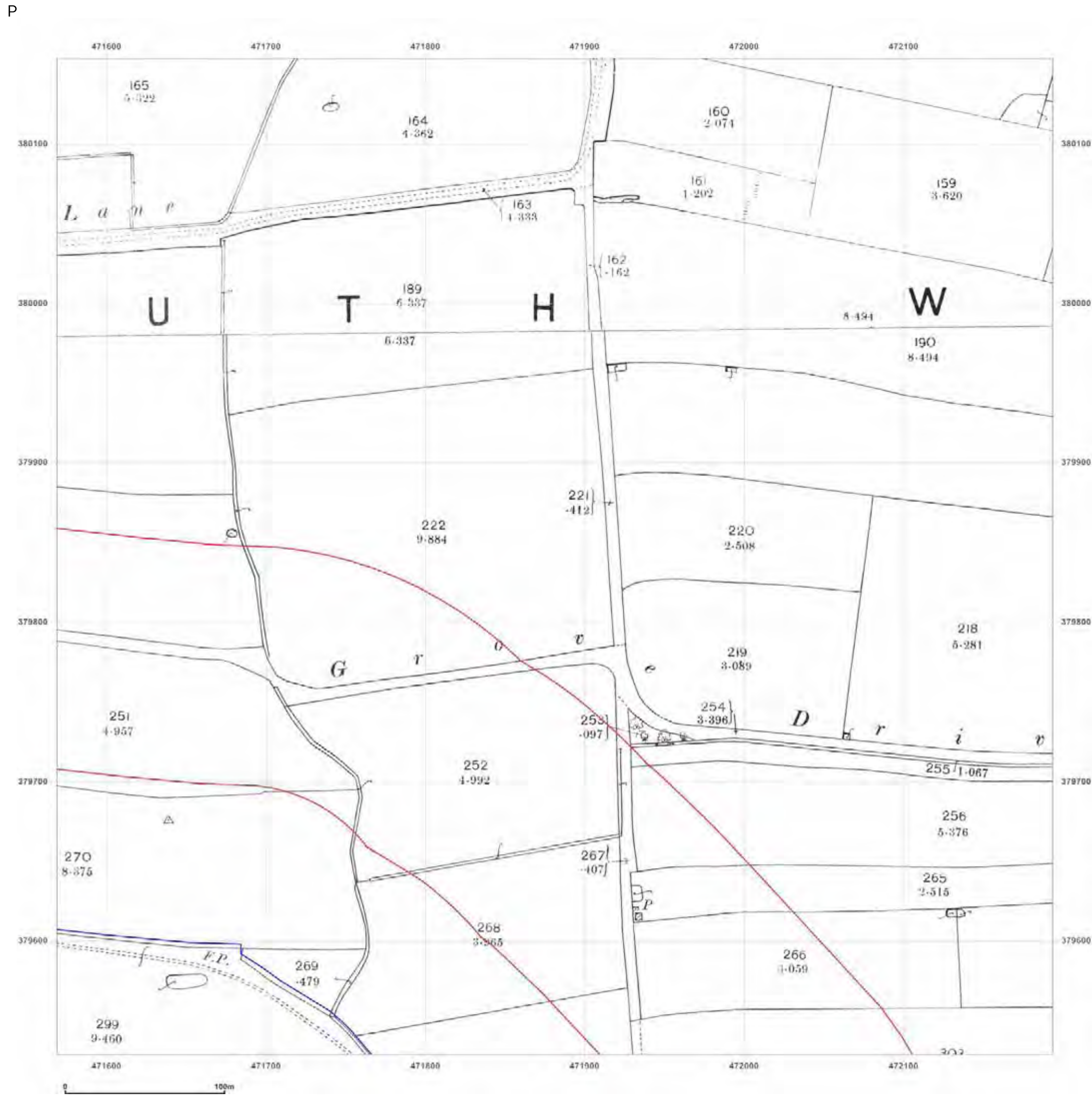
Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A



Produced by P
 Groundsure Insights P
 T: 08444 159000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

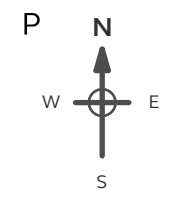
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here [Legend](#) P



SiteDetails:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
ClientRef: P HARRON_HOMES_6617
ReportRef: P PGS-2865360_LS_2_2
GridRef: P 471881, 379841

MapName: P County Series P
MapDate: P 1900
Scale: P 1:2,500
PrintedAt: P 1:2,500



Surveyed 1900
 Revised 1900
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1900
 Revised 1900
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced By P
 Groundsure Insights P
 T: 08444 159000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here [Legend](#) P

P



P



Site Details:

P LONDON ROAD, RETFORD,
P DN22 7JE

P
P
P
P
P
P

Client Ref: HARRON_HOMES_6617

Report Ref: PGS-2865360_LS_2_2

Grid Ref: 47R881, 379841

Map Name: County Series

P

Map Date: 1920

P

Scale: 1:2,500

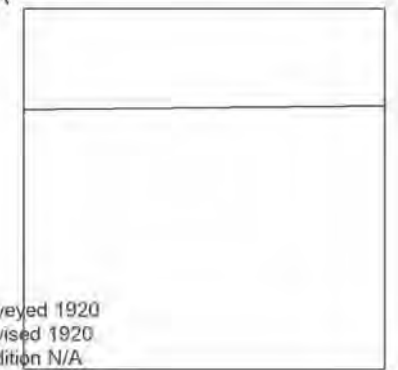
P

Printed at: 1:2,500



P

Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



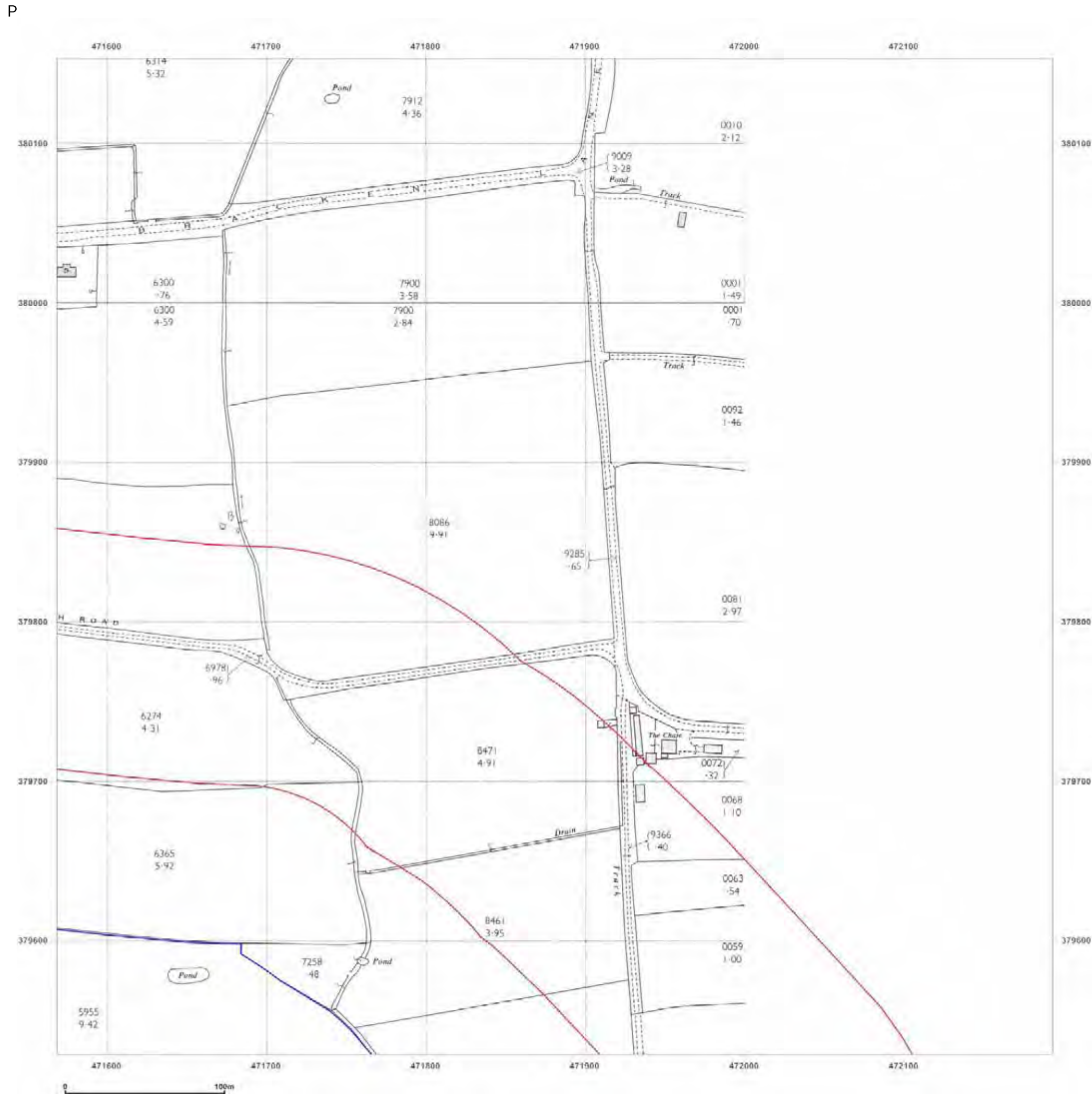
Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207P

Production Date: 22 March 2016

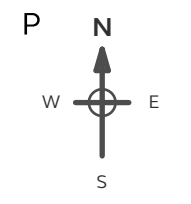
P

To view map legend click here [Legend](#)



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_2_2
Grid Ref: P 471881, 379841

Map Name: P National Grid P
Map Date: P 1963
Scale: P 1:2,500
Printed at: P 1:2,500



P
 Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1950

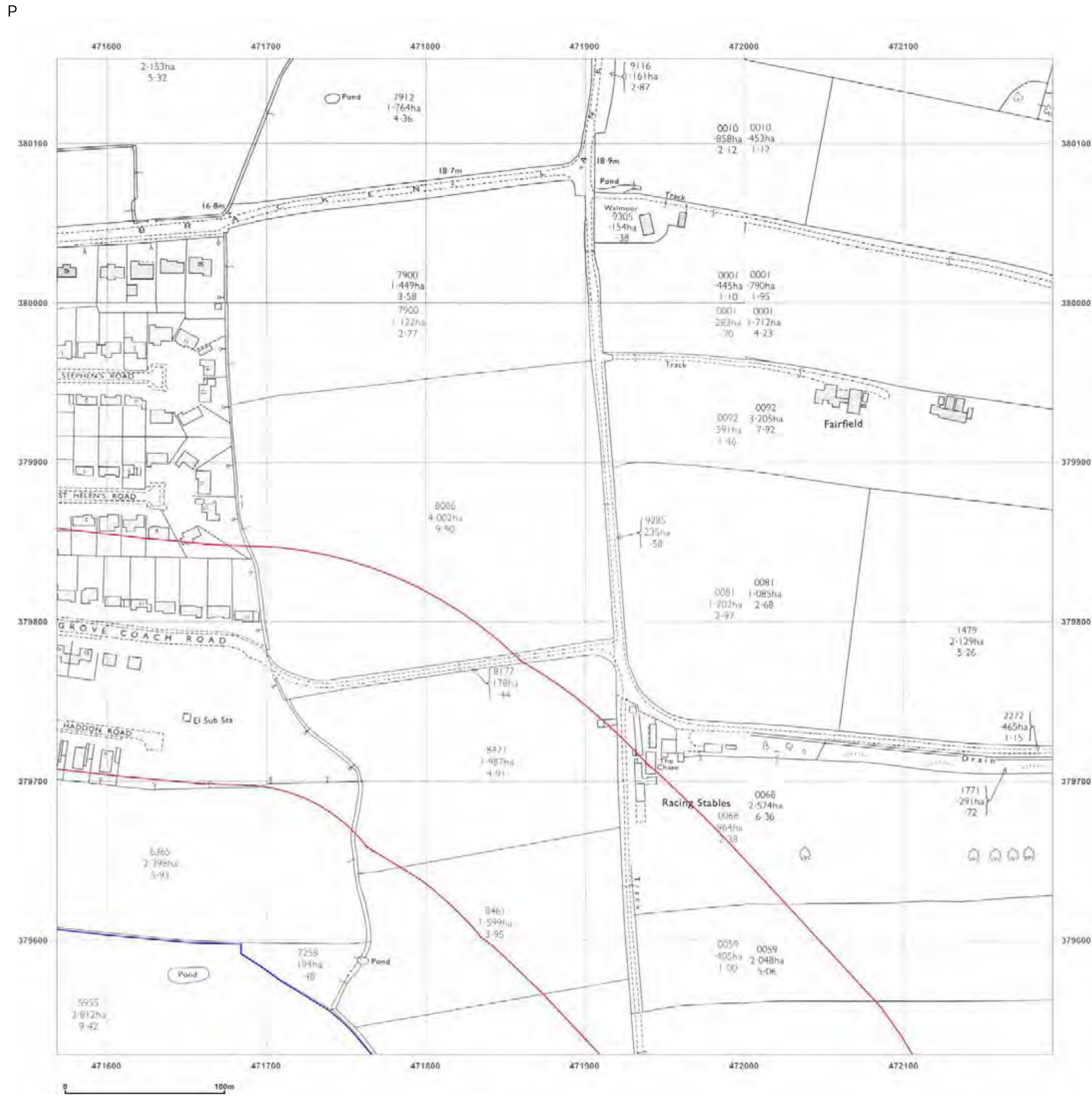
P
 Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1950



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

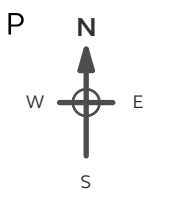
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_2_2
Grid Ref: P 47R881, 379841

Map Name: P National Grid P
Map Date: P 1970-1971
Scale: P 1:2,500
Printed at: P 1:2,500



Surveyed 1971
 Revised 1971
 Edition N/A
 Copyright 1972
 Levelled 1968

Surveyed 1971
 Revised 1971
 Edition N/A
 Copyright 1972
 Levelled 1968

Surveyed 1970
 Revised 1970
 Edition N/A
 Copyright 1971
 Levelled 1968

Surveyed N/A
 Revised 1971
 Edition N/A
 Copyright 1972
 Levelled 1968



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

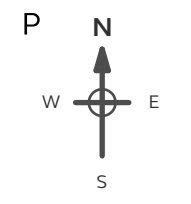
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P Legend P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_2_2
Grid Ref: P 47R881, 379841

Map Name: P National Grid P
Map Date: P 1977-1980
Scale: P P 1:2,500
Printed at: P 1:2,500



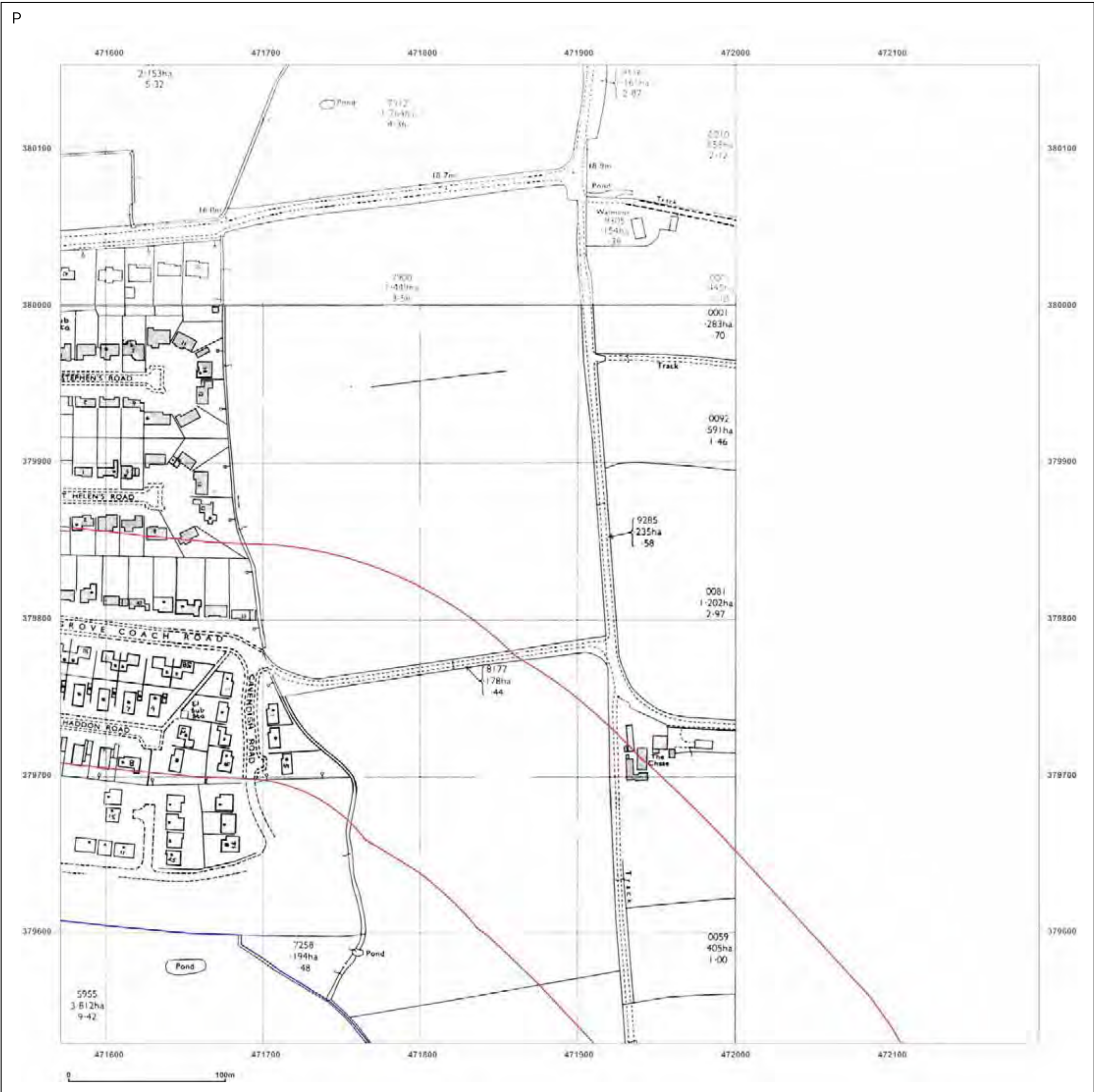
P
 Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A
 Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1980
 Levelled 1968



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

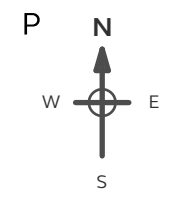
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P Legend P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_2_2
Grid Ref: P 471881, 379841

Map Name: P National Grid P
Map Date: P 1987-1989
Scale: P 1:2,500
Printed at: P 1:2,500



P
 Surveyed 1968
 Revised 1987
 Edition N/A
 Copyright 1987
 Levelled 1968
 Surveyed 1989
 Revised 1989
 Edition N/A
 Copyright 1989
 Levelled N/A



Produced by P
 Groundsure Insights P
 T: 08444 159000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

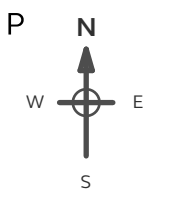
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_2_2
Grid Ref: P 471881, 379841

Map Name: P National Grid P
 P
Map Date: P 1989-1994
 P
Scale: P 1:2,500
 P
Printed at: P 1:2,500



P

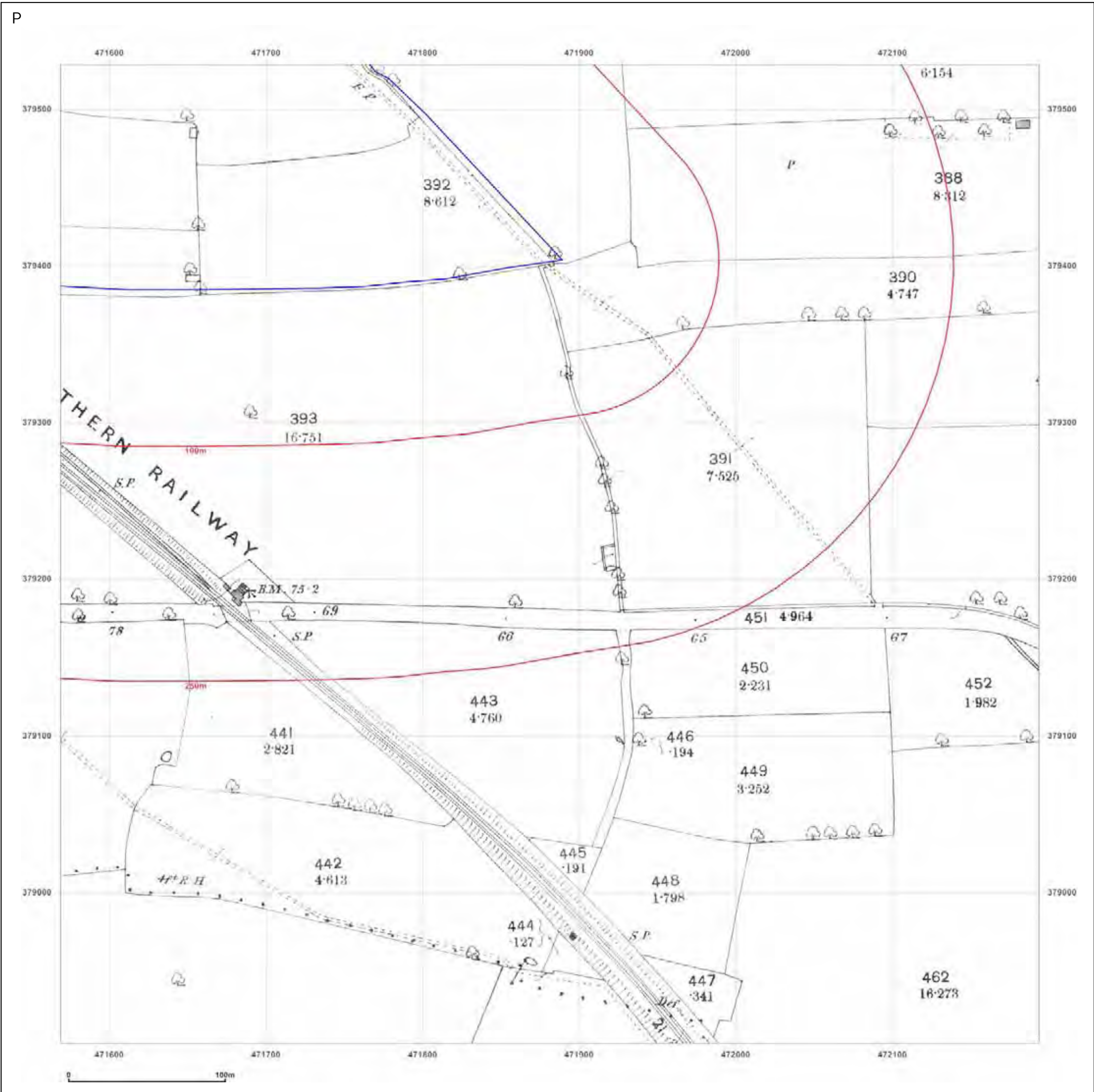
Surveyed N/A Revised 1989 Edition N/A Copyright 1991 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A



Produced by P
 Groundsure Insights P
 T: 08444 159000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

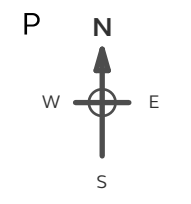
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_2_1
Grid Ref: P 471881, 379216

Map Name: P County Series P
Map Date: P 1886
Scale: P 1:2,500
Printed at: P 1:2,500



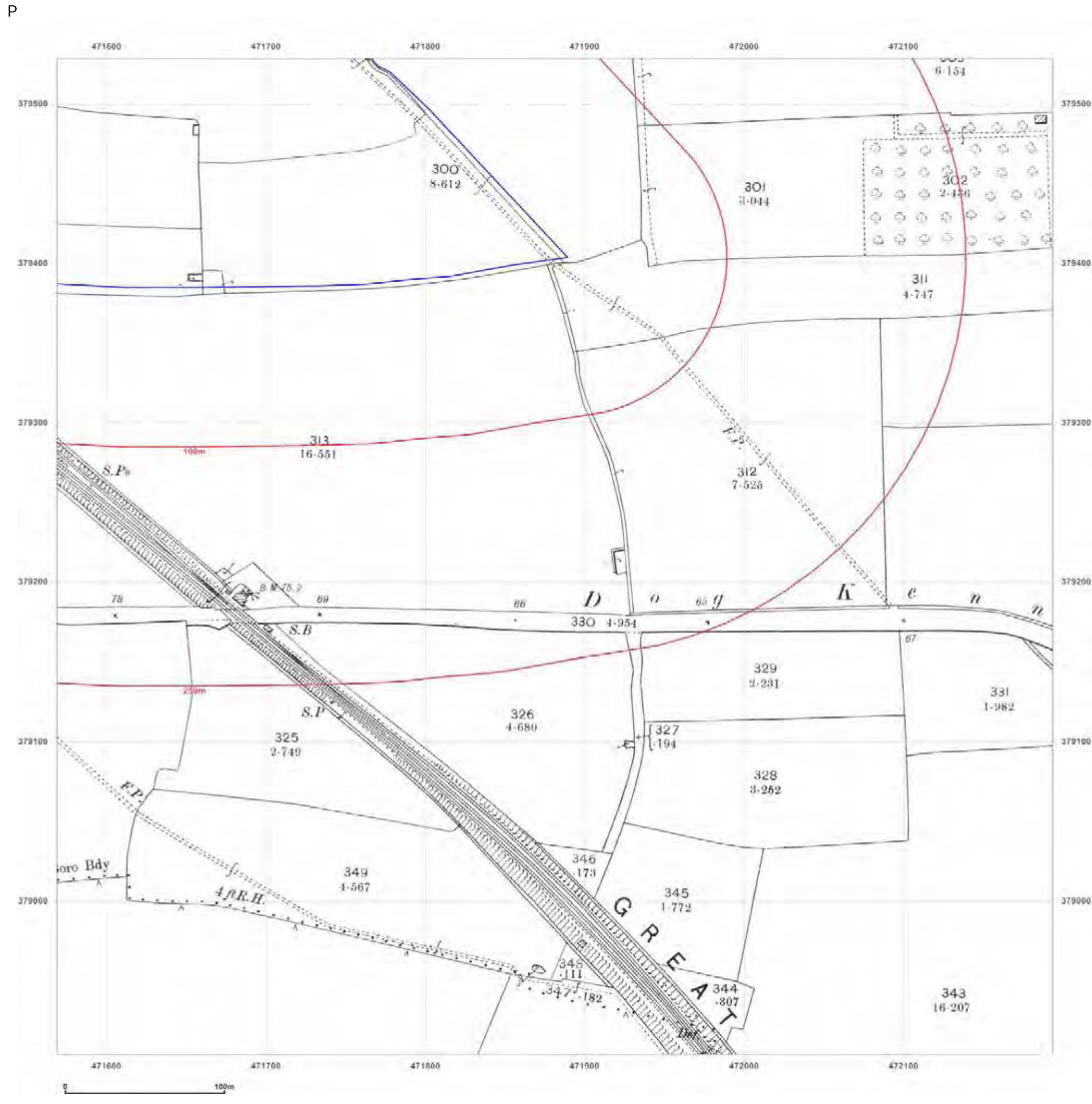
P
 Surveyed 1886
 Revised 1886
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced by P
 Groundsure Insights P
 T: P 08444 159000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

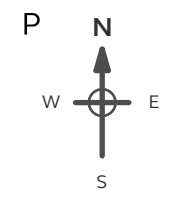
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_2_1
Grid Ref: P 471881, 379216

Map Name: P County Series P
 P
Map Date: P 1900
 P
Scale: P 1:2,500
 P
Printed at: P 1:2,500



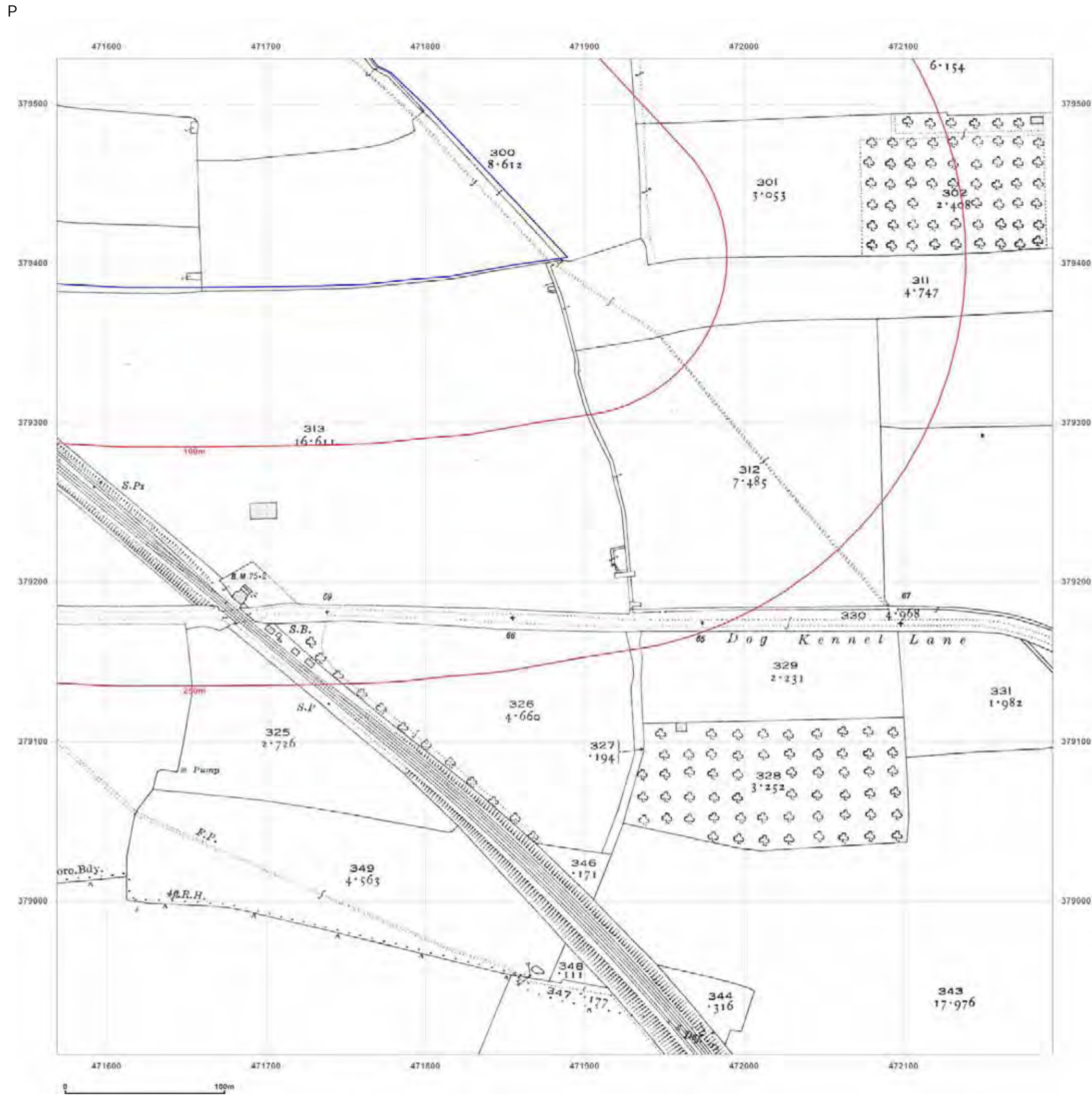
P
 Surveyed 1900
 Revised 1900
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

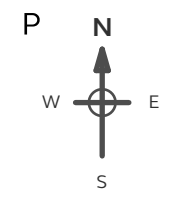
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_2_1
Grid Ref: P 47R881, 379216

Map Name: P County Series P
Map Date: P 1920
Scale: P 1:2,500
Printed at: P 1:2,500



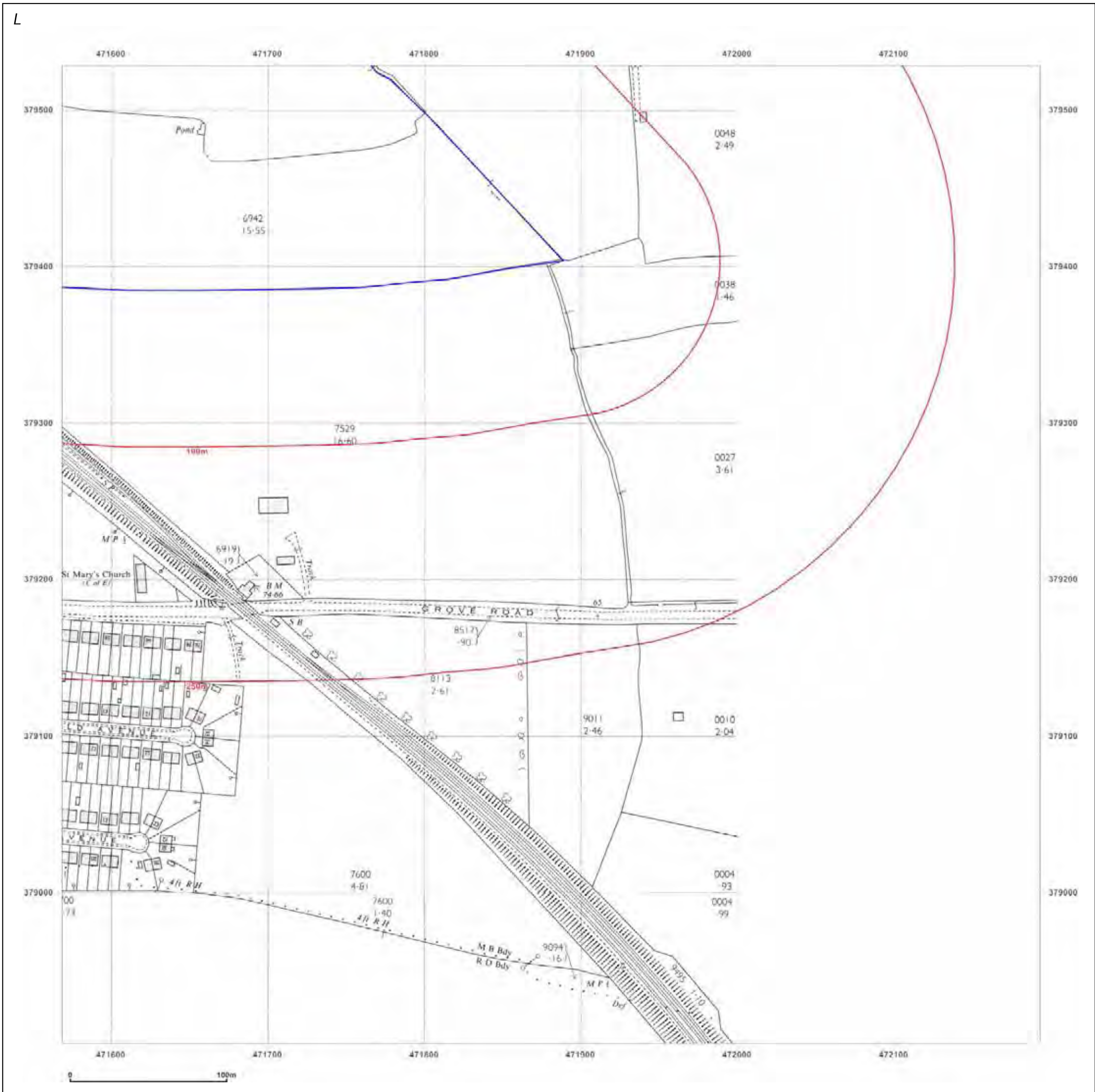
P
 Surveyed 1920
 Revised 1920
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

P Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P

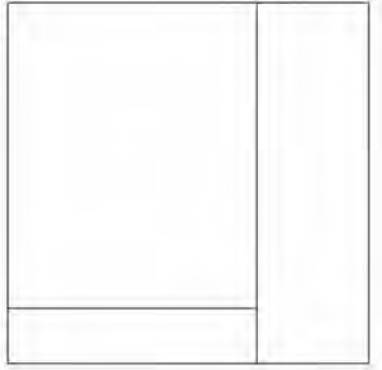


Site/Details:
 L LONDON ROAD, RETFORD,
 L DN22 7JE
 L
 L
 L
 L
 L
 L
 L
Client/Ref: HARRON_HOMES_6617
Report/Ref: GS-2865360_LS_2_1
Grid/Ref: 471881, 379216

Map/Name: National Grid
Map/date: 1963
Scale: 1:2,500
Printed/at: 1:2,500



Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1950



Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1949

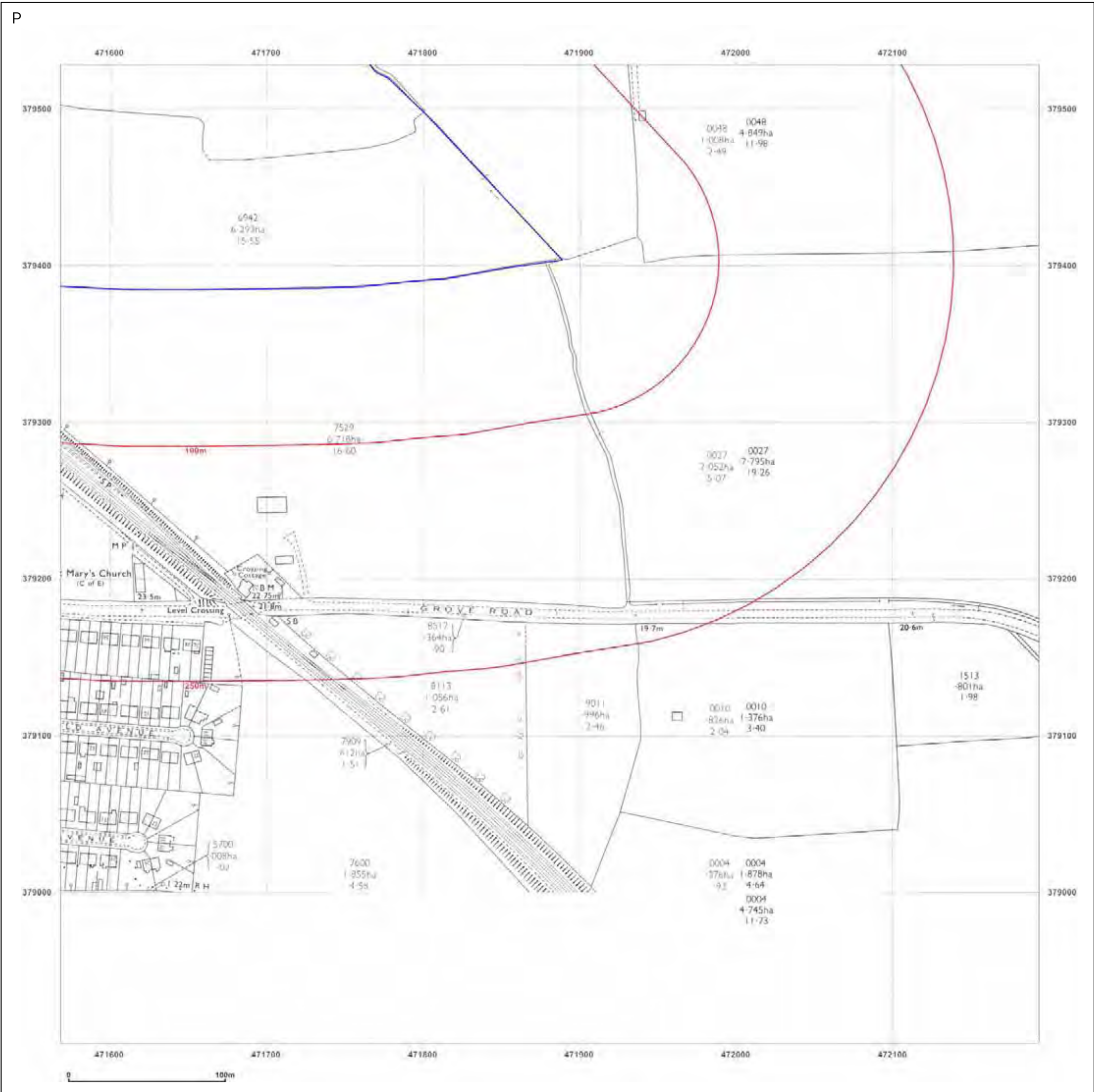


Produced by
 Groundsure Insights
 T: 08444 159000
 E: info@groundsure.com
 W: www.groundsure.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

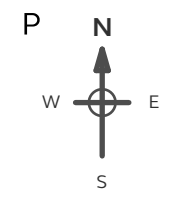
Production date: 22 March 2016

To view map legend click here [Legend](#)



Site Details:
 P
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_2_1
Grid Ref: P 471881, 379216

Map Name: P National Grid P
 P
Map Date: P 1970-1971
 P
Scale: P 1:2,500
 P
Printed at: P 1:2,500



P

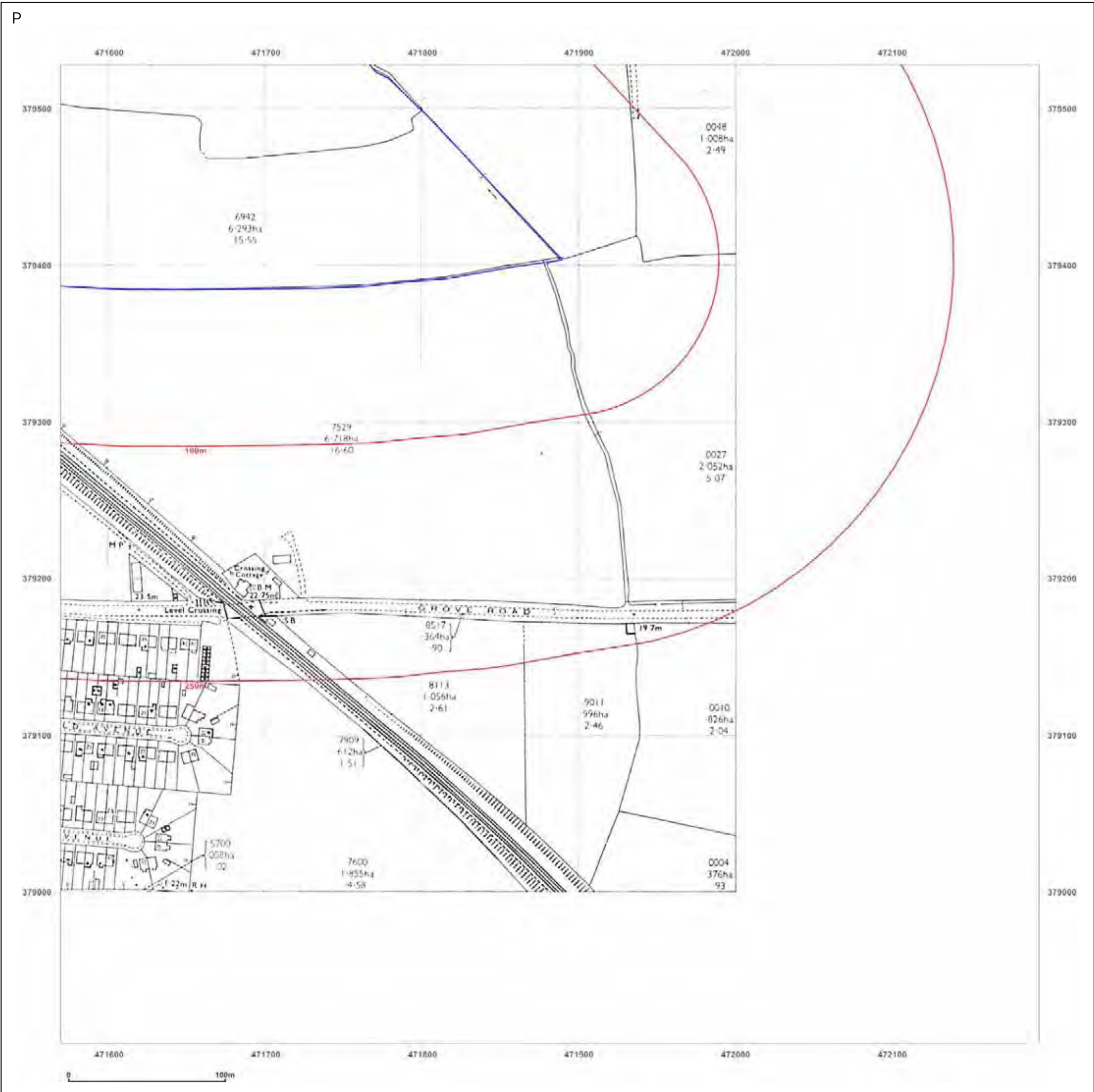
Surveyed 1970 Revised 1970 Edition N/A Copyright 1971 Levelled 1968	Surveyed N/A Revised 1971 Edition N/A Copyright 1972 Levelled 1968
Surveyed 1971 Revised 1971 Edition N/A Copyright 1972 Levelled 1968	



Produced by P
 Groundsure Insights P
 T: P 08444 159000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

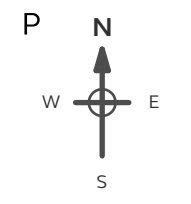
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_2_1
Grid Ref: P 471881, 379216

Map Name: P National Grid P
Map Date: P 1980
Scale: P 1:2,500
Printed at: P 1:2,500



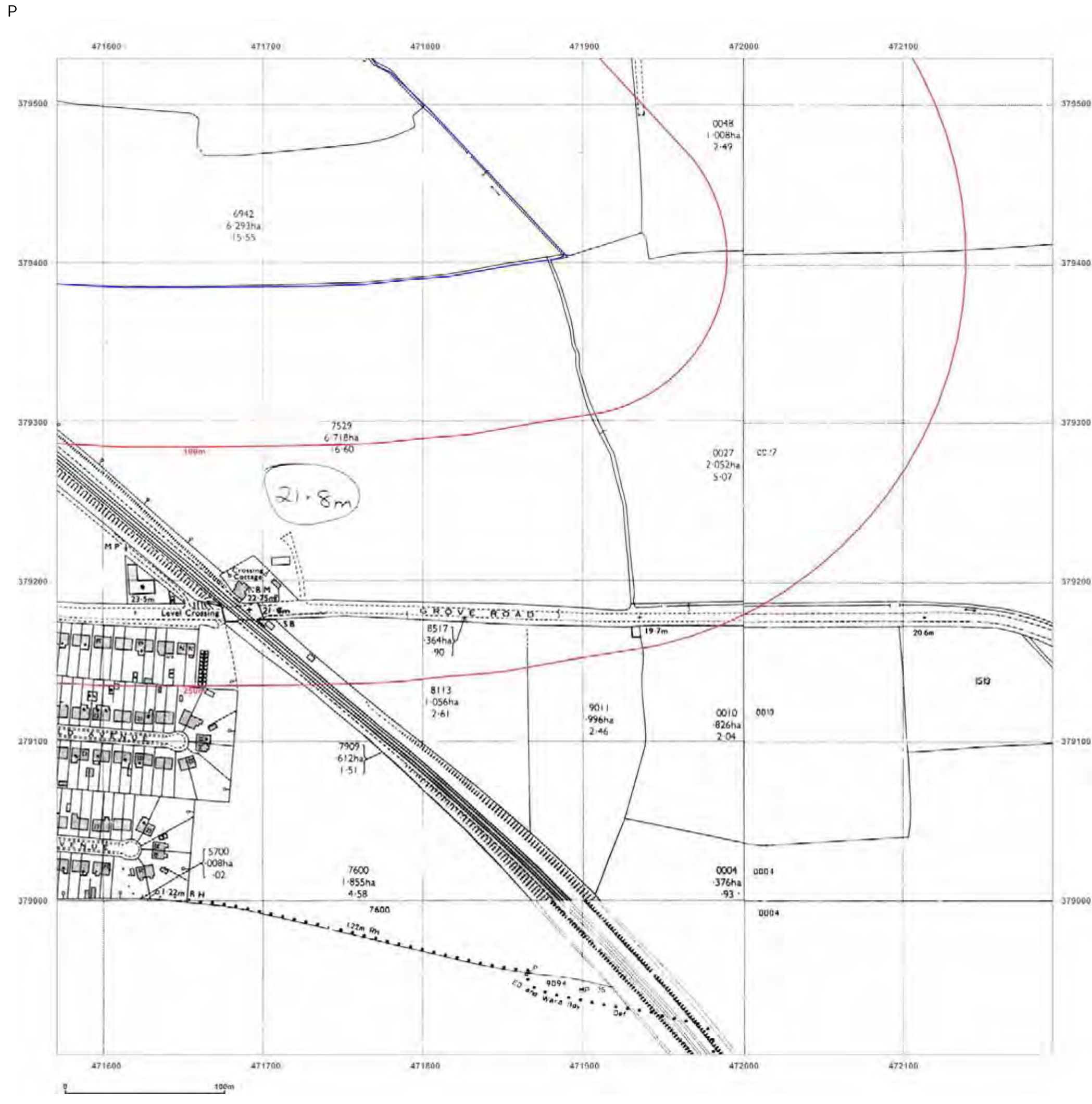
P
 Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright 1980
 Levelled 1988



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

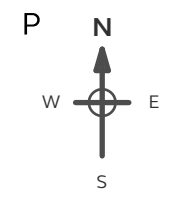
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_2_1
Grid Ref: P 47R881, 379216

Map Name: P National Grid P
 P
Map Date: P 1989-1994
 P
Scale: P 1:2,500
 P
Printed at: P 1:2,500



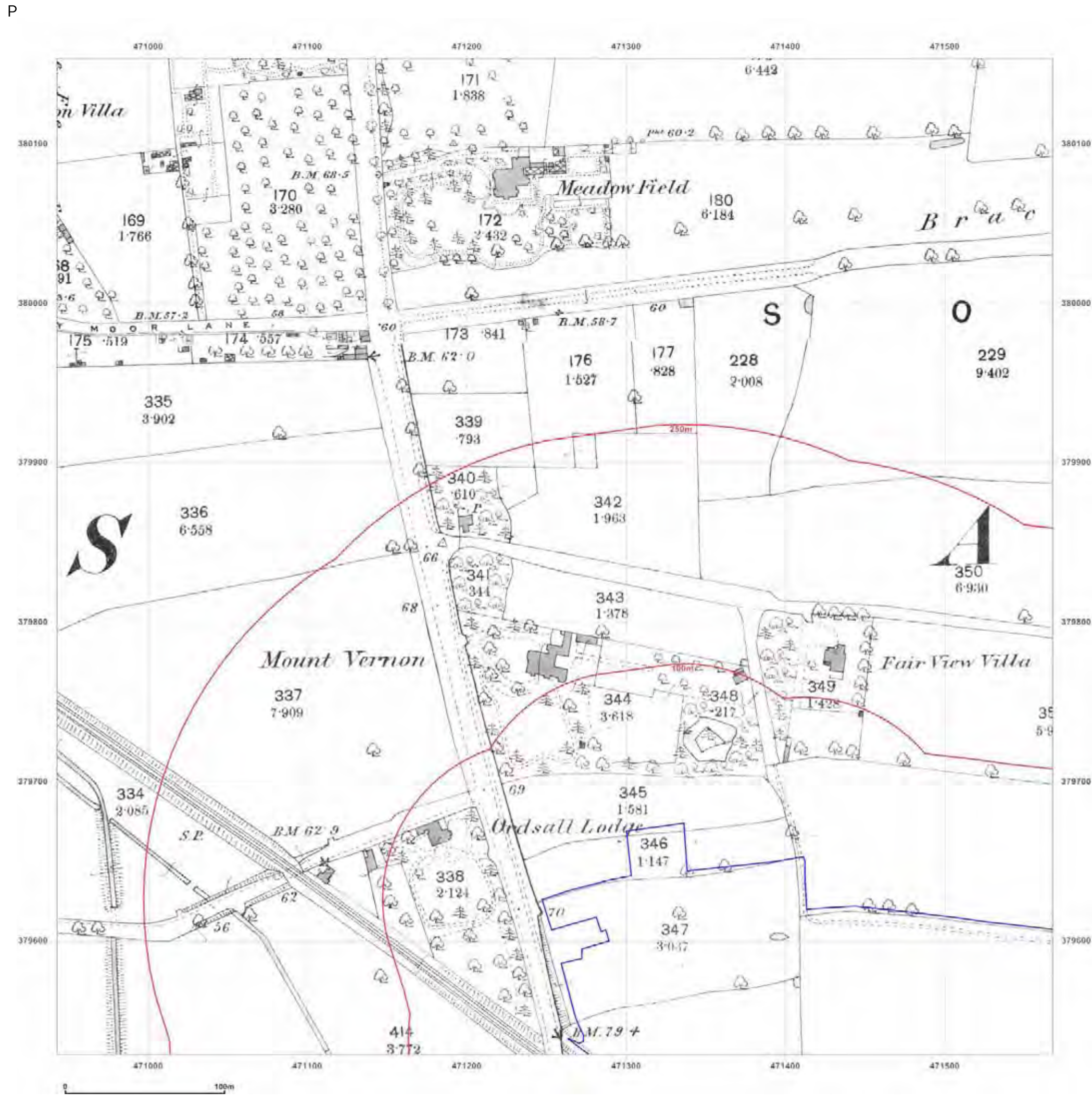
Surveyed 1989 Revised 1989 Edition N/A Copyright 1989 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A



Produced by P
 Groundsure Insights P
 T: 08444 159000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

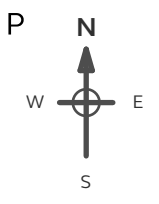
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_1_2
Grid Ref: P 47R255, 379841

Map Name: P County Series P
Map Date: P 1886
Scale: P 1:2,500
Printed At: P 1:2,500



P

Surveyed 1886
 Revised 1886
 Edition N/A
 Copyright N/A
 Levelled N/A

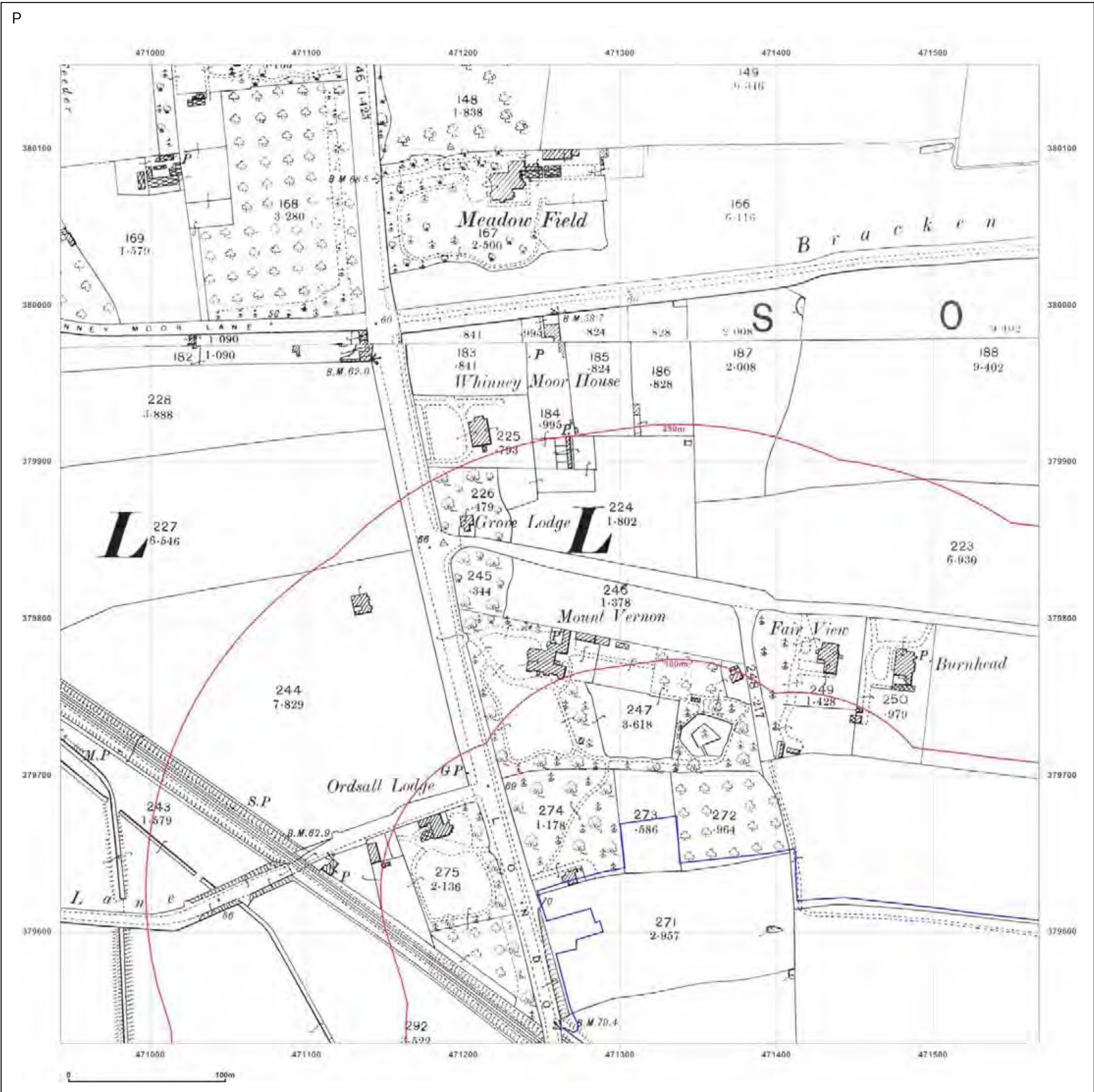
Surveyed 1886
 Revised 1886
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced By P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

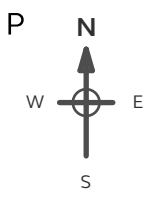
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



SiteDetails:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
ClientRef: P HARRON_HOMES_6617
ReportRef: P PGS-2865360_LS_1_2
GridRef: P 47R255, 379841

MapName: P County Series P
MapDate: P 1900
Scale: P 1:2,500
PrintedAt: P 1:2,500



Surveyed 1900
 Revised 1900
 Edition N/A
 Copyright N/A
 Levelled N/A

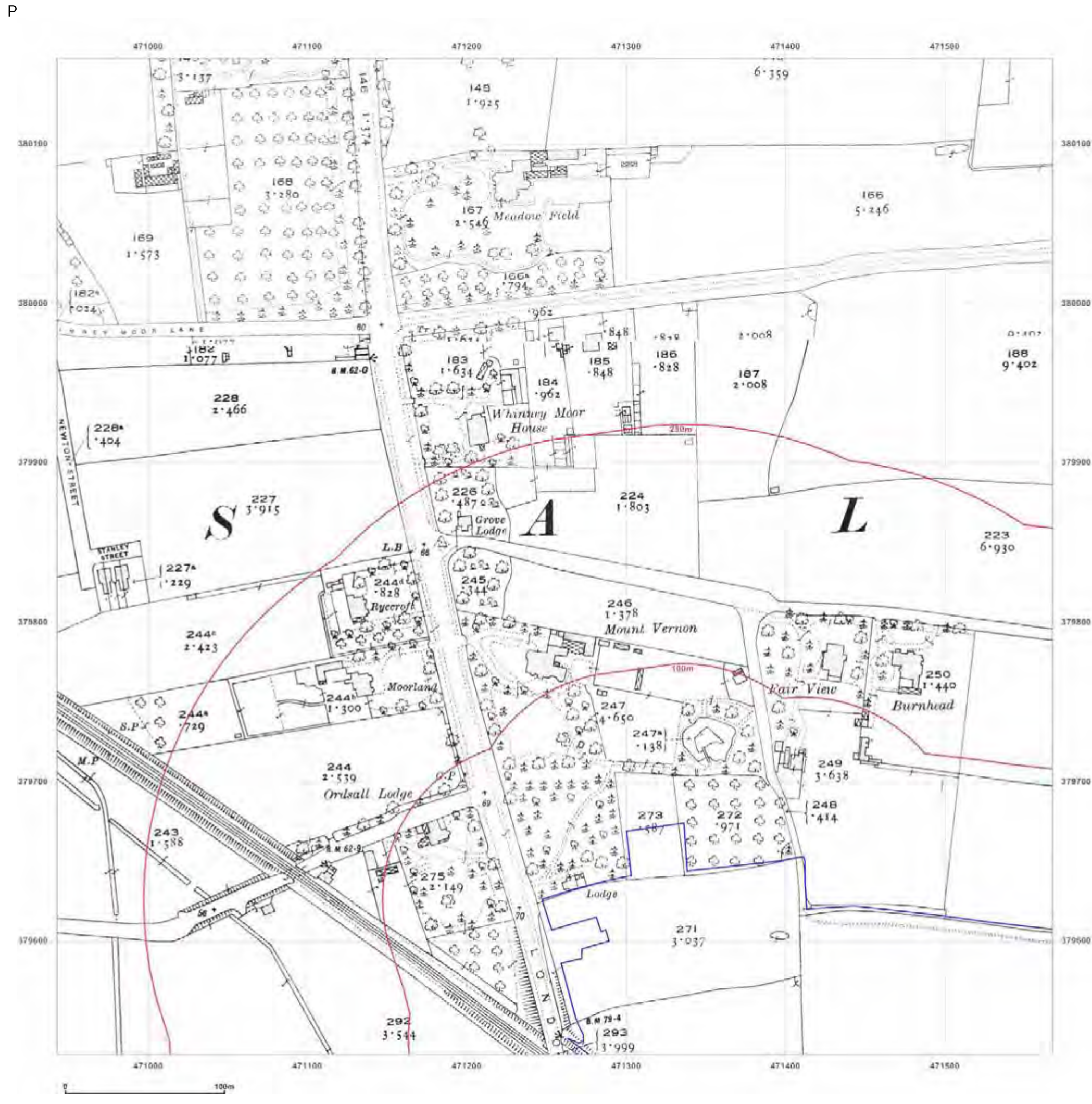
Surveyed 1900
 Revised 1900
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced By P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

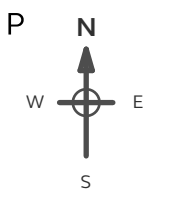
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



SiteDetails:
 P
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
ClientRef: P HARRON_HOMES_6617
ReportRef: P PGS-2865360_LS_1_2
GridRef: P 47R255, 379841

MapName: P County Series P
 P
MapDate: P 1920
 P
Scale: P 1:2,500
 P
PrintedAt: P 1:2,500



P
 Surveyed 1920
 Revised 1920
 Edition N/A
 Copyright N/A
 Levelled N/A

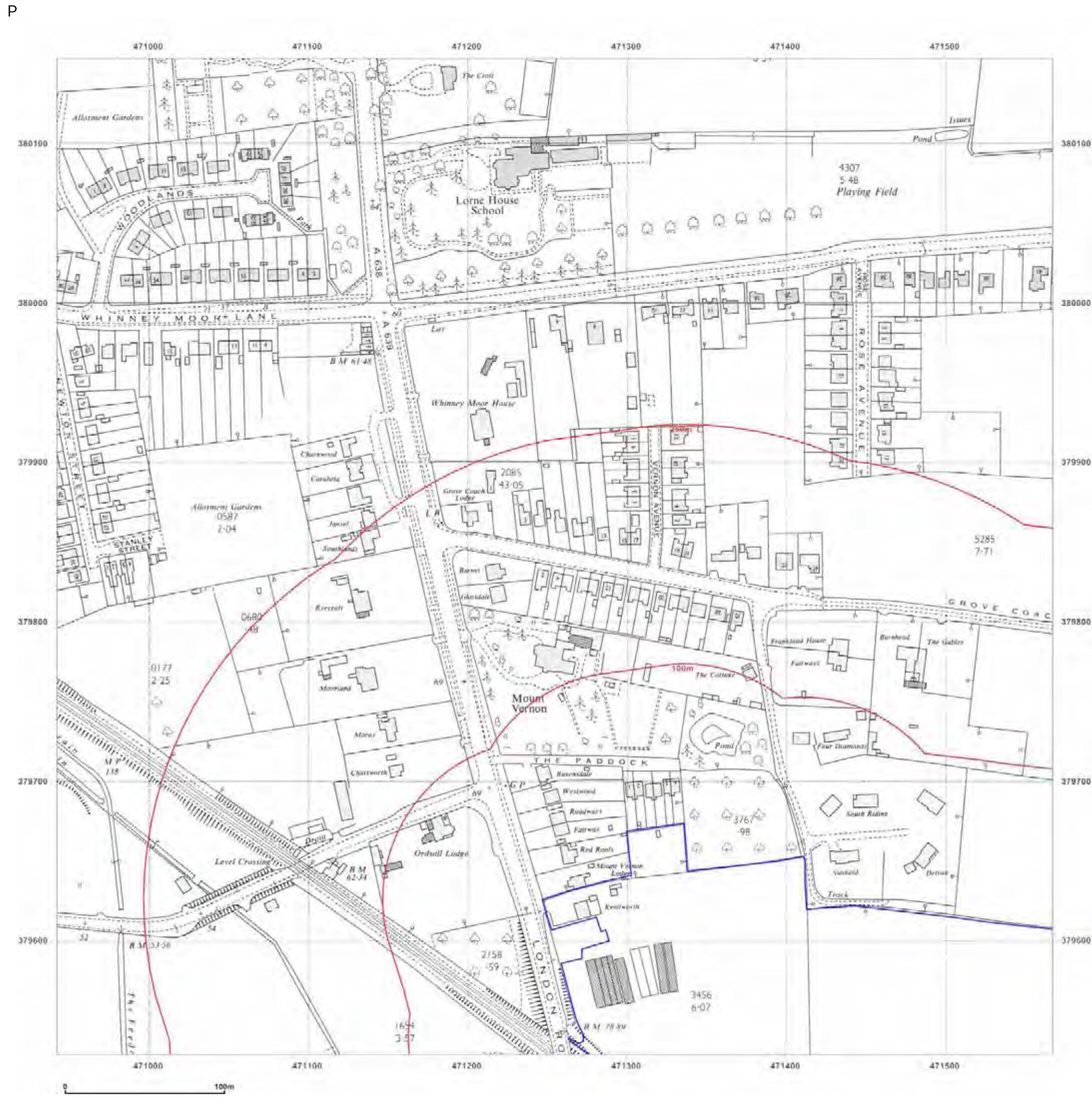
Surveyed 1920
 Revised 1920
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced By P
 Groundsure Insights P
 T: 08444 159000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

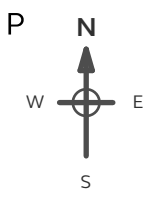
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

ProductionDate: P 22 March 2016
 P
 To view map legend click here [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_1_2
Grid Ref: P 47R255, 379841

Map Name: P National Grid P
Map Date: P 1983
Scale: P 1:2,500
Printed at: P 1:2,500



P
 Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1950
 Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1950



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

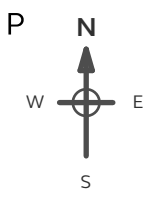
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_1_2
Grid Ref: P 47R255, 379841

Map Name: P National Grid P
Map Date: P 1970-1971
Scale: P 1:2,500
Printed at: P 1:2,500



Surveyed 1971
 Revised 1971
 Edition N/A
 Copyright 1972
 Levelled 1968

Surveyed 1970
 Revised 1970
 Edition N/A
 Copyright 1971
 Levelled 1968



Produced by: P Groundsure Insights P
 T: P 08444 159000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

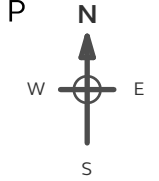
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here [Legend](#) P




Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_1_2
Grid Ref: P 47R255, 379841

Map Name: P National Grid P
Map Date: P 1977-1980
Scale: P 1:2,500
Printed at: P 1:2,500



Surveyed 1968 Revised 1978 Edition N/A Copyright 1978 Levelled 1968	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1980 Levelled 1968


 Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

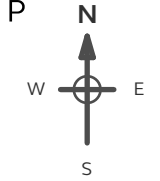
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P




Site Details:
 P
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_1_2
Grid Ref: P 47R255, 379841

Map Name: P National Grid P
Map Date: P 1986-1989
Scale: P 1:2,500
Printed at: P 1:2,500



P Surveyed 1968 Revised 1988 Edition N/A Copyright 1988 Levelled 1968	Surveyed 1968 Revised 1987 Edition N/A Copyright 1987 Levelled 1968
Surveyed 1968 Revised 1986 Edition N/A Copyright 1986 Levelled 1968	Surveyed 1989 Revised 1989 Edition N/A Copyright 1989 Levelled N/A


 Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map Regenerate Legend P

P

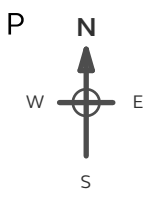


P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_1_2
Grid Ref: P 47R255, 379841

Map Name: P National Grid P
Map Date: P 1989-1994
Scale: P 1:2,500
Printed at: P 1:2,500



Surveyed: N/A
Revised: 1989
Edition: N/A
Copyright: 1991
Levelled: N/A

Surveyed: N/A
Revised: N/A
Edition: N/A
Copyright: 1994
Levelled: N/A

Surveyed: N/A
Revised: N/A
Edition: N/A
Copyright: 1994
Levelled: N/A

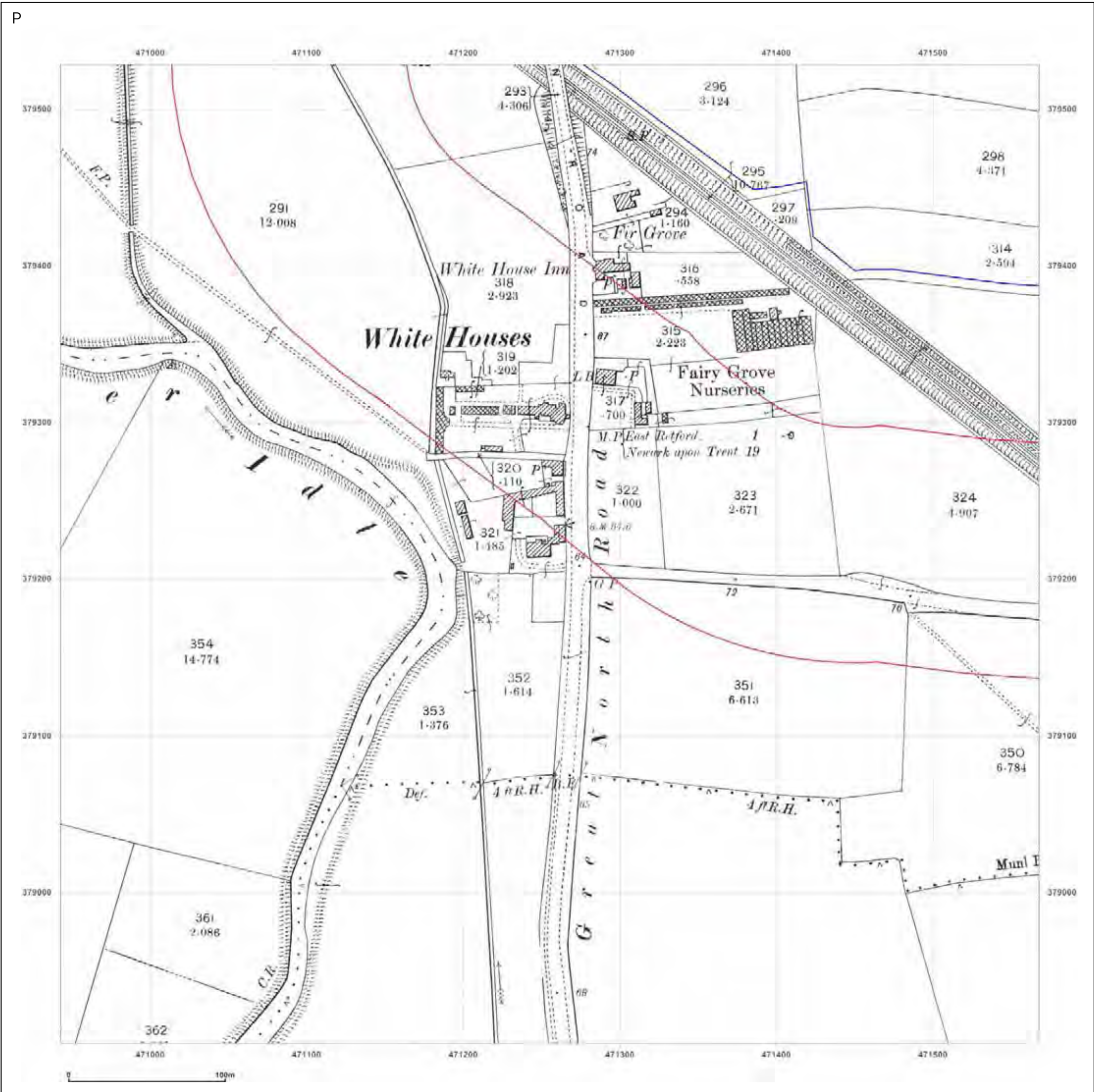
Surveyed: N/A
Revised: N/A
Edition: N/A
Copyright: 1994
Levelled: N/A



Produced By: P Groundsure Insights P
T: P 08444 P 59000 P
E: P info@groundsure.com P
W: P www.groundsure.com P

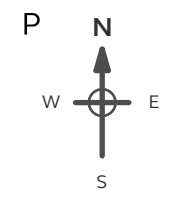
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here [Legend](#) P




Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
 P
 Client Ref: P HARRON_HOMES_6617
 Report Ref: P PGS-2865360_LS_1_1
 Grid Ref: P 47R255, 379216

Map Name: P County Series P
 P
 Map Date: P 1900
 P
 Scale: P 1:2,500
 P
 Printed at: P 1:2,500



P
 Surveyed 1900
 Revised 1900
 Edition N/A
 Copyright N/A
 Levelled N/A

Powered by  Produced by P
 Groundsure Insights P
 T: P 08444 159000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

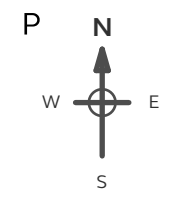
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



SiteDetails:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
 P
ClientRef: P HARRON_HOMES_6617
ReportRef: P GS-2865360_LS_1_1
GridRef: P 47R255, 379216

MapName: P County Series P
MapDate: P 1920
Scale: P 1:2,500
PrintedAt: P 1:2,500



MapDate: P 1920
Scale: P 1:2,500
PrintedAt: P 1:2,500

Surveyed 1820
 Revised 1920
 Edition N/A
 Copyright N/A
 Levelled N/A

Powered by

Produced By P
 Groundsure Insights P
 T: 08444 159000 P
 E: info@groundsure.com P
 W: www.groundsure.com P

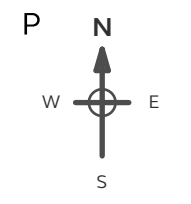
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

ProductionDate: P 22 March 2016
 P
 To view map legend click here [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P GS-2865360_LS_1_1
Grid Ref: P 47R255, 379216

Map Name: P National Grid P
Map Date: P 1963
Scale: P 1:2,500
Printed at: P 1:2,500



Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1950

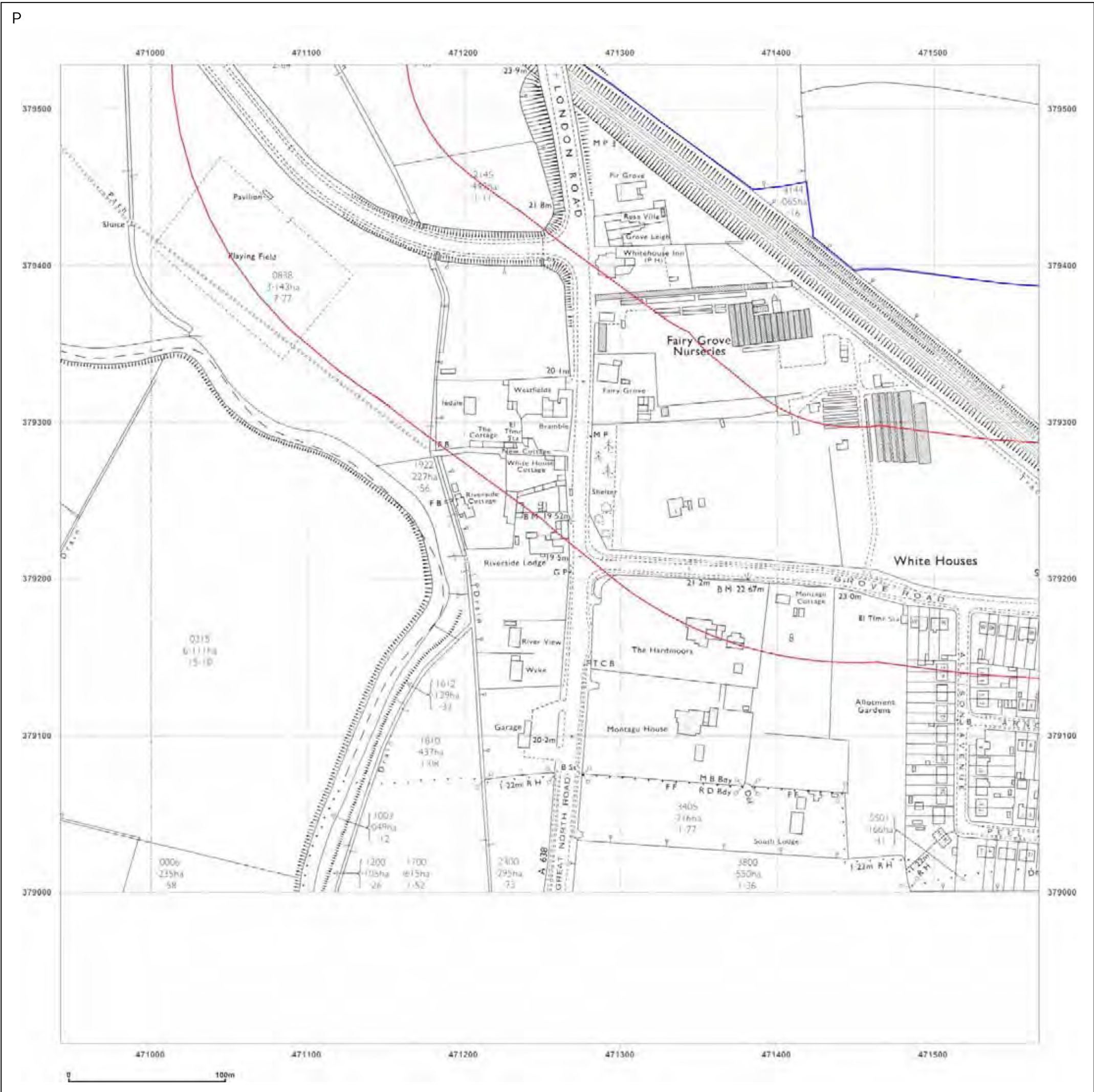
Surveyed 1963
 Revised 1963
 Edition N/A
 Copyright 1964
 Levelled 1949



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

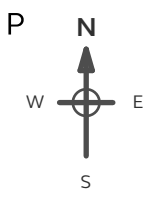
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_1_1
Grid Ref: P 47R255, 379216

Map Name: P National Grid P
Map Date: P 1970
Scale: P 1:2,500
Printed at: P 1:2,500



P
 Surveyed 1970
 Revised 1970
 Edition N/A
 Copyright 1971
 Levelled 1968



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

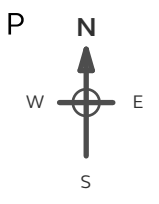
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site Details:
 P
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_1_1
Grid Ref: P 47R255, 379216

Map Name: P National Grid P
Map Date: P 1978-1980
Scale: P P 1:2,500
Printed at: P 1:2,500



Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1980 Levelled 1888
---	---



Produced by P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

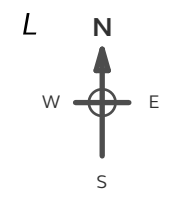
© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P



Site/Details:
 L LONDON ROAD, RETFORD,
 L DN22 7JE
 L
 L
 L
 L
 L
 L
 L
 L
Client/Ref: HARRON_HOMES_6617
Report/Ref: GS-2865360_LS_1_1
Grid/Ref: 471255, 379216

Map/Name: National Grid
Map/date: 1986-1989
Scale: 1:2,500
Printed at: 1:2,500



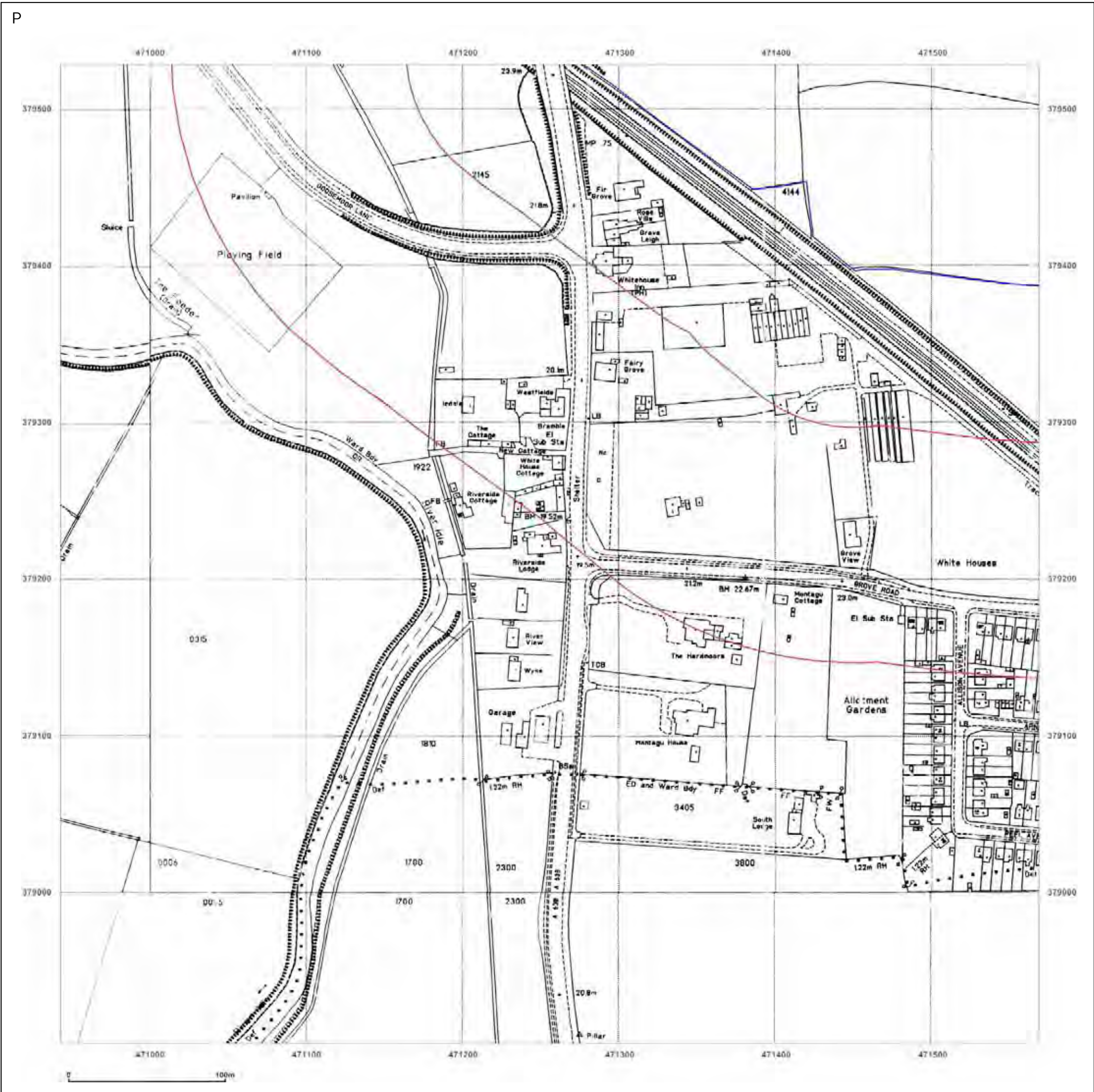
Surveyed 1968 Revised 1988 Edition N/A Copyright 1986 Levelled 1968	Surveyed 1989 Revised 1989 Edition N/A Copyright 1989 Levelled N/A
---	--

Powered by **Produced by** Groundsure Insights
 T: 08444 159000
 E: info@groundsure.com
 W: www.groundsure.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

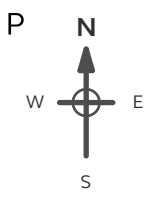
Production date: 22 March 2016

To view map legend click here [Legend](#)



Site Details:
 P LONDON ROAD, RETFORD,
 P DN22 7JE
 P
 P
 P
 P
 P
 P
 P
Client Ref: P HARRON_HOMES_6617
Report Ref: P PGS-2865360_LS_1_1
Grid Ref: P 47R255, 379216

Map Name: P National Grid P
 P
Map Date: P 1994
 P
Scale: P P 1:2,500
 P
Printed at: P 1:2,500



Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A



Produced By P
 Groundsure Insights P
 T: P 08444 P 59000 P
 E: P info@groundsure.com P
 W: P www.groundsure.com P

© Crown Copyright and Database Rights 2015 Ordnance Survey 100035207 P

Production Date: P 22 March 2016
 P
 To view map legend click here P [Legend](#) P