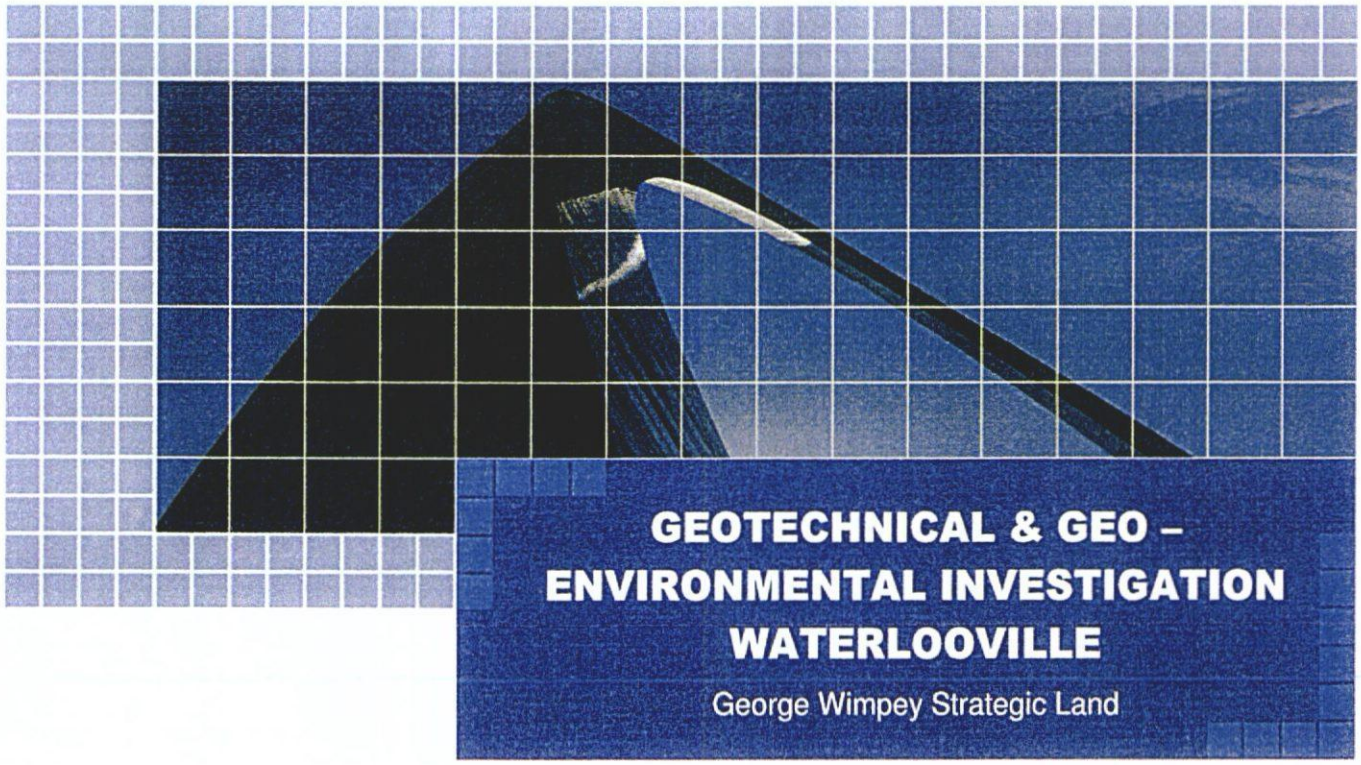


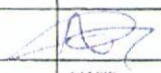
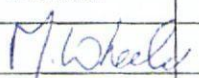
GEOTECHNICAL & GEO – ENVIRONMENTAL INVESTIGATION WATERLOOVILLE

George Wimpey Strategic Land

HAVANT BOROUGH COUNCIL
20 APR 2011
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Executive Summary

On the instructions of George Wimpey Strategic Land, a ground investigation has been carried out by WSP Environmental Ltd at the site of Old Park Farm, Waterlooville. The investigation was commissioned in order to obtain information on the geotechnical and geo-environmental ground conditions in relation to the proposed redevelopment of the site for a mixture of residential and commercial end use.

The following provides a summary of the key findings:

Site Description

The site, which covers approximately 38 hectares, comprises former agricultural land associated with Old Park Farm. The old barn in the centre of the site has been converted into kennels for greyhounds and the surrounding area has been used by local builders. There is evidence of builder's rubble / waste stockpiled around the former farm buildings.

Site Setting

Ground levels at the site range from 44.49mAOD to 30.91mAOD and the ground slopes generally downwards towards the south west. The site includes Old Park Stream and the Brambles Watercourse.

Ground Conditions

The exploratory holes generally encountered Topsoil overlying variable Head deposits overlying a weathered sequence of London Clay. Within the builder's yard, most of the exploratory holes encountered a variable thickness of Made Ground overlying Head deposits with weathered London Clay below.

The London Clay beneath the site was noted to include sandy units, consistent with the reported presence of the Bognor Sand.

Groundwater was identified at or close to surface level in the north eastern area of the site, consistent with the presence of a spring line. Groundwater elevations for the site as a whole range from approx. 38.07m to 31.5mAOD and generally fall to the south west. There is an easterly flow direction evident in the north eastern portion of the site. Groundwater levels have significantly risen over the two month monitoring period.

Ground Contamination

The results of the laboratory analysis and environmental monitoring undertaken as part of this investigation identified no evidence of significant contamination in soils on the site with the exception of a hotspot of asbestos containing material within the soil in the locality of the former farm buildings (WS6).

No significant groundwater contamination was detected with the exception of marginally elevated trace concentrations of petroleum hydrocarbons.

The results of the monitoring visits identified marginally elevated concentrations of carbon dioxide in soil, although only localised.

Remediation Assessment

With the exception of the area immediately surrounding the existing farm buildings, no evidence of significant ground contamination has been identified. Therefore, no special remediation measures are required for the vast majority of the site (excluding the area highlighted below).

	Suspected asbestos has been identified in the Made Ground at one location (WS6) and asbestos containing materials have been observed as roofing materials to some of the farm buildings close by. An asbestos survey and additional sampling and testing is recommended in order to identify any hazardous materials requiring remediation.
Geotechnical Hazards	A number of potential geotechnical hazards have been identified, most notably the presence of shallow groundwater and locally soft cohesive soils, with inclusions of silt and fine sand. These conditions have potential adverse implications for foundation design, earthworks and drainage.
Excavations	Excavations and earthworks should be possible with conventional plant and techniques. Groundwater control is likely to be required for excavations below the groundwater table.
Foundations	For the majority of the site, the ground conditions will be suitable for traditional spread foundations for light to moderate loads, founded within the Head Deposits or London Clay, subject to limitations. *However,* where the combined thickness of soft Head Deposits and/or earthworks fill material approach or exceed approximately 2.5m, the use of traditional spread foundations may prove uneconomic and in these circumstances consideration may be given to the use of ground improvement or piled foundations.
Floor slabs	It is recommended that suspended ground floor slabs be adopted throughout the development.
Road Pavement	The recommended sub-grade soil CBR value for road pavement design is 2%.
Buried Concrete	The Aggressive Chemical Environment for Concrete (ACEC) Classification is AC-2 with a Design Sulfate Class for the site of DS-2. (in accordance with BRE Special Digest 1: 2005).
Soakaways	The majority of the site is underlain by low permeability clay and thus unsuitable for the use of pit soakaways. Some areas of more permeable Granular Head Deposits have been identified, notably in the southern portion of the site however groundwater levels are relatively shallow in this area, thus limiting the thickness of any unsaturated strata.
Further Investigations / works	The following supplementary investigations and works are recommended: ▪ An asbestos survey should be undertaken in the area of the existing farm buildings aimed at identifying all waste materials requiring remediation; ▪ Localised hotspots of asbestos containing materials should be removed by a suitably qualified specialist contractor; ▪ Supplementary groundwater monitoring should be undertaken to confirm long term groundwater levels and any trends in seasonal fluctuations; ▪ Earthworks trials should be considered in order to assess the feasibility of materials for lime stabilisation; and ▪ Engineering specifications should be prepared for earthworks and piled foundations.

1 Introduction

1.1 AUTHORISATION

On the instructions of George Wimpey Strategic Land a ground investigation has been carried out by WSP Environmental Ltd at the site of Old Park Farm, Waterlooville.

1.2 AIMS AND OBJECTIVES

It is proposed to redevelop the subject site for a mixture of residential and commercial use.

The ground investigation was commissioned in order to obtain information on the geotechnical and geo-environmental ground conditions to assist with the preliminary design of foundations and drainage, and assess potential constraints in relation to contamination.

1.3 SCOPE OF WORKS

The scope of works for this project has included the following tasks:

Geotechnical

- Interpretation of the geological and hydrogeological ground conditions;
- Assessment of geotechnical design parameters;
- Advice on foundation issues;
- Recommendations pertaining to ground bearing or suspended floor slabs;
- Advice on groundwater issues; and,
- Recommendations for buried concrete design.

Geo-environmental

- Assessment of the ground-related risk posed from the soil;
- Assessment of the risk both from/to controlled waters;
- Assessment of the risk of ground gas to the development;
- Preliminary advice on the likely disposal classification for arisings from the proposed construction works;
- Qualitative risk assessment, including consideration of risks to human health, groundwater and the built environment; and,
- Assessment of the requirement, or otherwise, for any remedial action.

2 Background Information

2.1 LOCATION

The site, which may be located by National Grid reference 466990E 110330N, is situated to the west of Waterlooville town centre, Hampshire.

An extract of the 1:50,000 scale Ordnance Survey map showing the location of the site is included in Figure 1.

2.2 DESCRIPTION AND GEOGRAPHIC SETTING

The site, which covers approximately 38 hectares, comprises former agricultural land.

A stream, Old Park Stream, runs through the site from Hambledon Road in the north, adjacent to the builder's yard and then along the perimeter to the southern-most fields. The stream was generally fast flowing at the time of our investigation.

Access to the site was achieved via a gate off Hambledon Road in the north of the site; a track was present, following the general path of Old Park Stream leading into the centre of the site, where the main developed area was located.

A number of mature trees were present across the site, mainly along the course of the stream and around the individual field boundaries.

A site representative indicated that the land in the eastern portion of the site was often water-logged.

Two overhead power cables, with associated electricity pylons were present forming a corridor within the western fields, adjacent to the western site boundary.

Features in the area immediately surrounding the site include The Brambles Business Park to the east, separated from the site by a shallow stream flowing southwards. The land use to the south and west of the site was agricultural land, whereas to the north of the site, across Hambledon Road residential properties with gardens were present, with a small number of local convenience stores.

The site boundaries were predominantly defined by hedgerows with interspersed mature trees. The Old Park Stream ran along part of the southern boundary and a second stream ran along the eastern boundary. Hambledon Road formed the northern boundary.

Ground levels at the site range from 30.91m AOD to 44.49m AOD, and the ground slopes generally downwards towards the south west.

A site plan showing the main features of the site is given in Figure 2.

2.3 SITE RECONNAISSANCE SURVEY

The environmental reconnaissance survey consisted of an inspection of the site; buildings within the site were not entered. The aim of the survey was to identify the range of activities carried out on the site and any obvious potential sources of ground contamination.

The principal findings of the survey are summarised as follows:

- The site was used by three private tenants; a small portion in the east of the site, east of the main access track off Hambledon Road was utilised for grazing horses, a

portion within the central and southern part of the site around the former Old Park Farm built area was utilised by a small building firm. An old barn in the centre of the site has been converted into kennels for greyhounds and around the area where the kennels are located a builder's yard is present, with stockpiles and bunds of topsoil, demolition rubble and other material (potentially fly-tipped). Horses were also kept in the two fields to the south of the builder's yard. The third portion of land was formerly used for livestock farming, with horses, pigs, sheep and a bull kept within the fields. To the south west of the builder's yard and kennels a number of temporary shelters had been constructed, adjacent to a caravan. An area of land to the north of the temporary shelters was notably hummocky, and may have been subject to fly-tipping in the past.

- A number of man hole covers were noted just within the site adjacent to the northern boundary, relating to a foul sewer; a site representative indicated that following heavy storm events it was not uncommon for the sewer to overflow onto the land.
- No tanks other than water were noted on-site during the site reconnaissance, the office within the builder's yard had an external gas supply and electricity was provided to the kennels and builder's yard by overhead cables.
- Possible asbestos containing construction materials were observed, within the kennels' roof, and within an adjacent store. Also material visually similar to asbestos was noted within the temporary shelters to the south west of the builder's yard / kennels. A detailed survey of the buildings would be required to confirm the presence or otherwise of asbestos containing materials.
- A general waste skip was observed in the centre of the site, within the builder's yard, it was observed that the contents were burnt on a regular basis. Fly-tipped material was also noted, adjacent to the main access track off Hambledon Road, and within the site, immediately inside the main gate.
- No signs were observed in the area of significant contamination affecting the ground and/or surface watercourses.

2.4 INFORMATION FROM STATUTORY AUTHORITIES

The following environmental data has been obtained from a summary of information databases.

Table 2.1 Information from Statutory Authorities

	On site	0 – 500m	Details
Registered landfills	0	0	Not applicable (N/A)
Closed landfill facilities	0	0	N/A
Registered transfer stations/ treatment facilities	0	0	N/A
Closed transfer stations/ treatment facilities	0	0	N/A
Authorised industrial processes (IPC/IPPC).	0	0	N/A
Fuel Stations Entries	0	1	A 'Total' petrol station is located approximately 313m to the east of the site.
Licensed radioactive substances	0	3	One of the three has since been revoked / cancelled. See below for further details.
Enforcements, prohibitions or prosecutions	0	0	N/A
Discharge Consents	1	7	The on-site consent relates to the discharge of storm sewage overflow into a freshwater river, within the north of the site. See below for further details relating to the off-site consents.
Pollution Incidents	3	5	The on-site incidents relate to a minor incident in July 2001 and two minor incidents in July 2002. They all relate to construction and demolition material, and were all pollutants to the land, with one of the incidents in 2002 also impacting the air. See below for further details relating to the off-site incidents.
Consents issued under the Planning (Hazardous Substances) Act 1990	0	0	N/A

Licensed radioactive substances

There are three premises within 500m of the site where radioactive substances are registered; Marconi Underwater Systems Ltd, located approximately 300m to the south east of the site, are registered for the keeping and use of mobile radioactive sources. BAe Systems Ltd have two registered locations, approximately 310m and 390m to the south east of the site, the former having since been revoked or cancelled. The current license also allows the keeping and use of mobile radioactive sources.

Discharge consents

There are seven discharge consents within 500m of the site, generally relating to surface water or site drainage from farms discharging into unnamed freshwater rivers or into land. A consent located approximately 410m to the north of the site relates to an unknown discharge into a saline estuary.

Pollution incidents

There are five recorded pollution incidents within 500m of the site, three from the substantiated pollution incident register and two pollution incidents to controlled waters. The incidents comprise; inert materials and waste / household waste (minor to land, 152m to the south east), general biodegradable material (minor to land, 332m to the west), suspected milk in river (minor to water, 358m to the south west), contaminated

water (minor to water, 394m to the south east) and brown coloured effluent, recorded as organic industrial waste, discharging into a pond (significant to water, 454m to the north west).

2.5 CONSULTEES

Consultations previously made with the Petroleum Officer of Hampshire County Council (August 2006) identified the following;

- There are no records of any previous or current storage of petroleum spirit, either in above ground or below ground tanks.
- Occasionally old tanks are found, which pre-date records.

It should be noted that this does not confirm the absence of any petroleum spirit storage.

Consultations previously made with the Environmental Health Officer, Development Control Officer and Building Control Officer at Havant Borough Council (September 2006) identified the following;

- Historical maps identify former clay/sand/gravel pits recorded as unknown filled land.
- Four pollution incidents were identified within 500m of the site, relating to sewage and oils being discharged to freshwater streams / rivers. The incidents were categorised as either minor or unsubstantiated.
- There is an absence of past industrial uses in the immediate area thought to be indicative of potential ground contamination, resulting in a low risk of significantly contaminated land.
- There are four electrical sub stations within 100m of the site.
- There are two unknown industrial operational storage tanks located within 50m of the site, within Brambles Business Park.
- There is a valid authorisation for petrol vapour recovery process at a petrol filling station, approximately 300m to the south of the site. It is noted that this station was believed to have ceased trading, and as such the authorisation is due for revocation. It is also noted that this site is to remain as a petrol retail facility and that planning conditions relating to the assessment of land quality would be imposed prior to any re-development.
- There are no private potable water supplies within Havant Borough.
- There are no valid abstraction licenses within 500m of the site.
- A 'Zone of Special Interest' (groundwater sink) is within 250m of the site, and a Zone 1, Inner Protection Zone within 500m of the site.
- There are nine discharge consents within 500m of the site, relating to storm sewage, surface water, trade drainage, farm effluent or waste water.
- Given the lack of extensive industrial uses, the geological setting (mostly London and Lambeth Clays), and the lack of significant human or environmental receptors, it is unlikely that any high priority sites, with regards Part IIA of the Environmental Protection Act 1990, would be identified on site or within 500m of the site.
- No planning consents have been given for the subject site.
- There are no records of subsidence or instability in the immediate vicinity of the site, however within the general area of Waterlooville, the underlying shrinkable clay has resulted in a number of incidents of subsidence/heave damage.

- Foundations in the area are predominantly traditional strip, or deeper strip foundations. A building within Brambles Business Park, to the east was founded on piles due to the high loadings and high water table.
- Ground conditions are anticipated to be variable, consisting of clay, gravelly clay or hoggin, with a relatively high water table.

Consultations previously made with the Environmental Health Officer at Winchester City Council (October 2004) identified the following;

- There are several sites of unknown filled ground within 500m of the site. No information regarding fill materials, license holder, dates of operation or leachate / landfilling problems were provided.
- The occurrence of two pollution incidents on site, one in 2001 and one in 2002. No further information regarding pollutants was provided.
- There is one Part B authorisation within 500m of the site, relating to a petrol vapour recovery process at HCS GB Ltd, Denmead Garage, Hambledon Road.
- There are no private water supplies within 500m of the site.
- The site has not yet been considered as part of the contaminated land strategy.

2.6 DEVELOPMENT HISTORY

A study of historical Ordnance Survey maps has been undertaken to identify any potentially contaminative former land uses. Reference to historical maps provides invaluable information regarding the land use history of the site, but historical evidence will be incomplete for the period pre-dating the first edition and between successive maps. A selection of historical map extracts is included as **Appendix A**.

The following table provides a summary of the available map information relating to the site.

Table 2.2 – Summary of Map Information Relating To the Site

Date	Land Use
1870- Pre 1897	The site is divided up into eight fields. The eastern boundary of the site is formed by the Brambles Watercourse. Old Park Farm Stream flows from the north east of the site to form the south eastern boundary of the site. Old Park Farm buildings are located to the east of the site. A number of trees are situated in the eastern area of the site. The northern boundary of the site is adjacent to Hambledon Road.
1897 - Pre 1932	The western boundary of the site is now a designated public footpath. A well is located to the north of the farm buildings. The trees in the eastern area of the site have now been removed. A pond is located to the north of the farm buildings.

Date	Land Use
1932 – Pre 1962	A number of the farm buildings have been extended and developed. The north east corner of the site has undergone some development with the presence of two buildings presumably residential with a small unnamed watercourse and a number of trees.
1962- Pre 1965	Over head power cables now run north to south through the centre of the site.
1965 – Pre 1992	The buildings in the north eastern corner of the site have been named as Meadow Lea and Ben Hall. The small watercourse and trees are no longer present. There has been substantial development to the Old Park Farm buildings. The track from Hambledon Road leading to the farm buildings has been expanded and extended. A new building named Park View has been build adjacently north of the original farm buildings.
Pre 1992 – Present	The majority of the farm buildings have been demolished; there are only two barn buildings present on site. The two houses located in the north eastern corner of the site are still present.

The following table provides a summary of the available map information relating to the area surrounding the site.

Table 2.3 – Summary of Map Information Relating To the Surrounding Area

Date	Land Use	Direction	Distance (m)
1870- Pre 1897	Hambledon Road (Adjacent)	N	~10
	Brambles Farm buildings	SE	~430
	Pipers Hill Wood	NW	~100
	Soak House	N	~350
	Hart Plain House	NE	~400
	Sand Pit	NE	~710
	Old Sand Pit	N	~410
1897 - Pre 1932	Soak lodge	N	~30
	Close Wood Road	NW	~100
1932 – Pre 1962	Residential development along Hambledon Road	W	~10
	Residential development adjacent to Pipers Hill Wood and Close Wood Road	NW	~100
	Sewage Works	NE	~750
	Sewage Works	SE	~970

Date	Land Use	Direction	Distance (m)
1962-Pre 1980	Residential and commercial development in Waterlooville	SE	~1000
1980 – Pre 1991	Extensive residential development north of Hambledon Road	N, NE	~30
	Sewage works has been developed into an industrial works	SE	~970
	Depot	N	~250
	Sewage works now a health centre	NE	~750
1991 – Pre 2000	Industrial works undergone extensive development and now includes an industrial estate	SE	~970
			~100
	Brambles Farm Industrial Estate	SE	~100
	Works	SE	~550
2000 – Present	Extension of Brambles Farm Industrial estate, now includes a swimming pool	SE	~10
	Depot has been developed into Byngs Business Park	N	~250

2.7 GEOLOGY

The British Geological Survey (BGS) published 1:50,000 scale geological map of the area (Sheet No 316 "Fareham") indicates the site to be underlain by Tertiary strata, comprising of the London Clay and Reading Formations, which in turn overlie the Upper Chalk Formation (Cretaceous).

The BGS mapping indicates that that the Bognor Sand Member (a glauconitic fine to medium sand unit within the London Clay Formation) subcrops within the site, as a broad band orientated approximately east to west.

The London Clay is indicated to be overlain locally by Clay Head Deposits described as 'variable deposits of sandy silty clay, locally gravely; chalky and flinty in dry valleys'.

The presence of Head Gravel is noted in the area of Closewood, approximately 1km west south west of Old Park Farm.

Borehole records were previously obtained from the BGS, one of these boreholes is located adjacent to the site boundary, whilst an additional borehole log represents a location within the adjacent Brambles Business Park.

The borehole adjacent to the site encountered a brick and concrete fill to 0.7m bgl, overlying Head deposits comprising firm organic clay and a medium clayey flint gravel to 2.2m bgl over a firm grey silty sandy London Clay.

The borehole log from within the Brambles estate found the London Clay Formation to a depth of 49.5m bgl, with the Reading formation to a depth of 83.5m bgl and the Upper Chalk formation to a depth of 138.5m bgl.

Information obtained from BGS borehole logs indicates the following geological sequence:

Table 2.4 BGS Proven Geology within the Surrounding Area

Geological Unit	Thickness (m)	Depth to top of Strata (m bgl)
Made Ground	0.7	0
Head Deposits	1.5	0.7
London Clay	>1.8 - 49.5	0 - 2.2
Reading Beds	34	49.5
Upper Chalk	>55	83.5

On the basis of the published geological maps of the area (Fareham) and the BGS borehole logs the full succession of natural strata in the vicinity of the site is likely to comprise:

Table 2.5 Conjectural Geological Model

Geological Unit	Description	Anticipated Thickness (m)	Area location on Site
Superficial Soils / Drift			
Head	Variable deposits of sandy silty clay, locally gravely; chalky and flinty.	~1.5	Variable across site
Solid Geology			
London Clay	Silty clay and sand	~>1.8	Whole site
Bognor Sand (within London Clay)	Glaucontic fine to medium grained sand	Unknown	Central
Reading Formation	Mottled, locally sandy clay	34	Whole site
Upper Chalk Formation	White chalk with flints	>55	Whole site

The existing topography and history of development of the site suggests that, in addition to these natural strata, Made Ground may be present on the site, particularly within the builder's yard in the central portion of the site.

2.8 HYDROGEOLOGY

General Characteristics

The hydrogeology of the site is likely to be characterised by the presence of shallow groundwater within the granular units of the Head Deposits and the Bognor Sand. The less weathered London Clay is anticipated to be of low permeability and may be considered to represent a non-aquifer.

The occurrence of spring lines may be anticipated where the more permeable sandy units are juxtaposed with the lower permeability clays.

Vulnerability

The published Environment Agency Groundwater Vulnerability Map of the area Southern Hampshire (Sheet 52) indicates the western half of the site to be underlain by a Non-Aquifer. The eastern portion of the site, aligning the watercourse is designated a Minor Aquifer of Low Vulnerability.

The rational behind the spatial distribution of the aquifer classification on the Vulnerability Map is not directly apparent when compared against the current BGS Geological Map Sheet 316, as the Minor Aquifer does not correlate to the outcrop location of a known aquifer unit or the presence of the Bognor Sand.

Notwithstanding, it may be regarded that the Bognor Sand unit constitutes a Minor Aquifer, as it contributes to the baseflow of the watercourses crossing the site.

Licensed Water Abstractions

No licensed water abstractions are present within 2km of the site. In terms of aquifer protection, the Environment Agency generally adopt a three-fold classification of Source Protection Zones for public supply abstraction wells.

- Zone I - or 'inner source protection' is located immediately adjacent to the groundwater source. It is based on a 50-day travel time and is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source.
- Zone II - or 'outer source protection' is larger than Zone I and is defined by a 400-day travel time to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants.
- Zone III - or 'source catchment' covers the complete catchment areas of a groundwater resource.

Information available on the Environment Agency's web-site indicates that the site does not lie within a Source Protection Zone.

2.9 HYDROLOGY

Surface water features in the vicinity of the subject site are as follows:

Table 2.6 Surface Water Features

Surface Water Feature	Quality*	Distance (m)	Direction
Sheepwash Tributary (Old Park Farm Stream)	C – Fairly Good	0	SE
Brambles Watercourse	-	Adjacent	E
River Wallington	-	230	S

*Chemical water quality as classified under the EA's General Quality Assessment (GQA) Scheme.

No surface water abstractions have been identified within a 1km radius of the subject site.

The indicative floodplain map for the area, published by the Environment Agency, shows that the site is within a range of the predicted (1 in 75 to 1 in 200 year - significant to low) flood plain of Old Park Farm Stream which confluences with the River Wallington 230m south of the site. Therefore the site is considered to be susceptible to fluvial flooding.

It is noted that a flood risk assessment has been undertaken by WSP Development and Transportation Ltd as a separate appointment.

2.10 RADON

The site is not within an 'Affected Area' as defined by the Documents of the National Radiological Protection Board (Radon Atlas of England and Wales, NRPB-W26 - 2002)

and therefore the risk of significant ingress of Radon into structures on site is considered to be low.

2.11 MINERAL EXTRACTION – MINING / QUARRYING

The following sources have been referenced in order to identify any historic or current mining or quarrying activities within the immediate vicinity of the site.

- EnviroCheck Report
- Old Ordnance Survey maps and plans
- Geological maps

With reference to the above data there are no recorded mines or quarries within a 250m radius of the site.

2.12 LANDFILLING

The following sources have been referenced in order to identify any historic or current landfilling activities within the immediate vicinity of the site.

- EnviroCheck Report
- Records held by Local Authority / Environment Agency
- Old Ordnance Survey maps and plans
- Geological maps

These records indicate no evidence of historical landfilling activities on the site. However, with reference to the historical data and the site reconnaissance there have clearly been some minor demolition / fly-tipping activities on site and therefore the presence of some localised Made Ground is anticipated.

Historical maps also indicate the presence of former sand pits within 500m, and consultations with the Local Authority highlighted the presence of several sites of unknown filled ground within 500m of the site.

2.13 POTENTIAL ENVIRONMENTAL ISSUES

Potential Contamination Sources

- Made Ground associated with the demolition of the former farm buildings within the centre of the site;
- Made Ground associated with the spoil piles / bunds within the builder's yard;
- Potential Made Ground associated with the hummocky land, located to the north of the temporary shelters;
- Potential pesticide contamination as a result of the former agricultural land use;
- Commercial and industrial land use associated with the adjacent Brambles estate to the east of the site; and,
- Sites of unknown filled ground within 500m of the site boundary.

Potential Migration Pathways

- Granular soils in the underlying Head deposits and/or Bognor Sand have the potential (albeit low) to permit the transport of pollutants;

- The surface watercourses present on site, (Old Park Farm Stream and the Brambles watercourse) provide direct paths to surrounding water courses, and potentially to groundwater beneath the site; and,
- Direct contact with contaminated soils (ingestion, inhalation and dermal contact).

Vulnerable Receptors – Human Health

- Construction site users;
- Future site users, (Residential with gardens and soft landscaped areas within the commercial areas);
- Maintenance workers involved in excavations, for example where services are being installed or repaired; and,
- Residential properties with gardens in the immediate surrounding area.

Vulnerable Receptors – Controlled Waters

- Old Park Farm Stream, (on site);
- The Brambles Watercourse, (adjacent to the east); and,
- River Wallington, (230m to the south).

3 Site Investigation

3.1 RATIONALE AND DESIGN PHILOSOPHY

The scope of the ground investigation was designed on the basis of the desk study information. The key objectives of the investigation were as follows:

- Confirm geological and hydrogeological regime of the site;
- Recover samples of soils and groundwater;
- Assess contamination status of soils and or groundwater;
- Undertake in-situ and ex-situ geotechnical testing of soils;
- Installation of gas and groundwater monitoring wells; and,
- Monitor gas and groundwater regime at site.

The techniques used to investigate the geotechnical properties of the ground were generally in accordance with the Site Investigation Steering Group's Specification for Ground Investigations and the Code of Practice for Site Investigations, BS5930: 1999.

The techniques used to investigate the contamination of ground were generally in accordance with the British Standards Institution Code of Practice for Investigation of Potentially Contaminated Sites (BS 10175:2001).

The exploratory holes were positioned broadly on a square grid basis in order to provide reasonable site wide coverage, and with specific exploratory holes targeting suspected area of possible contamination.

Table 3.1: Summary of Targeted Investigation

Potential Area of Concern	Exploratory Holes
EA Identified Spring Line	Window sample boreholes with monitoring installations
Builder's yard	Window sample boreholes with monitoring installations
Temporary shelters / caravan	Window sample boreholes with monitoring installations
Hummocky land – possible fill area	Trial pits
General coverage – contamination assessment of near surface	Trial pits
General coverage – geotechnical assessment	Trial pits / Cable percussive boreholes / CPT
Groundwater level monitoring	Cable percussive boreholes / window sample boreholes both with monitoring installations
Drainage assessment	Soakaway tests

The location of some exploratory holes was constrained by site access restrictions and/or the presence of buried services.

An exploratory hole location plan is provided in Figure 2.

3.2 FIELDWORK

The intrusive fieldwork was carried out between 21st September and 5th October 2006. The weather was variable, generally fair towards the beginning of the fieldwork, with heavy showers experienced in the latter part of the fieldwork.

3.2.1 Boreholes

Thirteen boreholes, designated BH1 to BH13, were sunk by light cable percussive drilling methods, at the positions shown on the site plan, Figure 2. The depths of the boreholes, descriptions of strata encountered and comments on the groundwater conditions are given in the borehole records (**Appendix B**). The results of in situ SPT tests are presented graphically in Figures 8 and 9.

Borehole installations were designed to minimise the risk of creating preferential pathways.

It is important to note that groundwater strikes given in the borehole records may not reflect true equilibrium conditions for a number of reasons. For example, water may have been added to assist drilling, or alternatively the water may not have reached an equilibrium level within the standing time (usually 20 to 30 minutes).

3.2.2 Window Sampler Boreholes

Fourteen window sampler boreholes, designated WS1 to WS14, were sunk using window sampling techniques at the locations indicated in Figure 2. The depths of the boreholes, descriptions of strata encountered and comments on the groundwater conditions are given in the borehole records (**Appendix B**).

3.2.3 Standpipe / Monitoring Well Installation

Soil-gas/water monitoring wells were installed in all cable percussive and window sampler boreholes and the water levels were monitored between 11th and 29th November 2006. Details of the water levels recorded are summarised in **Appendix B**.

3.2.4 Trial Pits

Seventy two trial pits, designated TP1 to TP72, were excavated by a mechanical excavator at the positions shown on the site plan in Figure 2. The depths of the trial pits, descriptions of strata encountered and comments on the groundwater conditions are given in trial pit records, **Appendix B**.

In situ hand vane tests were carried out in the cohesive strata encountered in the trial pits. The results of these tests are summarised in Figures 10 and 11. The results of the tests carried out on normally consolidated clays have been corrected in relation to plasticity, after the recommendation of Bjerrum. The vane correction factors used in relation to these tests were derived from the vane correction factor versus plasticity index relationship in MJ Tomlinson (based on an average PI of approximately 30%).

On completion of logging, trial pit soakaway tests were performed in two additional trial pits SK1 and SK4. The tests were carried out broadly in accordance with the procedure in BRE Digest 365. In brief, each trial pit was filled with water pumped from a bowser to the specified invert level and water levels were recorded versus time. Where possible, within the time available, the test was repeated to a maximum number of two tests. This was not possible with SK1 due to poor infiltration characteristics. The results of the soakage tests are presented in **Appendix B** and interpreted in Section 11.

Following the completion of logging and sampling, all trial pits were backfilled with the soil arisings compacted in layers.

3.2.5 Cone Penetration Testing

A total of sixteen Cone Penetration Tests (CPT), designated CPT1 to CPT15, with CPT11a, were undertaken at the positions indicated in Figure 2, to depths of up to 7.99m *below ground* level.

The CPT investigation was undertaken by Lankelma and performed using a crawler mounted CPT unit with 20-tonne capacity hydraulic rams.

The results of the tests, including measurements of cone resistance and side friction, are reported in **Appendix B**.

3.2.6 Sampling Strategy

Geotechnical and chemical sampling and testing was conducted generally in accordance with the SISG Specification, and the procedures prescribed in Code of Practice for Site Investigations, BS5930:1999 and the Code of Practise for Investigation of Potentially Contaminated Sites, BS10175:2001.

Additional samples for contamination tests were taken at varying depths within the near surface soils.

The samples were taken in plastic tubs and amber glass vials supplied by the analytical laboratory. The samples were stored on site in a cool box before transportation to the laboratory.

Groundwater samples were taken from the wells using dedicated bailers.

3.2.7 Monitoring

A total of six post site works monitoring visits were undertaken between 11th and 29th November 2006 to monitor change in groundwater level and the gas regime at the site. The visits were conducted at approximately weekly intervals designed to allow re-establishment of groundwater equilibration and variations within the meteorological cycle.

The results of the monitoring are presented in **Appendix B**.

3.2.8 Positions of Exploratory Holes

The locations and elevations of the monitoring standpipes have been located by surveying techniques. Locations of the CPT positions, trial pits and soakaway tests were set out using a hand held GPS system, to an accuracy of ±10m. The ground levels at the trial pit, soakaway tests and CPT positions were extrapolated from the topographical survey of the site, (ref no. Area C 003.dwg).

3.3 LABORATORY TESTING

3.3.1 Geotechnical Testing

The geotechnical laboratory tests were carried out in accordance with the methods described in BS1377: 1990. The testing schedule may be summarised as follows:

- Moisture content
- Atterberg limits
- Particle size distribution
- Undrained triaxial tests without porewater pressure measurement
- pH and Sulfate

- Compaction tests – 2.5kg
- Particle density
- Organic matter content

3.3.2 Chemical Testing

Rationale for Selection of Analytical Parameters

Given the previous land use history of the site the range of chemical analyses scheduled includes for a broad range of both inorganic and organic contaminants associated with more generic contaminative uses.

Soil Suite

Asbestos screen, Arsenic, Barium, Beryllium, Cadmium, Total Chromium, Lead, Copper, Nickel, Vanadium, Zinc, total Polyaromatic Hydrocarbons (PAH 16-MS), TPHCWG and TPH risk banded, Pesticides suite, Sulphate (water soluble) and pH.

Groundwater Samples

Arsenic, Barium, Beryllium, Cadmium, Total Chromium, Lead, Copper, Nickel, Vanadium, Zinc, PAH (Speciated EPA 16 by GCMS), Sulphate, pH, Total Petroleum Hydrocarbons, TPHCWG and TPH risk banded, Pesticides suite, Ammonium, BOD and COD.

4 Ground Conditions

4.1 GENERAL

The exploratory holes generally encountered Topsoil overlying variable Head deposits overlying a weathered sequence of London Clay. Within the builder's yard, most of the exploratory holes encountered a variable thickness of Made Ground overlying Head deposits with weathered London Clay below.

The London Clay beneath the site was noted to include sandy units, consistent with the reported presence of the Bognor Sand, although the distribution of the sand units was found to be more widespread than that represented on the BGS mapping.

Notwithstanding, the ground conditions encountered by the investigation are broadly consistent with the anticipated sequence of strata indicated by the desk study information.

A summary of the general succession of strata is presented below.

Table 4.1 Summary of Ground Conditions

Stratum	Depth of Top of Stratum m.bgl (mAOD)	Thickness (m)
Topsoil: Generally comprising brown slightly gravelly, clayey sand and sandy clay.	0.0	0.1 – 0.5
Made Ground: A variable deposit including both granular and cohesive strata with fragments of brick, concrete, ceramic and glass.	0.0	0.2 – 1.4
Head Deposits: A highly variable deposit including both granular and cohesive strata.	0.1 – 1.4	0.2 – 6.1
Weathered London Clay: Generally comprising a soft to firm or stiff brown / orange mottled grey / blue CLAY.	0.2 – 3.1	0.2 – 5.0
London Clay: Generally comprising a firm to very stiff blue / grey CLAY, with occasional siltstone and claystone layers.	1.8 – 5.5	ND

Geological sections taken from selected exploratory holes are presented in Figures 5A to D.

4.2 TOPSOIL

Topsoil was encountered across the majority of the site, with the exception of exploratory holes positioned within the builder's yard, where Made Ground was noted.

The topsoil generally comprised a brown slightly gravelly, clayey sand to sandy clay. The sand was primarily fine to medium, whilst the gravel was predominantly fine to medium, occasionally coarse flint.

Frequent roots and rootlets were noted throughout the topsoil layer.

The topsoil thickness was generally 0.3m, and ranged from 0.1m to 0.5m.

4.3 MADE GROUND

The investigation revealed a variable thickness of Made Ground within the builder's yard portion of the site, ranging from 0.2m to 1.4m. Localised areas of Made Ground were also encountered to the north of the temporary shelters, where the ground surface was notably hummocky, and in the east of the site, east of Old Park Farm Stream, to depths of 0.7m to 1.0m bgl and 0.45m and greater than 0.6m bgl, respectively.

The Made Ground within the builder's yard was generally granular, however highly variable in nature and reference should be made to the exploratory hole logs for detailed descriptions of the materials encountered (**Appendix B**).

It should be noted that a fragment of material visually similar to asbestos (chrysotile) was observed within the Made Ground encountered within window sample borehole WS6. This position was located within an area where fly tipping has occurred; the material tipped generally comprised demolition rubble.

The trial pits positioned across the hummocky land, north of the temporary shelters, (TP55, TP63 and TP64) encountered a cohesive layer of firm to stiff gravelly clay with occasional fragments of brick, plastic, ceramic and glass.

Two trial pits located in the east of the site, (TP27 and SK3) encountered localised areas of Made Ground comprising a black 'burnt' material within trial pit TP27, and soakaway pit SK3 encountered a black granular material, similar to asphaltic tarmac with fine fragments of concrete.

Three of the trial pits, TP3, TP19 and TP64 encountered former land drains at 0.75m, 0.6m and 1.0m bgl with reworked ground to depths of 0.8m, 0.7m and 1.05m bgl respectively.

4.4 HEAD DEPOSITS

The Head deposits were encountered at depths ranging from 0.1m to 1.4m bgl. The thickness of the unit ranges from 0.2m to 6.1m bgl.

The Head deposits encountered across the site were highly variable, with both granular and cohesive strata being noted, and reference should be made to the exploratory hole logs for detailed descriptions of the strata encountered (**Appendix B**).

A generalised sequence of the Head deposits would comprise a soft to stiff orange / brown slightly sandy, occasionally slightly gravelly clay. This clay layer was noted in a large proportion of the exploratory holes located within the south western fields. Moisture content tests undertaken on samples within this layer range between 18% and 25%.

Underlying the stiff clay layer a widespread red / brown sandy, very clayey gravel to very gravelly clay was noted. Where the above mentioned stiff clay layer was absent this clayey gravel layer was generally present beneath the topsoil. Moisture content tests undertaken on samples within this layer range between 6.6% and 23%.

A number of the exploratory holes encountered a soft clay layer, occasionally soft to firm, however it should be noted that the locations of exploratory holes that encountered

this soft stratum are not considered to be widespread and representative of the site as a whole, and are randomly distributed across the site. Moisture content tests undertaken on samples within this layer range from 22% to 28%.

Also underlying the clayey gravelly stratum a grey slightly sandy clayey gravel layer was encountered in a number of the exploratory holes. This gravel layer was generally very wet and when encountered within the trial pits would quite often slump into the base of the pit. A moisture content test undertaken on a sample within this layer indicated a value of 20%.

Towards the base of the Head deposits, a number of the holes encountered a firm to stiff, occasionally very stiff slightly gravelly clay. The gravel was predominantly fine to medium, occasionally coarse flint and chalk. Moisture content tests undertaken on samples from within this layer range from 20% to 29%.

Three exploratory holes encountered organic matter within the Head deposits, (WS6, WS7 and TP25); organic matter contents ranged from 0.49% to 3.72%. Moisture content tests undertaken on soil samples taken from within WS7 and TP25 indicated values of 32% and 42% respectively.

Liquid and plastic limit determinations on the strata within the Head deposits are presented in table 4.2.

Table 4.2 Summary of Liquid and Plastic limit determinations - Head deposits

Strata	LL (%)	PL (%)	PI (%)	Plasticity	Volume change potential
Firm to very stiff CLAY.	44 - 58	24 - 28	16 – 34	Intermediate	Low – Medium
Red / brown very gravelly CLAY	42 - 50	16 - 20	22 – 34	Intermediate	Medium
Soft / soft to firm CLAY	41 - 60	20 - 27	21 - 33	Intermediate - High	Medium
Firm to stiff slightly gravelly CLAY	45 - 66	19 - 28	26 - 43	Intermediate - High	Medium - High

The undrained shear strength of the material has been determined by in situ shear vane tests / laboratory triaxial tests and from SPT N values after the empirical correlation by Stroud (1988). The results ranged from106kPa to greater than 120kPa for the stiff clay layer, 43kPa to 184kPa for the gravelly clay layer, 20kPa to 57kPa for the soft / soft to firm clay layer and 76kPa to greater than 120kPa for the firm to stiff, slightly gravelly clay layer.

Nineteen grading analyses were carried out on this material to illustrate the range of grading and the particle size distribution charts are presented in **Appendix C.**

The relative density of the granular, red / brown clayey gravel has been determined by in situ standard penetration testing, SPT, with the N values obtained ranging from 5 to 26, i.e. from loose to medium dense.

In some of the exploratory holes it was difficult to differentiate between the Head deposits and the underlying Weathered London Clay, due to similar engineering properties exhibited within both strata.

4.5 WEATHERED LONDON CLAY

The Weathered London Clay was encountered at depths ranging from 0.2m to 3.1m bgl. The thickness of the unit ranges from 0.2m to 5.0m. The exploratory holes located within the fields to the north west of the builder's yard generally encountered the Weathered London Clay at shallower depths than the rest of the site, as the Head deposits were not present.

The Weathered London Clay was generally encountered as a soft through to very stiff, brown / orange mottled blue / grey clay. Within a number of the exploratory holes the clay was found to be slightly sandy, and the sand was predominantly fine grained. Within a number of the exploratory holes, occasional pockets of fine orange sand were noted within the Weathered London Clay.

A small number of exploratory holes, (TP19, TP23, TP39, TP41, TP42, TP47 and TP53) encountered a soft / soft to firm band at the top of the Weathered London Clay stratum.

Moisture content tests undertaken on forty three samples range between 18% and 36%.

Liquid and plastic limit determinations on the material indicate results of LL = 36% to 82%, PL = 19% to 34% and PI = 16% to 51%; these classify the material to be of intermediate to high, occasionally very high plasticity and medium to high volume change potential.

The undrained shear strength of the material has been determined by in situ shear vane tests / laboratory triaxial tests and from SPT N values after the empirical correlation by Stroud (1988). The results ranged from 35kPa to 150kPa.

4.6 LONDON CLAY

Where encountered the London Clay was observed at depths ranging from 1.8m to 5.5m bgl. The thickness of the unit was not proven, as it was encountered to the base of the exploratory holes.

The London Clay was generally encountered as a soft through to very stiff, blue / grey clay. The clay was occasionally silty and sandy; the sand was fine.

A band of grey siltstone / claystone was encountered within a number of exploratory holes, and was recovered as a medium to coarse gravel.

Table 4.3 Depth to Siltstone / Claystone Layer

Exploratory Hole	Depth to Siltstone / Claystone (m bgl)
BH3	3.8
BH5	5.8
BH11	4.6
BH12	6.6
TP27	2.3
TP50	2.9
TP53	3.1 (trial pit refused at 3.1m bgl material not seen)

Exploratory Hole	Depth to Siltstone / Claystone (m bgl)
CPT1	7.0
CPT2	7.2
CPT3	4.9 / 6.0 / 7.7
CPT4	6.7
CPT10	2.0

Moisture content tests undertaken on fifteen samples of clay range between 18% and 34%.

Liquid and plastic limit determinations on the material indicate results of LL = 44% to 70%, PL = 21% to 29% and PI = 23% to 41%; these classify the material to be of intermediate to high plasticity and medium volume change potential.

The undrained shear strength of the material has been determined by in situ shear vane tests / laboratory triaxial tests and from SPT N values after the empirical correlation by Stroud (1988). The results ranged from 30kPa to 207kPa.

4.7 GROUNDWATER

Evidence of groundwater at or close to surface level was noted in the north east portion of the site during the fieldwork, and this area was very soft/wet underfoot, indicative of spring line conditions.

Groundwater was encountered during fieldwork at depths ranging between 0.6m and 6.6m bgl, where struck. It should also be noted that groundwater was not encountered within a large number of exploratory holes, primarily positioned within the northwest of the site. Details of groundwater strikes are recorded on the exploratory hole logs, presented in **Appendix B.**

The results of the groundwater monitoring undertaken following the completion of boreholes are summarised in Table 4.4.

Table 4.4 Summary of Groundwater Monitoring Results

BH	Depth Below Ground Level (m.bgl)		Elevation (mAOD)		Strata
	Min	Max	Min	Max	
BH1	0.02	0.42	36.18	36.58	Topsoil / Weathered London Clay
BH2	0.57	1.65	34.86	35.94	Weathered London Clay
BH3	0.81		33.89		Head deposits
BH4	0.17	1.74	33.84	35.41	Topsoil / Head deposits
BH5	0.42	0.74	33.41	33.73	Head deposits
BH6	0.03	0.14	35.41	35.52	Topsoil
BH7	Faulty monitoring well, unable to measure groundwater levels.				
BH8	0.34	1.47	36.59	37.72	Topsoil / Weathered London Clay
BH9	0.53	1.91	36.69	38.07	Weathered London Clay

BH	Depth Below Ground Level (m.bgl)		Elevation (mAOD)		Strata
	Min	Max	Min	Max	
BH10	0.2	2.26	33.96	36.02	Topsoil / Weathered London Clay
BH11	0.06	2.15	32.66	34.75	Topsoil / Head deposits
BH12	0.03	1.38	31.80	33.15	Topsoil / Head deposits
BH13	-0.04	0.68	31.96	32.68	Topsoil / Head deposits
WS1	1.42	1.77	34.47	34.82	Head deposits
WS2	0.06	0.24	36.16	36.34	Topsoil / Head deposits
WS3	0.00	0.14	36.23	36.37	Topsoil
WS4	1.08	2.54	34.31	35.77	Head deposits / Weathered London Clay
WS5	1.85	2.18	33.88	34.21	Head deposits / London Clay
WS6	0.41	2.74	35.16	37.49	Head deposits
WS7	1.19	1.52	35.21	35.54	Made Ground / Head deposits
WS8	0.47	0.67	35.58	35.78	Made Ground
WS9	0.26	2.29	35.16	37.19	Made Ground / Head deposits
WS10	0.45	2.1	35.01	36.66	Weathered London Clay
WS11	0.2	1.8	34.10	35.70	Topsoil / Head deposits
WS12	-0.04	0.18	31.50	31.72	Topsoil
WS13	0.09	1.63	31.87	33.41	Topsoil / Head deposits
WS14	0.2	1.92	34.90	36.62	Head deposits

The findings indicate that a shallow groundwater table varies in depth across the site and is found in the Topsoil, Head deposits and London Clay, at elevations ranging between 31.50m and 38.07mAOD.

It was also evident that groundwater levels have significantly risen over the monitoring period. Three quarters of the monitored installations recorded groundwater levels within the upper 0.5m bgl on the final visit, (29/11/06) compared to less than a quarter of the installations recording groundwater within the upper 0.5m bgl towards the beginning of the monitoring period, (19/10/2006).

Contour plots showing the depth and elevation of groundwater beneath the site are presented in Figures 7A to 7J. With reference to these plots, the shallowest groundwater is evident in the north east of the site in the proximity of WS3, WS2 and BH1, consistent with the presence of a spring line in this area.

The direction of groundwater flow appears to be trend to the south or south west over the majority of the site. However, groundwater flow is locally towards the east or south east in the north eastern quadrant of the site in the proximity of the spring line.

The shallow water table is likely to be susceptible to fluctuations in level as a result of variations in precipitation. From monitoring conducted to-date, the maximum fluctuation

in water level is approximately 2.09m. However, further monitoring is recommended in order to assess the typical range of levels over an annual cycle.

4.8 VISUAL / OLFACTORY EVIDENCE OF CONTAMINATION

A fragment of material visually similar to asbestos (chrysotile) was observed within the Made Ground encountered within window sample borehole WS6.

Only two of the remaining exploratory holes encountered visual or olfactory evidence of possible significant contamination. Trial pit TP27 encountered a black 'burnt' material, and soakaway pit SK3 encountered a black granular material, similar to asphaltic tarmac.

5 Human Health Contamination Assessment

5.1 GENERAL APPROACH

Legislation and guidance on the assessment of contaminated sites acknowledges the need for a tiered risk based approach comprising:

Tier 1 Assessment: Comparison of site contaminant levels against generic standards and compliance criteria including an assessment of risk using the source-pathway-target model

Tier 2 Assessment: Derivation of site specific risk assessment criteria and calculation of site specific clean-up goals.

5.2 COMPLIANCE CRITERIA

As part of the contamination assessment the chemical results for soils have been screened against existing accepted compliance criteria, namely the Contaminated Land Exposure Assessment model (CLEA). As the proposed end use of the site includes residential, the CLEA analysis has adopted a residential with plant uptake end use.

To date, as part of the CLEA guidance the Environment Agency and DEFRA have published Soil Guideline Values for seven metals and three organics. In order to provide a consistent methodology for the assessment of various other contaminants a series of Tier 1 screening values have been calculated by WSP. These values have been calculated using BP RISC 4.0, a computer modelling tool designed (in part) to assess human health related risks presented by contaminated soil.

The default parameters inherent within the RISC model have been adjusted to reflect the findings of recent UK research. Input parameters consistent with the CLR series of documents have been adopted.

In the application of the screening values to a site the user recognises the limitations of the RISC (and CLEA) model. Specifically these relate to the absence of certain pollutant considerations such as risks to services, of fire and explosion, aesthetics, institutional perception, groundwater, surface waters, eco-toxicological risk and risks to buildings (amongst others). In addition, the screening values are not intended to be SGV's, as they do not specifically meet the requirements of legal definition of 'significant possibility of significant harm'.

Full details of the results of the CLEA assessment for the site, results of standard Tier 1 screening, screening values adopted and the methodology and rationale for calculation of screening values using BP RISC 4.0 are presented in **Appendix D**.

5.3 CLEA STATISTICAL ANALYSIS OF DATA

5.3.1 General

Chemical data for soils has been statistically analysed using methodologies published in EA R&D Publication CLR 7- Assessment of Risk to Human Health from Land Contamination: An overview of the Development of Soil Guideline Values and Related Research. In particular, a mean value test and maximum value test have been undertaken on the data set to determine the statistical significance of the results.

The CLEA statistical methodology produces two key outputs:

- The Mean Value Test, which calculates the Upper Bound Value (UBV) or 95th percentile of the mean. This enables a set of contamination results to be compared to the relevant SGV. If the UBV is less than the SGV, then the mean value test is passed, and the site may be considered not to present a significant possibility of significant harm in the context of Part IIA of the Environmental Protection Act 1990. Conversely, if the test is failed, further sampling, analysis, assessment and possibly remediation may be required.
- The Maximum Value Test, which calculates the Outlier Critical Value (OCV). This enables an assessment to be made of whether the highest value in a set of results belongs to the general 'population', or whether it represents a statistical outlier, i.e. a contamination 'hot-spot', not truly representative of the site conditions.

5.3.2 Averaging Zones

CLEA methodology requires the definition of averaging zones based on previous / current spatial land use, soil type, proposed site end uses or other distinguishing features.

The following averaging zones have been adopted at this site;

- Topsoil; and
- Made Ground.

Samples were also tested from soil underlying the topsoil and Made Ground.

5.3.3 Sample Depths

It is intended that the CLEA statistical analysis is applied to soils from <1.0m bgl. This is due to the greatest likelihood that site end users would be exposed to these soils. Samples tested from below this depth during this assessment have been subjected to a standard Tier 1 Screen to assess the chemical characteristics of natural soils and deeper areas of fill.

5.4 HEAVY METAL CONTAMINANTS IN SOILS

5.4.1 Heavy Metal Contaminants in Soils - Results

The following section comprises the results of CLEA statistical analysis of the chemical data set for soil samples retrieved from across the site. Full records of the analysis are presented in **Appendix D**.

Table 5.1 Summary of CLEA Statistical Analysis for Heavy Metals - Topsoil

Determinand	Range	Mean Value Test Upper Bound Value (UBV)	CLEA SGV	Determinand Passes CLEA Analysis?
Arsenic	4.6 – 11.0	7	20	Yes
Cadmium	<0.25 – 0.43	0.3	1	Yes
Chromium	18 – 43	34	130	Yes
Nickel	5.4 – 20.0	13	50	Yes
Lead	13 - 170	36	450	Yes

All values in mg/kg unless specified.

Table 5.2 Summary of CLEA Statistical Analysis for Heavy Metals – Made Ground

Determinand	Range	Mean Value Test Upper Bound Value (UBV)	CLEA SGV	Determinand Passes CLEA Analysis?
Arsenic	4.8 – 27.0	15	20	Yes
Cadmium	<0.25 – 3.3	1.58	8	Yes
Chromium	15 – 45	38	130	Yes
Nickel	9.0 – 53	32	50	Yes
Lead	11 - 478	147	450	Yes

All values in mg/kg unless specified.

Seven soil samples taken from cohesive strata underlying the topsoil or Made Ground and eleven soil samples taken from granular strata underlying the topsoil or made ground were also analysed for heavy metal contamination. A CLEA statistical analysis of the chemical data set was undertaken for these samples, and indicated that all samples passed the CLEA analysis for all determinands.

5.4.2 Heavy Metal Contaminants in Soils - Assessment

The assessment indicates that concentrations of metals are generally low in the shallow soils and the site is suitable for residential end use.

From this assessment there is no immediate requirement for remediation on the basis of potential risk to human health.

The pH of the sub-soils is predominantly slightly acidic to neutral in the topsoil and near neutral to alkali for the Made Ground. This, at least in principle, should reduce the overall availability of any metals to the environment.

5.5 ORGANIC CONTAMINANTS IN SOILS

5.5.1 Organic Contaminants in Soils - General

Only a limited number of SGV's have been published for organic contaminants including: phenol, toluene and ethylbenzene. In the absence of recognised SGV for the remaining contaminants, Tier 1 Screening values in soils have been calculated by WSP using BP RISC 4.0. Full details of the results of standard Tier 1 screening of organic contaminants, screening values adopted and the methodology and rationale for calculation of screening values using BP RISC 4.0 are presented in **Appendix D**.

5.5.2 Organic Contaminants in Soils - Results

Visual and Olfactory

Only two of the exploratory holes encountered visual or olfactory evidence of possible significant contamination. Trial pit TP27 encountered a black 'burnt' material, and soakaway pit SK3 encountered a black granular material, similar to asphaltic tarmac.

Polycyclic Aromatic Hydrocarbons (PAH's)

Thirteen samples from the topsoil deposits were analysed for PAH. A summary of the chemical test results is provided in Table 5.3.

Table 5.3 Summary of CLEA Analysis for PAH's in Topsoil

Determinand	Range	CLEA SGV / WSP TTV	Determinand Passes Tier 1 Screening Analysis?
Naphthalene	<0.3	52	Yes
Acenapthylene	<0.3	70	Yes
Acenaphthene	<0.3	730	Yes
Fluorene	<0.3	1900	Yes
Phenanthrene	<0.3 – 0.32	2400	Yes
Anthracene	<0.3	19000	Yes
Fluoranthene	<0.3 – 0.5	170	Yes
Pyrene	<0.3 – 0.4	1700	Yes
Benzo(a)anthracene	<0.3	21	Yes
Chrysene	<0.3 – 0.31	210	Yes
Benzo(b)fluoranthene	<0.3	23	Yes
Benzo(k)fluoranthene	<0.3	23	Yes
Benzo(a)pyrene	<0.3	1.3	Yes
Indeno(1,2,3-cd)pyrene	<0.3	25	Yes
Dibenzo(a,h)anthracene	<0.3	2.5	Yes
Benzo(g,h,i)perylene	<0.3	3900	Yes

Notes: All values mg/kg

An additional sample was tested within the Made Ground, from soakaway pit SK3. All analytes were below the laboratories limit of detection (0.3mg/kg).

Total Petroleum Hydrocarbons (TPH)

Five samples from the Made Ground deposits were analysed for Speciated TPH determinands. A summary of the chemical test results is provided in Table 5.4.

Table 5.4 Summary of Organic Chemical Data for Made Ground – Speciated TPH

Parameters	Number of samples analysed	Range of concentrations (mg/kg)	RISC 4 Screener Value(1) (mg/kg)	RISC 4 Screener Value(2) (mg/kg)	Number of samples exceeding Guideline Value
>C8-C16	5	<50	269	364	0
>C16-C24	5	<50 – 228	130	>7400	1
>C24-C40	5	78 – 850	5000	>250000	0
Total Hydrocarbons (C8 – C40)	5	145 - 996	NA	NA	-

(1). WSP Tier 1 Trigger Value calculated using BP RISC 4.0 for residential with gardens end use, for direct ingestion / dermal contact / vegetable consumption pathways.
(2). WSP Tier 1 Trigger Value calculated using BP RISC 4.0 for residential with gardens end use, for vapour inhalation within shallow buildings.
(3) All values mg/kg unless stated.

5.5.3 Organic Contamination in Soils - Assessment

The results indicate that concentrations of PAHs are generally low in the topsoil and the site is suitable for residential end use. The majority of the results were below the laboratory's limit of detection.

With regards the TPH results, all samples were generally of low concern. Although one sample, from WS9, had an elevated concentration within the >C16 – C24 (i.e. diesel) range, although this result is not considered to pose a significant risk. The screener value adopted relates to the aromatic range >C16 – C21, which is highly conservative when being used as a comparison to >C16 – C24. It should also be noted that the result, 228mg/kg, only slightly exceeds the screener value of 130mg/kg.

5.6 INORGANIC CONTAMINANTS IN SOILS

5.6.1 Inorganic Contaminants in Soils – Results

The following section comprises the results of CLEA statistical analysis of the chemical data set for soil samples retrieved from across the site. Full records of the analysis are presented in **Appendix D**.

Table 5.5 Summary of Inorganic Chemical Data for Topsoil

Determinand	Range	Mean Value Test Upper Bound Value (UBV)	CLEA SGV / WSP TTV	Determinand Passes CLEA Analysis?
Copper	4.5 – 19	11	2600	Yes
Zinc	24 – 110	62	1200	Yes
Barium	34 – 88	63	230	Yes
Beryllium	<2.5	2.5	38	Yes
Vanadium	35 - 70	54	160	Yes

All values in mg/kg unless specified.

Table 5.6 Summary of Inorganic Chemical Data for Made Ground

Determinand	Range	Mean Value Test Upper Bound Value (UBV)	CLEA SGV / WSP TTV	Determinand Passes CLEA Analysis?
Copper	4.2 – 296	106	2600	Yes
Zinc	45 – 1040	449	1200	Yes
Barium	53 – 715	412	230	No
Beryllium	<2.5	2.5	38	Yes
Vanadium	15 - 64	57	160	Yes

All values in mg/kg unless specified.

Seven soil samples taken from cohesive strata underlying the topsoil or Made Ground and eleven soil samples taken from granular strata underlying the topsoil or Made Ground were also analysed for inorganic contamination. A CLEA statistical analysis of the chemical data set was undertaken for these samples, and indicated that all samples passed the CLEA analysis for all determinands.

Thirteen of the topsoil samples were also tested against a combined organochlorine and organophosphorus pesticide suite. The concentrations obtained from all of the samples were all below the laboratories limits of detection for all parameters.

5.6.2 Inorganic Contaminants in Soils - Assessment

The assessment indicates that concentrations of inorganic compounds are generally low, with the exception of marginally elevated concentrations of barium in the shallow Made Ground soils.

The concentrations of barium recorded in the Made Ground beneath the site range from 53mg/kg to 715mg/kg. The Mean Value of barium in Made Ground at the 95% confidence limit is 412mg/kg. For comparison, the WSP Tier 1 TTV is 230mg/kg.

The elevated concentrations of barium identified in four samples (TP27, SK3, and two samples from WS7) have been assessed using the Maximum Value Test (at 10% critical value) in order to determine if the sample can reasonably be considered as part of the same underlying population as the other sample tested. The analysis indicates that the samples are not hot-spot areas and are therefore representative of the underlying trend of results.

It should be noted that the Contaminated Land Report CLR 8: Potential Contaminants for the Assessment of Land, barium does not represent a risk to human health, and as such the findings are not considered to pose a significant risk to future site users.

5.7 ASBESTOS IN SOILS

No soil samples were tested for asbestos as part of this investigation; however material visually similar to asbestos (chrysotile) was noted within the Made Ground encountered within one window sample borehole (WS6). This position was within the builder's yard where there were stock piles of construction and demolition rubble.

Further investigation and testing will be required in this localised area in order to assess any potential risk and assess materials for remediation and/or off site disposal. It is recommended that this is undertaken once the current users of the site have vacated the property.

6 Contamination Assessment for the Built Environment

6.1 SULPHATE ATTACK ON CONSTRUCTION MATERIALS

The results of chemical tests carried out on soil samples indicate 2:1 water soil extract sulphate contents of up to 70mg/l with generally near neutral pH values in the topsoil, up to 218mg/l with near neutral to alkaline pH values in the Made Ground and up to 1980mg/l with near neutral to slightly alkaline pH values in the underlying soils.

The results of the chemical tests carried out on groundwater samples indicate sulphate contents of up to 1770mg/l with near neutral pH values.

These results indicate that, in accordance with BRE Special Digest 1: 2005 Concrete in aggressive ground, the Aggressive Chemical Environment for Concrete (ACEC) Classification is AC-2 with a Design Sulfate Class for the site of DS-2. This assumes natural ground conditions and nominally mobile groundwater conditions.

6.2 WATER SUPPLY PIPES

A summary of test results for sub versus the threshold limits published by the Water Regulations Advisory Scheme is provided in Table 6.1.

Table 6.1 Test Results versus WRAS Threshold Values

Contaminant	Threshold (mg/kg)	UBV > Threshold
Corrosion		
Sulphate (SO4)	2000	No#
pH	5 - 8	Yes#
Toxic Substances		
Arsenic	10*	Yes
Cadmium	3	No
Chromium (Total)	600	No
Lead	500	No
Organics		
PAH	50	No#

* It is recommended that water pipes should not be laid in sites where these substances are identified or suspected.

No upper band value was generated for this contaminant, as such the highest value was used.

The shallow soils had generally near neutral pH values, with neutral to alkaline conditions encountered within the made ground.

Arsenic concentrations encountered were above the WRAS threshold within the shallow soils The concentrations of arsenic recorded beneath the site range from 4.6mg/kg to 11mg/kg, (topsoil) 4.8mg/kg to 27mg/kg, (Made Ground), 7.8mg/kg to 17mg/kg, (granular strata) and 7.6mg/kg to 13mg/kg (cohesive strata). The Mean Value of arsenic at the 95% confidence limit is 7mg/kg, (topsoil) 15mg/kg, (Made Ground) 13mg/kg, (granular strata) and 11mg/kg (cohesive strata). For comparison, the WRAS threshold is 10mg/kg.

No special measures are deemed necessary in relation to water supply pipes, with the exception that service trenches are backfilled with clean, inert material.

6.3 PHYTOTOXICITY

Guidance on the effects of metal contamination on plant growth is provided within the Ministry of Agriculture, Fisheries and Food (MAFF) Code of Good Agricultural Practice for the Protection of Soil. A summary of test results versus the recommended phytotoxic screening criteria is provided below:

Table 6.2 Summary of Soil Results vs Phytotoxic Screening Criteria - Topsoil

Contaminant	Screening Value	Mean Conc. (mg/kg)	UBV (mg/kg)	UBV>MAFF Screening Value
Zinc	200	55	62	No
Copper	135	10.2	11	No
Nickel	75	11.3	13	No

Note – Screening value based on pH 6 to 7 (Ref. The Soil Code – MAFF – 1998)

Elevated concentrations of phytotoxic metals have not been found within the topsoil at this site.

7 Contamination Assessment for Controlled Water

7.1 GENERAL

Based on the Phase 1 information / site investigation the main controlled water receptor with regards to the subject site are considered to be as follows:

- Old Park Farm Stream and The Brambles Watercourse (Surface Water)

Based on the identified receptors, chemical data for leachate, groundwater and surface water have been compared against the following Tier 1 criteria:

- United Kingdom Drinking Water Standards (statutory and proposed).
- United Kingdom Environmental Quality Standards (statutory and proposed).

7.2 GROUNDWATER CONTAMINATION

7.2.1 Groundwater Contamination - Results

Chemical analyses have been carried out on a total of seven samples of the groundwater taken from the Head deposits and / or London Clay and the results are summarised in Table 7.1.

Table 7.1 Summary of Groundwater Results

Determinand	No. of Tests	Concentration (µg/l)			DWS (µg/l)	No.>DWS	EQS (µg/l)	No.>EQS
		Min	Max	Mean				
Arsenic	7	<10	<10	<10	10	0	50	0
Cadmium	7	<5	<5	<5	5	0	5	0
Chromium	7	<5	<5	<5	50	0	5	0
Lead	7	<10	<10	<10	10	0	4	0
Copper	7	5.3	23	12	2000	0	1	7
Nickel	7	<5	9.9	5.5	20	0	50	0
Zinc	7	<7	88	20	NS	-	8	2
Barium	7	17	85	57	1000	0	NS	-
Beryllium	7	<5	<5	<5	NS	-	NS	-
Vanadium	7	<10	<10	<10	NS	-	20	0
Benzo(a)Pyrene	7	<0.05	<0.05	<0.05	0.01	LOD>DWS	NS	-
Sulphate	7	30 mg/l	1770 mg/l	387 mg/l	250 mg/l	2	400mg/l	1
pH	7	6.9	7.3	7.1	6.5-10	0	6-9	0
TPH	5	121	241	162	NS (10)[1]	5	NS	-
Benzene	4	<5	<5	<5	1	LOD>DWS	50	0

Determinand	No. of Tests	Concentration (µg/l)			DWS (µg/l)	No.>DWS	EQS (µg/l)	No.>EQS
		Min	Max	Mean				
Toluene	4	<5	<5	<5	NS (700)[2]	0	50	0
Ethylbenzene	4	<5	<5	<5	NS (300)[2]	0	NS	0
Xylene	4	<5	<5	<5	NS (500)[2]	0	30	0

Notes: 1 – UK DWS 1989; 2 – World Health Organisation; 3 – Based on ammonia; 4 – Specified compounds are benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, and indeno(1,2,3-cd)pyrene.

The groundwater samples were also tested against a speciated PAH suite. The samples were all below the laboratories limits of detection for all hydrocarbons tested.

Three of the groundwater samples were also tested against a combined organochlorine and organophosphorus pesticide suite. The concentrations obtained from all of the samples were all below the laboratories limits of detection for all parameters.

7.2.2 Groundwater Contamination - Assessment

The results of these analyses have provided some evidence of elevated concentrations of metals (copper and zinc) and sulphate in the groundwater, although these findings are most likely to be naturally occurring and are of no significant concern.

There is some evidence of locally elevated concentrations of petroleum hydrocarbons in the groundwater, although the concentrations are relatively low and no significant BTEX fraction was identified. It is noted that the TPH concentrations recorded are broadly consistent with the surface water results (discussed below), thus indicating that the contamination recorded may potentially be representative of background concentrations in the area.

7.3 SURFACE WATER CONTAMINATION

7.3.1 General

Surface water samples were obtained from two locations along the Old Park Farm Stream - at the locations indicated in Figure 2. Samples represent up-stream and down-stream locations.

Table 7.2 Surface Water Contamination – Results

Parameter	Range (µg/l)	No. above Detection Limit	Tier 1 Threshold Values (µg/l)	Number above Tier 1 Threshold
Metals				
With the exception of barium, all concentrations were below the laboratories limit of detection for all metals within both the upstream and the downstream samples. Barium was slightly elevated above the LOD within both samples, however was significantly below the UK Surface Water threshold value.				
Water Quality Indicators				
COD	<20 mg/l	0	NS	-
BOD	2 mg/l	2	3 mg/l[1]	0

Parameter	Range (µg/l)	No. above Detection Limit	Tier 1 Threshold Values (µg/l)	Number above Tier 1 Threshold
Sulphate	<20 mg/l	0	250mg/l[2]	0
Ammonium (as NH4+)	<1.3mg/l	0	1 mg/l	LOD>threshold
pH	7.5 – 7.6		6.5 – 8.5[2]	0
Hydrocarbons				
Total TPH	203 - 272	2	50[2]	2
PAH	<1.5	0	0.2	LOD>threshold

Notes: 1. UK Environmental Quality Standards. 2. UK Surface Water (abstraction for drinking water DW1).

The two surface water samples were also tested against a combined organochlorine and organophosphorus pesticide suite. The concentrations obtained from all of the samples were all below the laboratories limits of detection for all parameters.

7.3.2 Surface Water Contamination - Assessment

Surface water results have been compared against the Environment Agency UK Environmental Quality Standards and guidelines for UK Surface Water (abstractions for drinking waters DW1). Assessment of chemical data for surface water indicates that for the majority of parameters concentrations are below guideline values the exceptions being total TPH. With reference to the latter, TPH concentrations are noted to be marginally elevated at both upstream and downstream locations, thus potentially indicating evidence of background surface water contamination, with no significant impairment to water quality attributable to the site itself.

8 Assessment of Ground Gas

8.1 GENERAL

A ground gas assessment has been undertaken to assess risks associated with carbon dioxide and methane to new buildings and their users. The results obtained have been compared with relevant guidance that includes the following:

- The Building Regulations 2000, Approved Document C, 2004 Edition;
- Guidance on the Management of Landfill Gas (an up-date to Waste Management Paper Number 27), Environment Agency, 2004;
- Construction of new buildings on gas-contaminated land, BRE Report 212, 1991.
- Protecting Development From Methane, CIRIA Report 149, 1995; and
- Reliability and Risk in Gas Protection Design, Wilson & Card 1999.

It is noted that the CIRIA 149 guidance provided above is due to be superseded in the near future by the issue of new guidance for gas risk assessment, based on a modification of the Wilson & Card approach. For new low-rise residential development reference is made to the NHBC Traffic Light System, (after Boyle & Witherington 1995).

8.2 GROUND GAS - RESULTS

The presence of gases and vapours on-site has been investigated by monitoring the standpipes on six separate visits to the site, following the completion of boring. The results of the monitoring of gas concentrations are summarised in Table 8.1.

Table 8.1 Summary of Gas Monitoring Results

BH	Methane		Carbon Dioxide		Oxygen		Hydrogen Sulphide		Flow	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
BH1	<0.1		0.1	0.2	20.5	20.8	0.2		<0.1	
BH2	<0.1		<0.1	0.8	19.8	20.7	0.1	0.2	<0.1	
BH3	<0.1		<0.1		20.7	21.1	0.1		<0.1	
BH4	<0.1		<0.1	1.3	17.4	20.8	0.1	0.2	<0.1	
BH5	<0.1		<0.1	0.2	20.5	20.9	0.1	0.2	<0.1	
BH6	<0.1		<0.1	0.2	20.5	20.8	<0.1	0.2	<0.1	
BH7	<0.1		<0.1	0.1	20.7	20.8	0.1		<0.1	
BH8	<0.1		<0.1	0.9	19.9	20.9	<0.1	0.2	<0.1	
BH9	<0.1		0.1	0.5	20.3	20.7	0.1	0.3	<0.1	
BH10	<0.1		<0.1	0.2	18.0	20.8	0.1	0.2	<0.1	
BH11	<0.1		<0.1	2.2	16.6	20.9	0.1	0.2	<0.1	
BH12	<0.1		<0.1	0.8	19.4	20.9	<0.1	0.2	<0.1	
BH13	<0.1		<0.1	0.2	20.6	20.9	0.1	0.2	<0.1	
WS1	<0.1		<0.1	0.6	19.6	20.8	0.1	0.2	<0.1	
WS2	<0.1		<0.1	0.1	20.5	20.8	0.1	0.2	<0.1	

BH	Methane		Carbon Dioxide		Oxygen		Hydrogen Sulphide		Flow	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
WS3	<0.1		<0.1		20.6	20.8	0.1		<0.1	
WS4	<0.1		<0.1	2.2	14.0	20.8	0.1	0.2	<0.1	
WS5	<0.1		0.1	1.6	15.9	20.8	0.1	0.3	<0.1	
WS6	<0.1		<0.1	6.7	13.1	21.0	0.1	0.2	<0.1	
WS7	<0.1		<0.1	5.0	15.3	21.0	0.1	0.2	<0.1	
WS8	<0.1		<0.1	0.2	20.6	21.0	0.1	0.2	<0.1	
WS9	<0.1		<0.1	0.5	20.5	21.0	<0.1	0.2	<0.1	
WS10	<0.1		0.1	2.2	11.2	20.8	0.1		<0.1	
WS11	<0.1		<0.1	0.8	20.2	20.9	<0.1	0.2	<0.1	1.3
WS12	<0.1		Borehole flooded, no representative unsaturated zone present, no concentrations taken.							
WS13	<0.1		<0.1	1.6	17.4	20.8	0.1	0.2	<0.1	
WS14	<0.1		<0.1	0.4	20.4	20.9	0.1	0.2	<0.1	

Methane, Carbon dioxide and Oxygen concentrations as %v/v. Hydrogen sulphide concentrations as ppm
Flow in L/hr.

The barometric pressures recorded during the monitoring visits ranged between; 1000mbar to 1006mbar, (visit 1) 982mbar to 986mbar, (visit 2) 988mbar to 999mbar, (visit 3) 1005mbar to 1008mbar, (visit 4) 988mbar to 998mbar, (visit 5) and 1022mbar to 1024mbar (visit 6).

8.3 GROUND GAS - ASSESSMENT

The results indicate no significant evidence of methane but locally (marginally) elevated concentrations of carbon dioxide, notably in WS6 and WS7 (maximum concentration 6.7%v/v).

No significant gas flow rates were recorded with the exception of window sample WS11 recording a flow rate of 1.3 litres per hour during the first visit. The flow rates may therefore be considered to be negligible.

In accordance with recommended best practice, risk assessment takes into consideration the likely source of the gas, the rate of generation and emission, and potential pathway to a receptor. This is summarised below:

Source(s) of Gas

- Organic matter within soils; and,
- Made Ground.

Pathway(s)

- Granular deposits within the Head deposits or London Clay.

Receptor(s)

- Future site users (residential and commercial end use).

Of the twenty seven monitoring wells, six wells recorded carbon dioxide levels greater than 1.5%v/v, with one of the wells, (WS6) recording concentrations greater than 5%v/v during three of the visits. With reference to CIRIA Report 149 the site would be partly classified as Characteristic Situation 2, within the locations of boreholes BH11, WS5, WS7, WS10 and WS13, Characteristic Situation 3 within the

location of window sample borehole WS6, and Characteristic Situation 1 elsewhere. However, with reference to the more recent modified Wilson & Card approach, which takes into account limiting borehole gas volume flow rate, the site falls under Characteristic Situation 1.

With reference to the NHBC Traffic Light System the majority of the site is classified as Green, with only WS6 falling borderline to Amber 1.

In the above circumstances no special gas protection measures are deemed necessary.

It is recommended that the Local Environmental Health Department be consulted at the earliest opportunity to confirm the above assessment.

9 Risk Assessment

9.1 RATIONALE FOR CONTAMINATED LAND RISK

Part IIA of the Environmental Protection Act (1990) has introduced a statutory definition for contaminated land, as follows:

"...any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land , that :

a) significant harm is being caused or there is a significant possibility of such harm being caused, or

b) pollution* of controlled waters is being caused, or there is a significant possibility of such pollution being caused"

[*The Water Act 2003 has introduced the concept of a significance test to the assessment of the degree of contamination to controlled waters, excluding that which is contained in underground strata but above the saturation zone. The significance test is designed to screen out minor contamination issues. The Act has a timetable for implementation during 2006.]

The basis of an environmental risk assessment involves:

- Identifying a source of contamination;
- Identifying a pathway/media through which the contamination may migrate; and
- Identifying a receptor or target at risk from the contamination.

The site can only be designated as Contaminated Land if there is a pollutant linkage (i.e. contaminant, pathway and receptor).

The contaminant/pathway/receptor approach used to assess this site is widely accepted in the industry; however it does not take into account less scientific factors such as perceived risk.

9.2 CONTAMINATION SOURCES

Soil

The results of the laboratory analysis and environmental monitoring undertaken as part of this investigation identified no evidence of significant contamination in soils on the site with the exception of a potential isolated hotspot of asbestos within the soil in the locality of the former farm buildings (WS6).

Groundwater

No significant groundwater contamination was detected with the exception of marginally elevated trace concentrations of petroleum hydrocarbons.

Ground Gas

The results of the monitoring visits identified marginally elevated concentrations of carbon dioxide in soil, although on a localised basis.

9.3 CONTAMINATION RECEPTORS

Assuming the proposed site use will include residential properties with gardens and commercial properties, the potential receptors are considered to be:

Human Health:

- Construction workers;
- Maintenance workers involved in excavations, for example where services are being installed or repaired;
- Future site users, (residential properties with gardens and soft landscaped areas within commercial areas); and,
- Residential properties with gardens in the immediate surrounding area.

Controlled Waters:

- Old Park Farm Stream, (on site);
- The Brambles Watercourse, (adjacent to the east); and,
- River Wallington, (230m to the south).

9.4 POLLUTANT LINKAGE ASSESSMENT

Based on the ground and groundwater contamination conditions at the site, it is considered that the following plausible pollutant linkages are applicable and therefore require consideration:

Table 9.1 Summary of Plausible Pollutant Linkages

EXPOSURE PATHWAY	Active (✓) / Inactive (×)
HUMAN HEALTH (DIRECT EXPOSURE)	
Exposure to contaminated soils via ingestion / consumption of home grown produce.	×
Exposure to contaminated soils via dermal contact.	×
Exposure via inhalation of contaminated dust particulates	✓
Material visually similar to asbestos was identified within one of the exploratory holes near the farm buildings. This area will require further investigation and potentially remediation. Those involved with remediation works should be provided with appropriate PPE to mitigate the risks. No hazards have been identified elsewhere on the site.	
HUMAN HEALTH (INDIRECT EXPOSURE)	
Indoor exposure via enclosed space accumulation of volatile vapours.	×
Outdoor exposure to volatile vapours	×
Potable water ingestion.	×
Vapour inhalation from dissolved and free phase contamination.	×
BUILDING RISK	
Accumulation of methane and carbon dioxide gas in enclosed spaces and sub-floor voids at potentially hazardous levels.	×
Elevated concentrations of methane not recorded. The maximum recorded concentration of carbon dioxide (6.7%) is above the former 5% action level; however given the negligible flow rates recorded no special measures are required for new buildings. Persons entering confined spaces should be made aware of the potential for carbon dioxide and adopt normal safe practice.	
CONTROLLED WATERS	
Leaching of contaminants to controlled water	×
Leaching of contamination into surface water	×
Groundwater contamination	✓

EXPOSURE PATHWAY	Active	(✓)
	Inactive	(×)
Marginally elevated concentrations of petroleum hydrocarbons detected in groundwater.		
Migration on to third party land (Statutory Nuisance).		×
Impact on groundwater abstraction (potable).		×

10 Environmental Risk Mitigation and Management

10.1 GENERAL

The following risk management measures are recommended to deal with environmental risks associated with the identified ground contamination in the context of the proposed redevelopment of the site for a mixed use development including residential with gardens.

10.2 PROTECTION OF FUTURE END USERS AND REMEDIATION

With the exception of the area immediately surrounding the existing farm buildings, no evidence of significant ground contamination has been identified. Therefore, no special remediation measures are required for the vast majority of the site (excluding the area highlighted above).

Suspected asbestos has been identified in the Made Ground at one location (WS6) and asbestos containing materials have been observed as roofing materials to some of the farm buildings close by. It is also noted that corrugated roofing material, suspected as containing asbestos, was observed in a lock-up storage facility close to the farm buildings.

In light of these observations, the following additional works and remediation measures are recommended:

(i) An asbestos survey should be conducted to cover the existing buildings and lock-up facility in order to identify all asbestos-containing-materials (ACM's).

(ii) The survey should be extended to include additional sampling and testing of Made Ground for ACM's around the area of WS6 and to inspect individual stockpiles of builder's waste around the farm yard area.

(iii) Material contaminated with asbestos and identified as Hazardous Waste should be remediated by removal in accordance with best practice under the supervision of a suitably qualified asbestos surveyor.

On completion of the above works the farm yard area may be regarded as suitable for proposed redevelopment.

10.3 CONSTRUCTION / MAINTENANCE WORKERS

There is preliminary evidence to suspect the possible presence of isolated fragments or pockets of asbestos-containing waste material in the Made Ground in the vicinity of the farm yard buildings. The removal of any localised hot spots of asbestos containing materials should be carried out prior to commencing the development of the site; this should be carried out by a licensed asbestos contractor.

In order to ensure compliance to the Control of Asbestos at Works Regulations 2002, and other relevant statutes, it is recommended that potential disturbance of asbestos-containing materials is appropriately assessed and monitored on a representative basis. This will require airborne fibre monitoring to be undertaken during future site remediation works in this area.

In view of the low levels of contamination noted elsewhere on the site (outside the immediate area of the farm buildings) no special measures are required to protect workers.

Notwithstanding the above it is recommended that, as a precautionary measure, site workers involved in earthworks and working in trenches or excavations should minimise direct contact with the soil through the use of PPE.

The initial monitoring of soil gases has indicated that potentially elevated concentrations of carbon dioxide may be encountered in sub-soils. Therefore, normal safe practice should be enforced for people entering enclosed underground spaces such as manholes.

The contractor shall satisfy the Health and Safety Executive with regard to any other matters concerning the health and safety of persons on-site.

10.4 WATER SUPPLY SERVICES

In accordance with Water Regulations Advisory Scheme (WRAS, 2002) there are no special requirements, if trenches are backfilled with clean, inert material.

10.5 THIRD PARTY LAND AND GENERAL PUBLIC

Significant earth works are likely to be required at the site and there is potential for dust to be generated. Dust suppression may be required during construction to mitigate risks of wind blown deposits effecting adjacent properties and the general public.

10.6 GUIDANCE ON WASTE CLASSIFICATION

Hazardous waste has a meaning as any waste as defined in the Hazardous Waste Directive 91/689/EEC. It is a requirement of the Regulations that all hazardous waste is subject to some form of pre-treatment prior to disposal at a Hazardous landfill site. The exact nature of the pre-treatment should include one or more of the following:

Physical / thermal / chemical / biological process including sorting;

or changes to the characteristics of the waste to:

- Reduce its mass (volume) or hazardous nature; or
- Facilitate its handling or enhance recovery.

Non-hazardous Waste is waste which is not hazardous

Inert waste is classified as follows:

- It does not undergoes any significant physical, chemical or biological transformations;
- it does not dissolve , burn or otherwise physically or chemically react, biodegrade or adversely affect other matter which comes in contact in a way likely to give rise to environmental pollution or harm to human health; and
- Its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular do not endanger the quality of any surface or groundwater.

The following wastes may be accepted at an inert waste site without testing:

- Concrete - selected construction and demolition waste only;
- Bricks - selected construction and demolition waste only;

- Tiles and Ceramics - selected construction and demolition waste only;
- Tiles and Ceramics - selected construction and demolition waste only;
- Soil and Stones - excluding topsoil; peat; excluding soil and stones from contaminated sites; and,
- Soil and Stones - Only from garden and parks waste; excluding top soil and peat.

10.7 WASTE DISPOSAL CLASSIFICATION

The chemical test results indicate that none of the materials tested to-date (with the possible exception of Made Ground in WS6) fall within the category of Hazardous Waste after the guidance given in WM2. The materials are therefore assumed to be Non-hazardous, and in the case of natural soils potentially inert.

The developer has a statutory responsibility under the Duty of Care Regulations of the Environmental Protection Act 1990 to ensure that contaminated soil and water is disposed of off-site to a suitably licensed waste management facility in a safe and approved manner.

To comply with the Duty of Care all wastes taken off site, in solid or liquid form, must be handled by a registered waste carrier and be accompanied by a consignment note which describes the waste.

11 Foundation and Ground Engineering

11.1 DETAILS OF THE DEVELOPMENT

It is understood that the proposed Masterplan will comprise a varied development including;

- Residential properties with private gardens;
- Low rise commercial properties;
- Realignment of Old Park Farm Stream, to along the eastern boundary of the site;
- Excavation of a 'wet' balancing pond within the south of the site; and,
- Excavation of a wetland channel within the west of the site, with the spoil being utilised on site to raise site levels over the eastern /south eastern part of the site.

The maximum storey heights in the development are as follows:

- Mixed use areas - 4 storey
- Employment - 4 storey
- Urban Boulevard - 4 storey
- Urban core - 3 storey
- Urban fringe - 3 storey

The riverine corridor within the western area of the site underneath the powerlines will have a maximum depth of 3.5 m down to approximately 1m at the downstream end where it ties back into the Old Park Farm Stream.

Maximum ground raising will be along the eastern/south eastern fringe of the development ranging from 1 to 1.25m of fill to ensure cover to drainage/flood protection and gravity outfalls into the stream. The earthworks will grade back into existing along the main boulevard.

11.2 GEOTECHNICAL HAZARDS

The following ground-related hazards have been identified during the investigation:

Table 11.1 Geotechnical Hazards

Hazard	Justification
Lateral changes in ground conditions	Variable Head Deposits and London Clay – based on field observations from within exploratory holes across the site
Soft clay – low bearing capacity	Field observations from trial pits and in-situ/laboratory shear strength results
Excavation instability	Field observations of collapsing sides from within trial pits within the southern part of the site

Hazard	Justification
High groundwater / waterlogged ground / spring line / poor drainage	Evidence of spring lines in north east area of the site – based on monitoring of groundwater levels within standpipes
Made Ground	Field observations from within window sample boreholes located in the builder's yard and trial pits positioned to the north of the temporary shelters.

11.3 EXCAVATIONS AND EARTHWORKS

The exploratory holes indicate that the ground within the south of the site is likely to be relatively unstable in open excavations, primarily due to the granular Head deposits, however within the north of the site the excavations are like to be relatively stable, in the short term, in the London Clay.

All potentially unstable excavations requiring manned entry should be battered well back or provided with close/continuous support.

The exploratory holes indicate that groundwater seepage should be expected at very shallow depth, particularly in the north east of the site, where groundwater levels approach ground level (see Figure 7). Inflow rates are predicted to be greatest from granular Head Deposits, where present. Groundwater control will therefore be required for excavations below the water table.

Excavation should be possible using conventional site plant. There are two distinctive materials considered to be present at the site: (i) the granular portion of the Head deposits, both the red / brown very clayey gravels and the wet grey slightly clayey gravels and (ii) the cohesive material combining both the upper stiff layer and the lower slightly gravelly layer within the Head deposits and the London Clay. [The cohesive Head deposits have been combined with the London Clay, due to the similarity in engineering properties exhibited between the two materials.]

Granular Head Deposits

The distribution and thickness of the granular Head Deposits is identified in Figure 6. This material can be further divided into two classes: (i) the red / brown very clayey gravels may be classified as a mixture of Class 1A – well graded granular and Class 2C – stoney cohesive, and (ii) the wet grey slightly clayey gravels, which may be classified as Class 1A, after Specification for Highway Earthworks Series 600.

Although the material has been logged as a granular material and the grading assessment confirms a dominance of granular sized particles in some cases, the material properties fall under Class 2 (cohesive) material – after SHW.

The Maximum Dry Density (MDD) of the granular Head deposits ranged from 1.75Mg/m^3 to 1.89Mg/m^3, with an average of 1.82Mg/m^3. The Optimum Moisture Content (OMC) of the granular material ranged from 11% to 17%, with an average of 14%.

A recommended preliminary specification for the compaction of this material would require achieving at least 95% of the average MDD (1.82Mg/m^3), a moisture content of 14% ± 2% and less than 5% air voids.

It should also be noted that a number of the samples from within this strata were unsuitable for laboratory analysis due to the percentage of material failing to pass

the 37.5mm and 20mm sieves. Any material greater than two thirds the layer thickness should be sorted and removed from the compacted material.

Cohesive Head Deposits and Weathered London Clay

The distribution and thickness of the Cohesive Head Deposits and/or weathered London Clay is identified in Figure 6. This material can also be subdivided into (i) the cohesive Head deposits which may be classified as a combination of Class 2A – wet cohesive and Class 2C – stoney cohesive, and (ii) the weathered London Clay, which may be generally classified as Class 2A after Specification for Highway Earthworks Series 600.

It should be noted that a small number of the weathered London Clay samples fell under the specification for Class 2B – dry cohesive.

The MDD of the cohesive material, (Head deposits and London Clay) ranged from 1.54Mg/m^3 to 1.75Mg/m^3, with an average of 1.64Mg/m^3. The OMC of the cohesive material ranged from 18% to 26%, with an average of 21.6%. The natural moisture content of the material was typically in the range 18% to 28%.

A recommended preliminary specification for the compaction of this material would require achieving at least 95% of the average MDD (1.64Mg/m^3), a moisture content of 21.6% +3% / -1% and less than 5% air voids.

Lime stabilisation should be considered for materials identified as Class 2A wet cohesive fill.

During the construction works it is necessary that further laboratory tests be undertaken to confirm this preliminary specification, and it is recommended that an earthworks design specification is produced.

11.4 SLOPES

The development of the site is likely to incorporate shallow slopes to enable level development platforms to be created. In addition, cut excavations are proposed for the riverine corridor in the western area of the site with maximum depths approaching 3.5m.

The stability of slopes will be dependent on the height of the slope together with the proposed slope angle, groundwater regime and any loading induced on the slope. Consequently, it is recommended that any slope located close to critical structures (e.g. buildings or electricity pylons) is assessed in detail.

However, for cut slopes up to 3m in height within the Head Deposits (and outside the influence of critical structures) a maximum slope gradient of 1(V):4.0(H) is recommended.

11.5 LAND DRAINAGE

The investigation has identified very shallow groundwater conditions beneath some areas of the site and the presence of a spring line in the north eastern portion of the site. Consequently there is a requirement for a strategy of land drainage as part of the overall development.

Whilst the full details of the strategy are outside the scope of this report, the issue of land drainage could simply be addressed through the placement of an engineered fill layer to raise over-site levels. A drainage blanket would be required at the base of the fill layer in order to reduce any potential for the build up of pore water pressures and groundwater diverted to surface water via a system of fin drains.

11.6 FOUNDATION DESIGN

11.6.1 General

Foundation design for the development will be strongly influenced by the nature and full extent of earthworks undertaken primarily in order to facilitate flood mitigation and drainage.

For the majority of the site, ground conditions will be suitable for traditional spread foundations for light to moderate loads, founded within the Head Deposits or London Clay, subject to limitations. However, where the combined thickness of soft Head Deposits and/or earthworks fill material approach or exceed approximately 2.5m, the use of traditional spread foundations may prove uneconomic and in these circumstances consideration may be given to the use of ground improvement or piled foundations.

The use of piled foundations is recommended for all structures subject to moderate to high structural loads.

11.6.2 Shallow Spread Foundations

A minimum founding depth of 1.0m may be generally adopted for spread foundations, founded within firm or stiff but a number of conditions may require a greater depth of footing.

Firstly, footings should be taken lower in the presence of fill or Made Ground to at least 0.1m into the underlying natural strata. Secondly, the Head deposits have an intermediate to low volume change potential and the Weathered London Clay has a medium to high volume change potential; the minimum depth of footings recommended in NHBC Chapter 4.2 should be adopted in respect of any existing or proposed trees within influencing distance of the new structure.

Table 11.2 Minimum Foundation Depths – after NHBC

Volume Change Potential	Minimum Foundation Depths Outside Zone of Influence	Minimum Foundation Depths Allowing for Restricted Planting
Low	0.75	1.00
Medium	0.90	1.25
High	1.00	1.50

It is anticipated that a suitable bearing capacity for the Head deposits is approximately 75kN/m^2, and it is likely that a bearing pressure of typically around 100kN/m^2 will be achieved within the London Clay. It is recommended that in-situ shear vane tests are carried out at formation level during construction works, with Head deposits and Weathered London Clay requiring a minimum shear strength of 40kPa and London Clay requiring a minimum of 50kPa.

Assuming foundations are founded within consistent strata, therefore minimising differential settlement, it is anticipated that settlements will not exceed 25mm.

11.6.3 Piled Foundations

Types of Pile

The construction of both bored and driven piles would be feasible at this site, but the use of continuous flight augered (cfa) piles may be the most suitable option under the specific circumstances encountered.

Driven piled foundations, although technically feasible may be inappropriate due to possible noise restrictions on the site and can induce undesired effects (for example, reduced skin friction and possible ground heave) when driven into stiff over-consolidated clays.

It is noted that claystone bands have been identified within the London Clay Formation, and this should be factored into the selection of appropriate piling equipment.

Preliminary Pile Design

A detailed pile design is outside the scope of this report. The design procedure for piles varies considerably, depending on the proposed type of pile. However, for illustrative purposes, the following table gives likely working pile loads for bored CFA piles of various diameters and lengths.

The calculated working loads assume:

Piles in Clay

- Adhesion Factor (α) 0.5
- Bearing Capacity Factor (Nc) 9
- Undrained Shear Strength (cu) 35kN/m^2 at 2mbgl +10z
- Global Safety Factor 3.0
- Limiting Shaft Friction 100 kN/m^2
- Limiting Concrete Stress 7.5N/mm^2

Table 11.3 Preliminary Pile Capacities

Typical Pile Working Loads (kN)					
	Pile Diameter				
Depth of Pile below existing G.L.	300mm	450mm	600mm	750mm	900mm
8	80	135	205	280	365
10	120	195	285	390	500
12	160	265	380	515	660
14	210	345	490	655	835
16	270	430	610	810	1025

* Note – maximum depth of investigation is limited to 8mbgl.

It should be noted that pile group effects have not been taken into consideration in the above values.

11.6.4 Vibro-replacement Stone Columns

For light to moderate loads, where the combined thickness of soft Head Deposits and/or earthworks fill material approaches or exceeds approximately 2.5m, consideration may be given to ground improvement, as an alternative to a piled foundation solution.

There are some constraints on the use of this technique, notably where the undrained shear strength of the clay falls below 30kPa. Therefore, it is

recommended that early consultations are made with a specialist ground improvement contractor in order to confirm the feasibility and economics of this possible foundation solution.

11.7 GROUND FLOOR SLABS

Suspended floor slabs are recommended for the development, given the prevailing ground conditions (predominantly cohesive materials with low to high volume change potential), shallow groundwater, and requirement (in some parts of the site) to raise over-site levels with engineered fill material.

11.8 SUB-GRADE CONDITIONS FOR ROAD PAVEMENTS

It is understood that the finished ground level of the proposed development will be at approximately the existing ground level in the north of the site and raised at a maximum of 1.0m above the existing ground level in the south of the site.

In the 1m to 1.5m below the proposed finished ground level the exploratory holes have revealed a soil profile comprising both cohesive and granular Head deposits, with firmer Weathered London Clay within the north western portion of the site.

The groundwater conditions are anticipated to comprise a high to intermediate water-table, with some areas of the site with groundwater within 300mm of the pavement formation level.

The recommended sub-grade soil CBR value for road pavement design is 2%. This value assumes that during construction the formation level will be carefully compacted and any soft spots dug out and replaced by compacted suitable fill material.

The sub grade soils are considered to be non frost susceptible given that the PI of the sub soils is generally greater than 20%.

11.9 SOAKAWAYS

The poor soakage characteristics encountered across much of the site and the high water table encountered in areas where more permeable granular Head Deposits were identified would indicate that the site is unsuitable for the use of traditional pit soakways.

The soil infiltration characteristics have been assessed at two locations within granular Head Deposits by means of soakaway tests broadly carried out as specified in BRE Digest 365 ' Soakaway Design'. A soil infiltration rate of 1.7 – 2.1 x 10^{-5} ms^{-1} was achieved. However, it should be noted that the permeability of the unit is likely to be highly variable, as clay content of the Head Deposits does appear to vary and the continuity of the sand/gravel lenses has not been confirmed.

In addition, it is noted that the water table is at relatively shallow depth in the areas where granular Head Deposits have been identified, and therefore the thickness of any unsaturated zone is minimal.

12 Recommendations

Recommendations for additional works include the following:

- An asbestos survey should be undertaken in the area of the existing farm buildings aimed at identifying all waste materials requiring remediation;
- Localised hotspots of asbestos containing materials should be removed by a suitably qualified specialist contractor;
- Supplementary groundwater monitoring should be undertaken to confirm long term groundwater levels and any trends in seasonal fluctuations as part of the water balance required under the Planning Condition relating to the river mitigation strategy;
- Earthworks trials should be considered in order to assess the feasibility of materials for lime stabilisation; and
- Engineering specifications should be prepared for earthworks and piled foundations.

Appendices, Figures & Tables

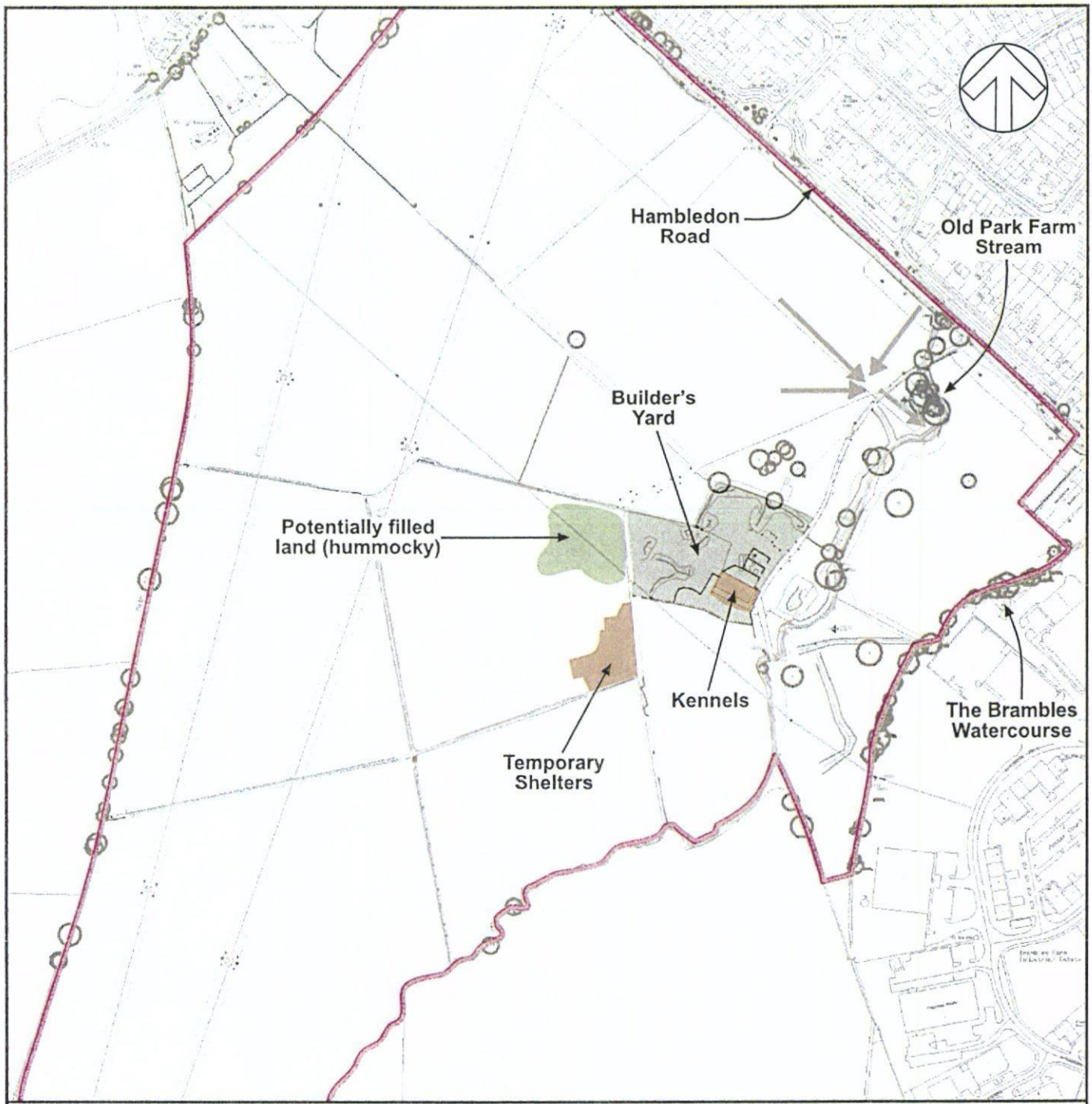


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Location Plan

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Key

Site Boundary

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Annotated Site Plan

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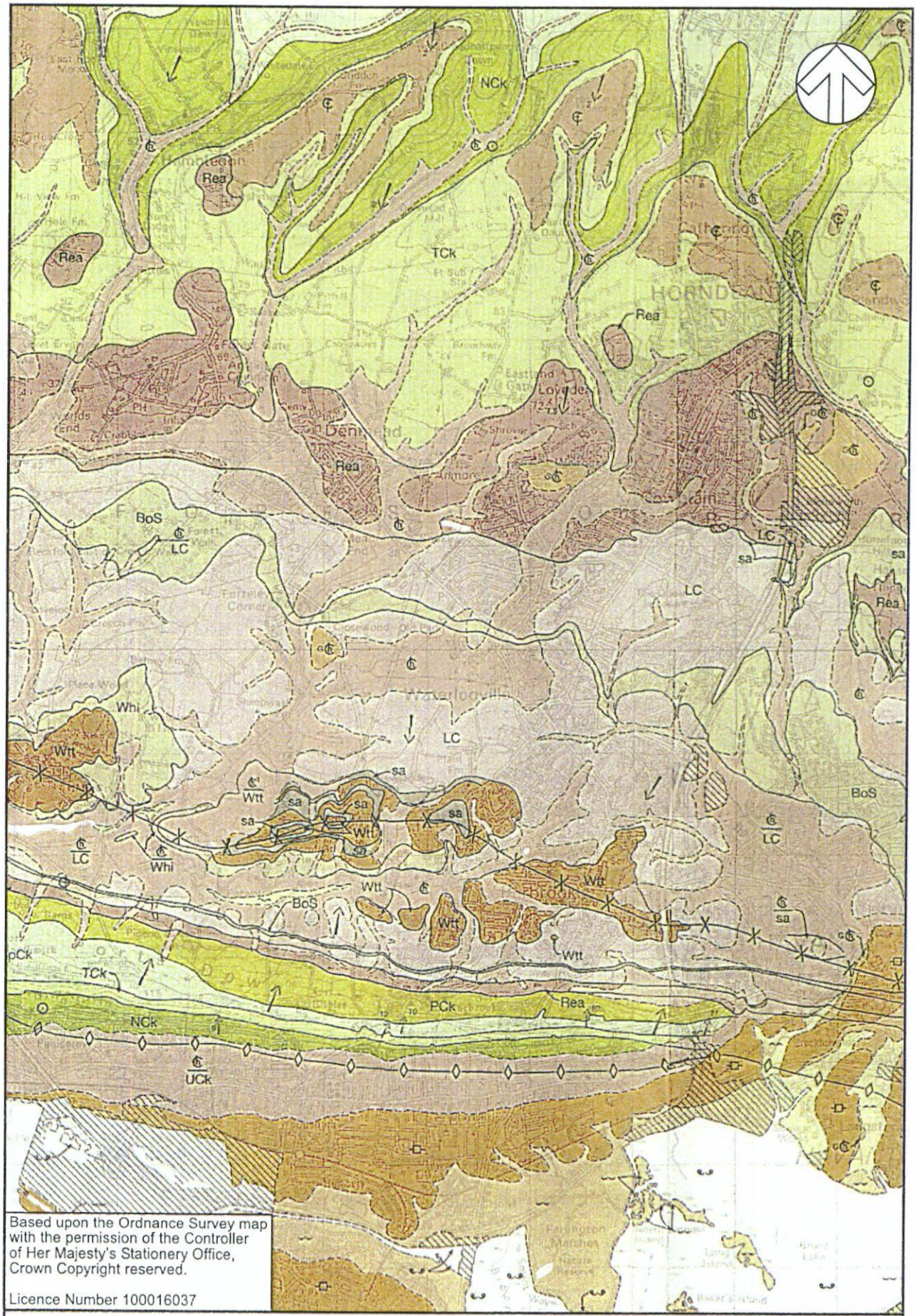
Plan Received from Client

OLD PARK FARM
WATERLOOVILLE

PROPOSED DEVELOPMENT PLAN
FIGURE 3

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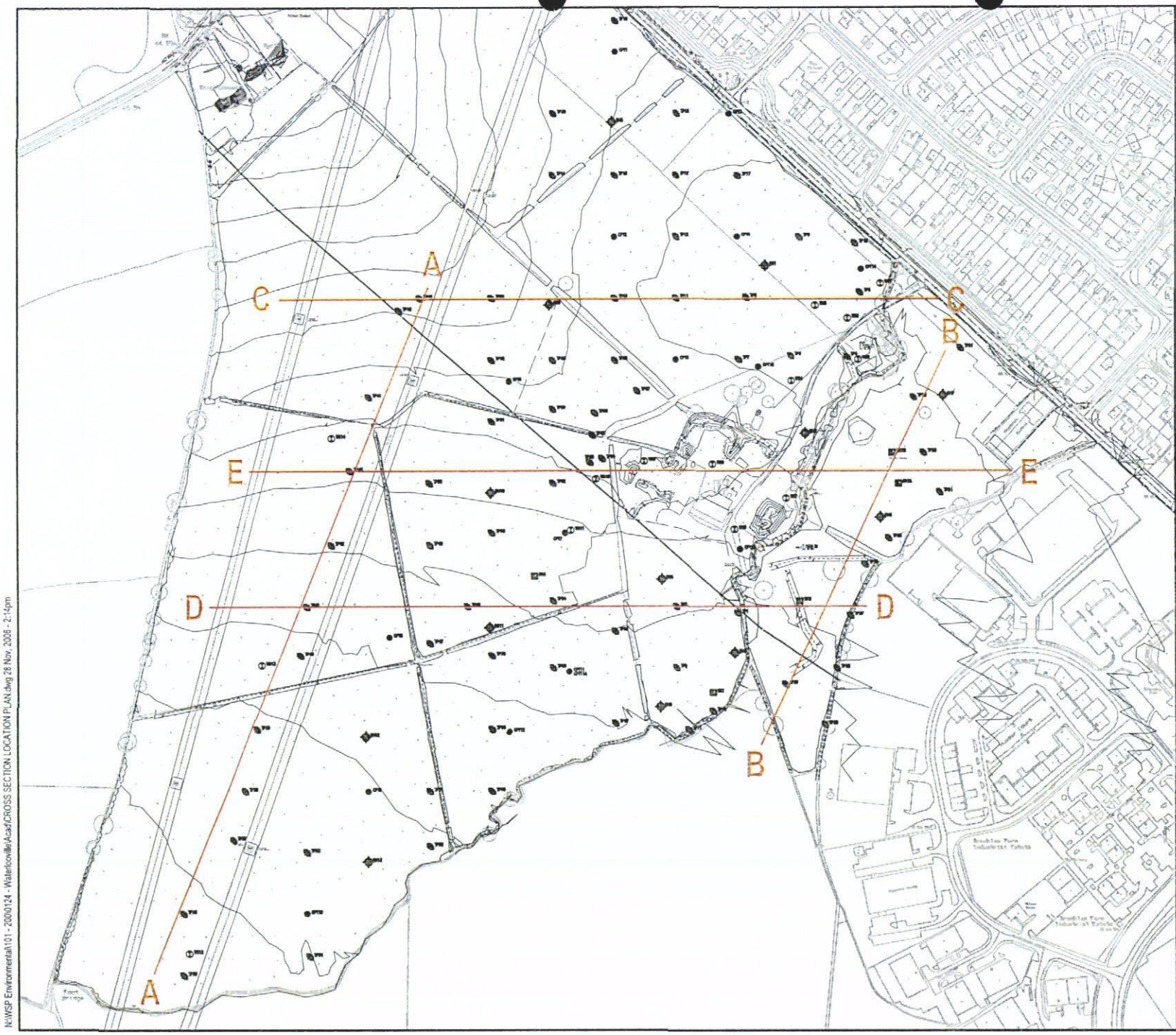
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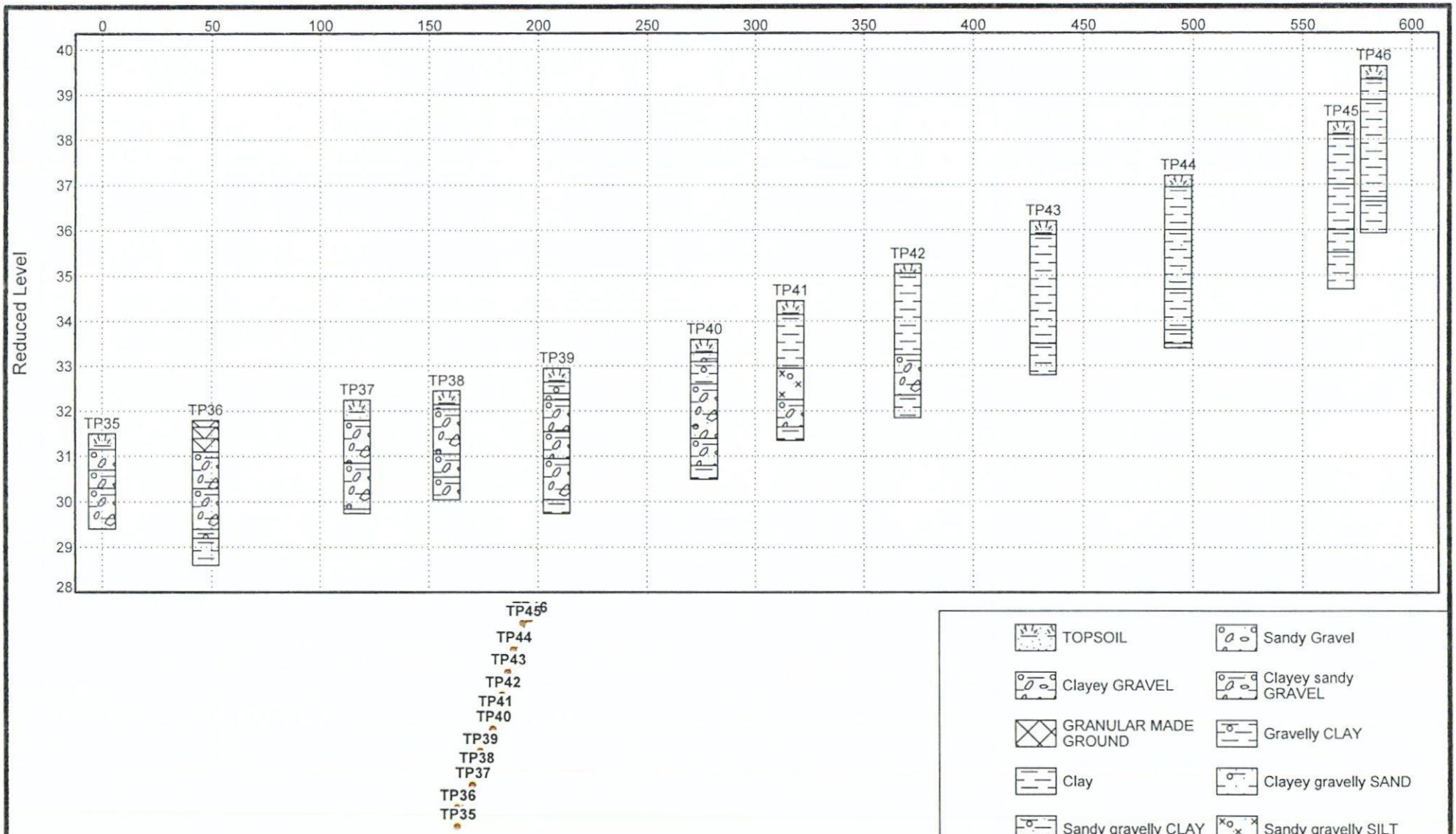
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12220124	FIGURE 5	

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This is a generalised section based on ground conditions encountered in exploratory holes. Actual ground conditions including depths and the properties of strata may vary.



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SUBSURFACE SECTION

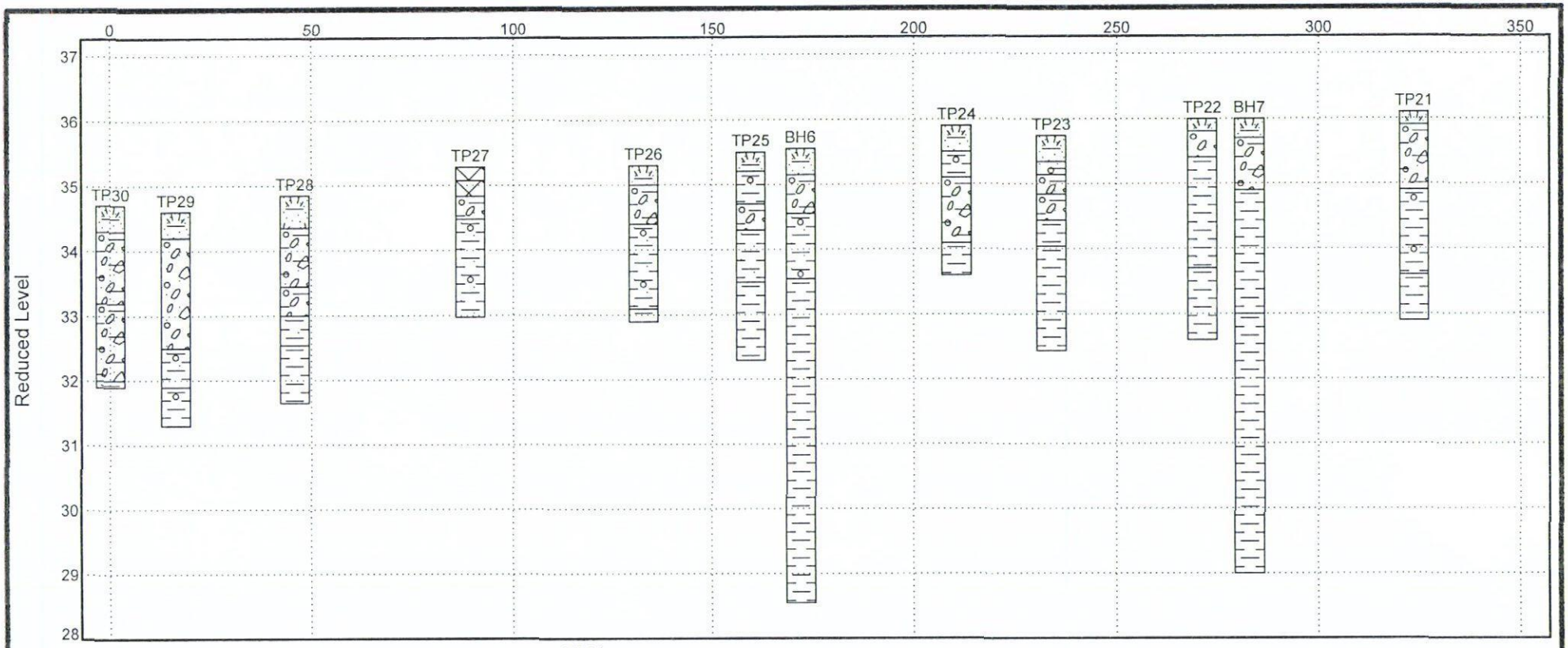
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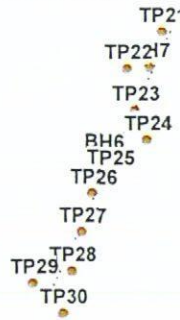
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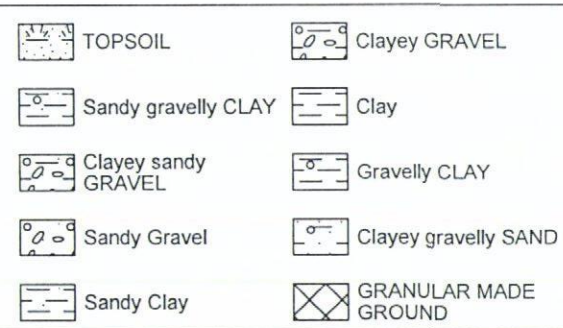
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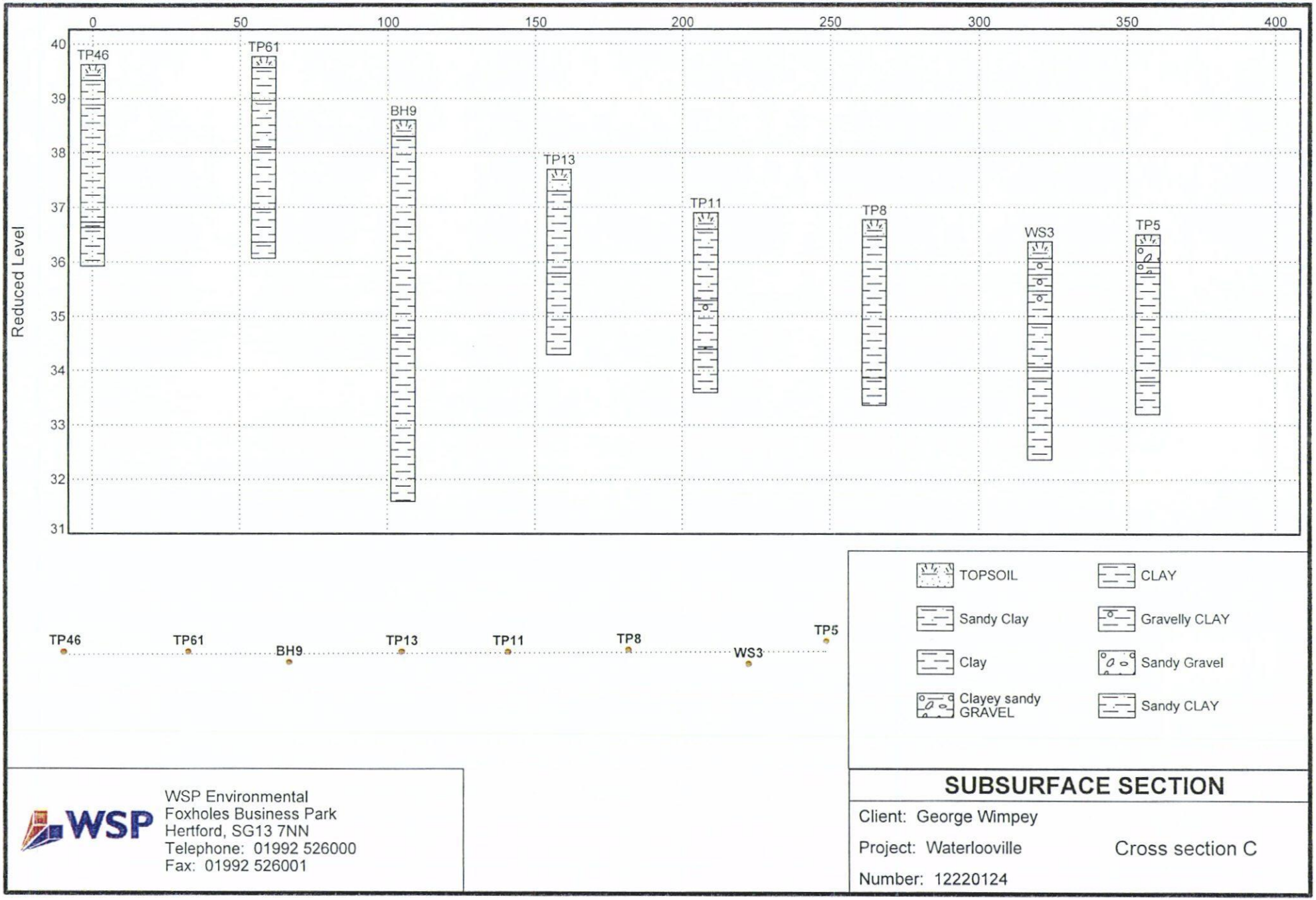
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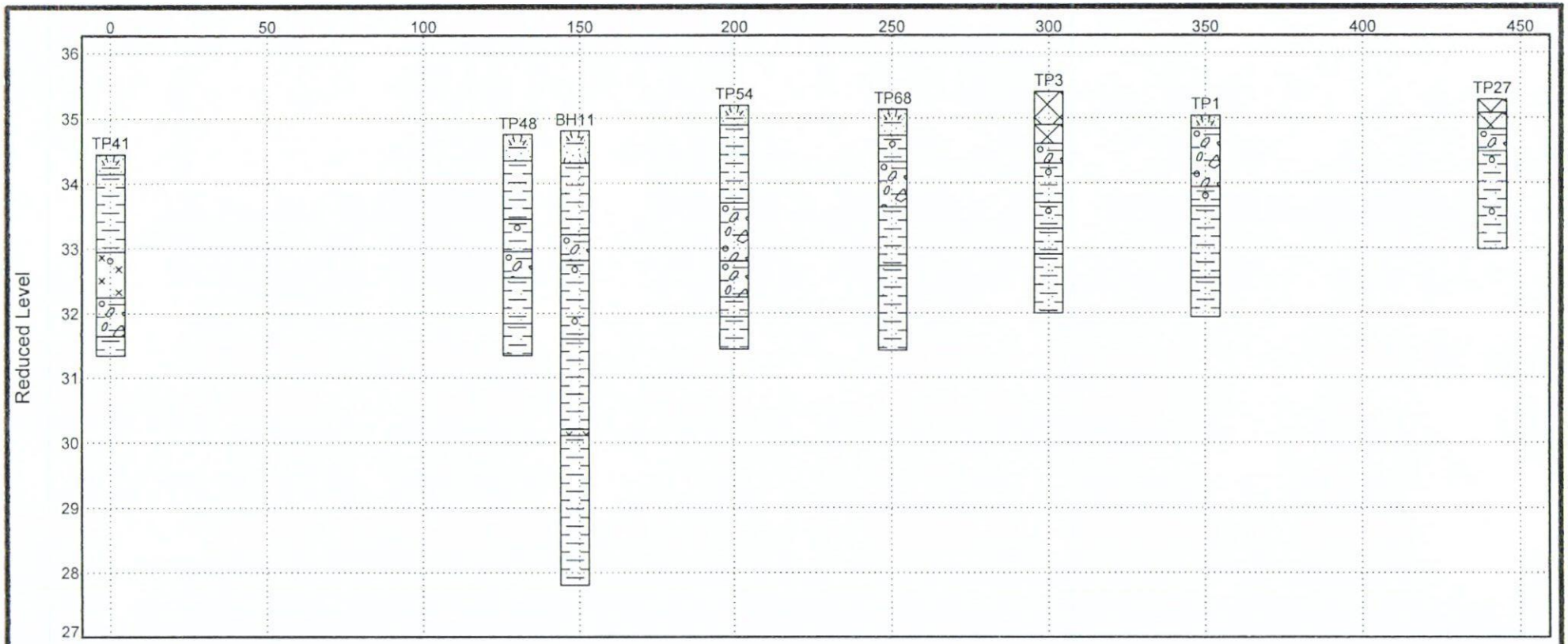
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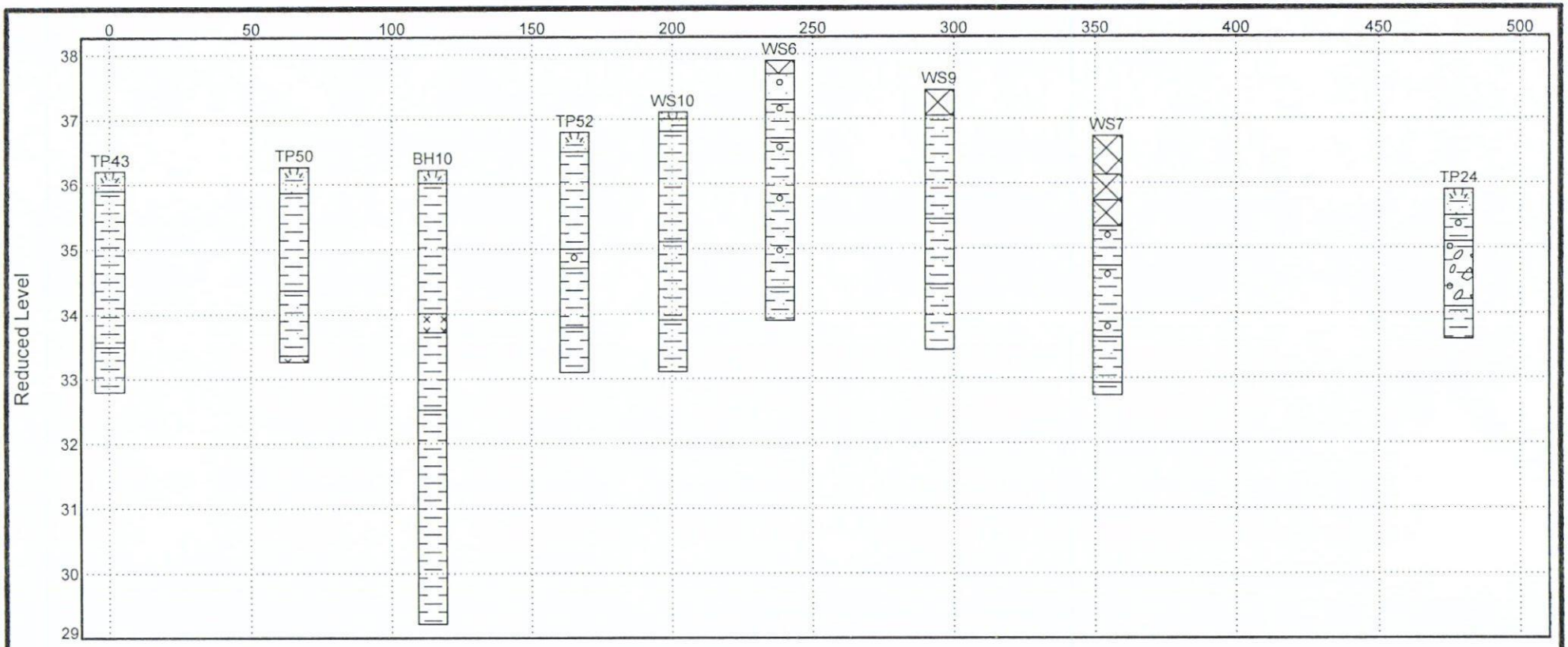
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Cross section D

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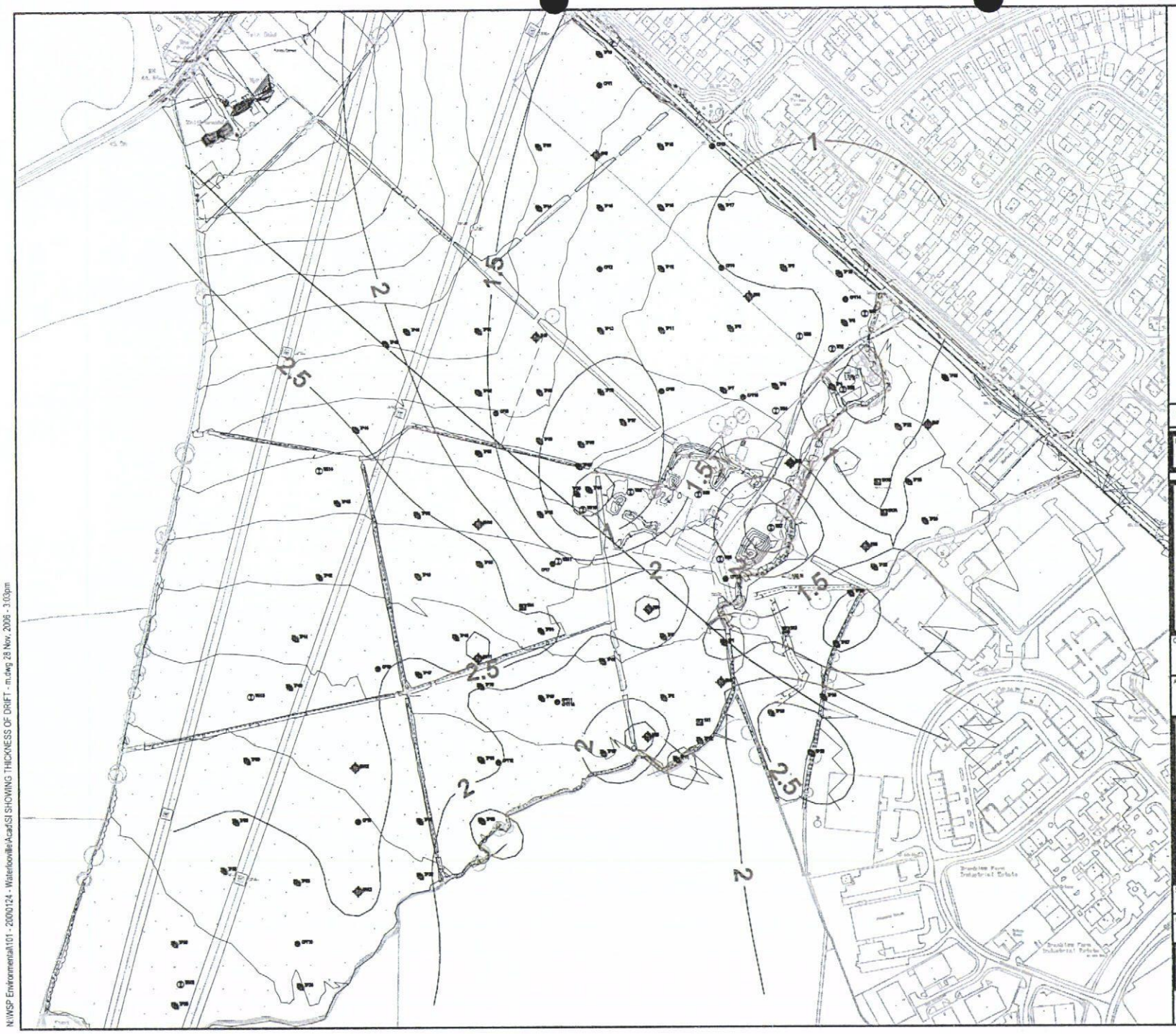
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TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING THICKNESS OF DRIFT - m

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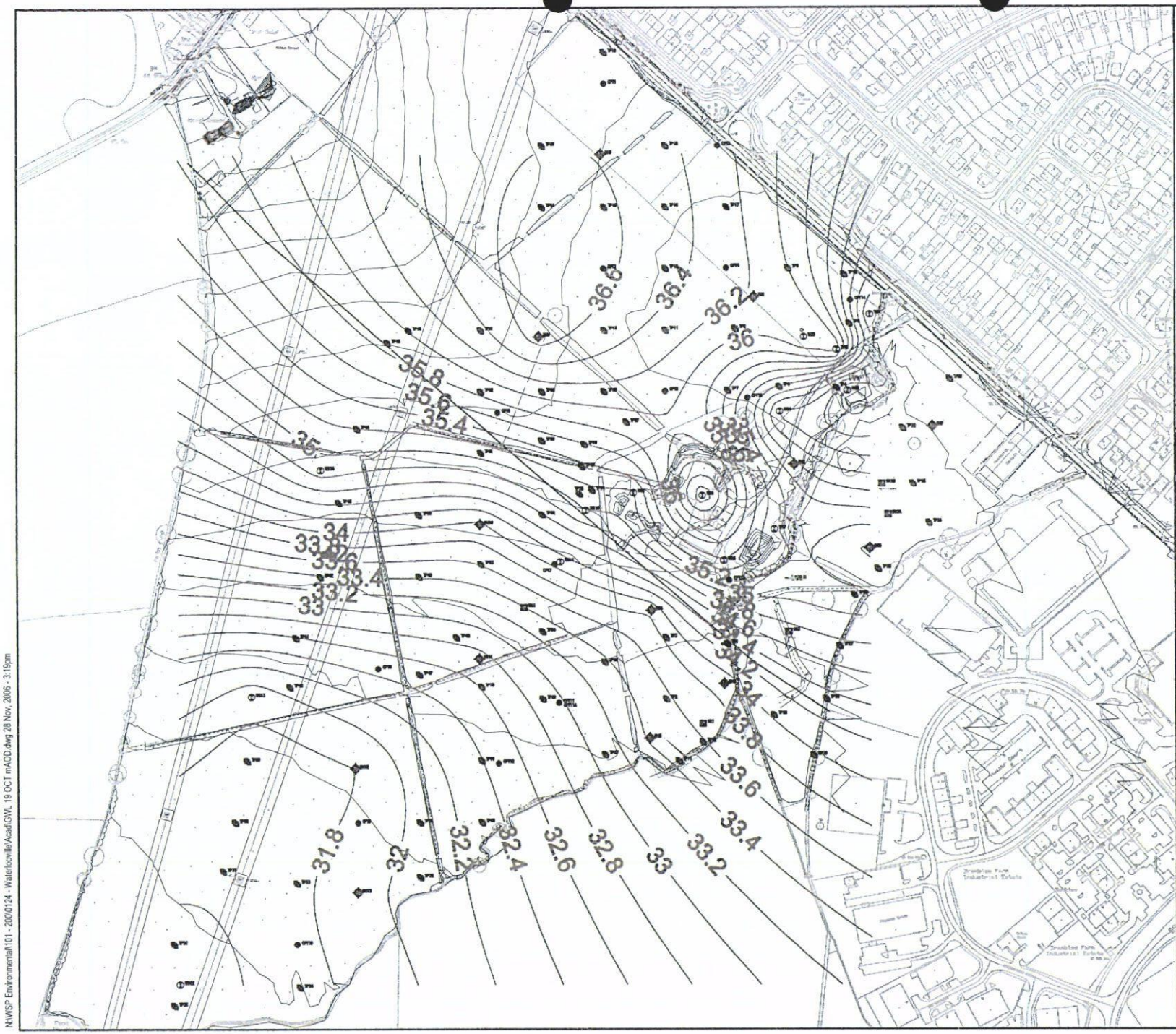
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TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GRANULAR HEAD DEPOSITS
- UNDIFFERENTIATED

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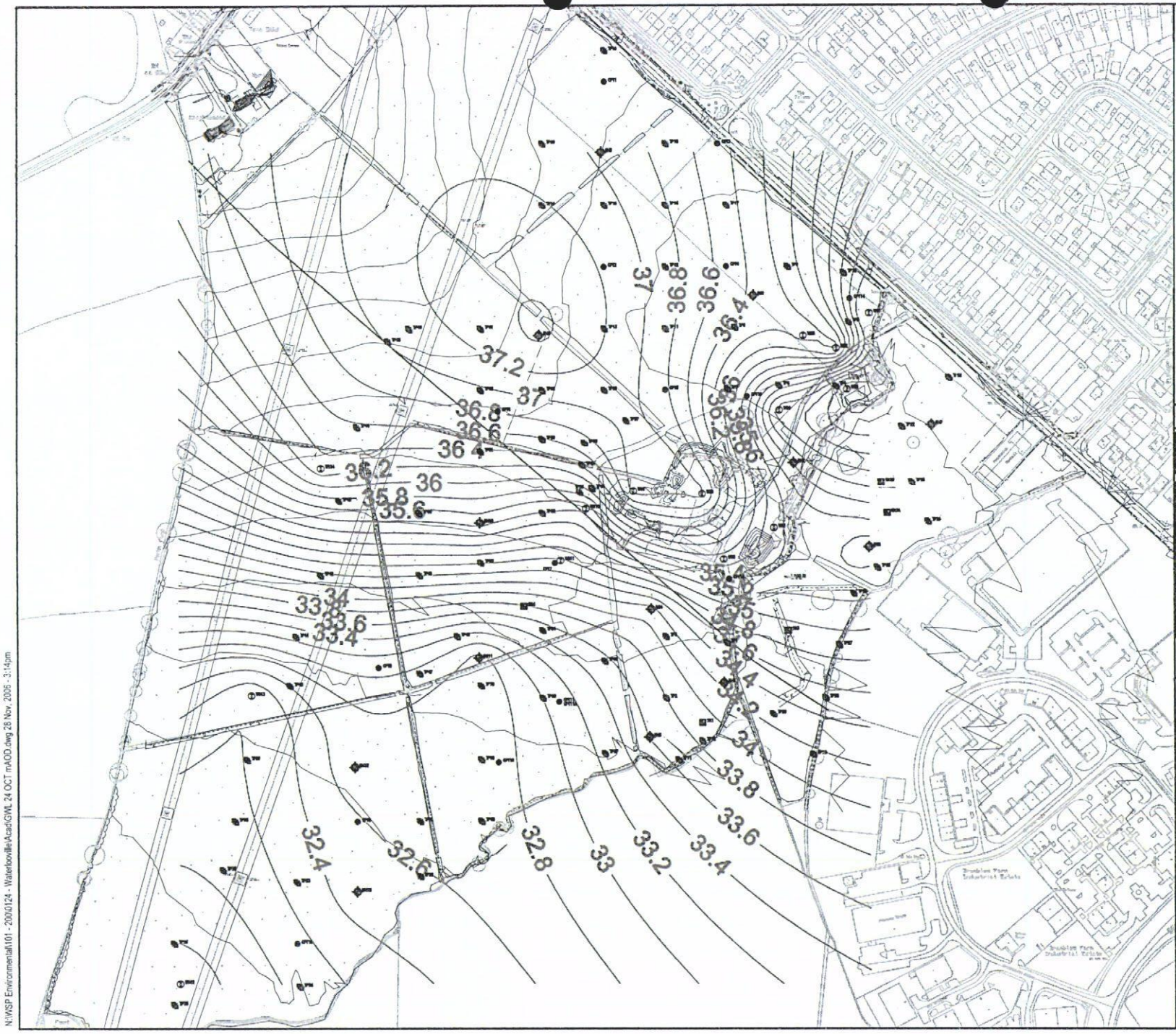
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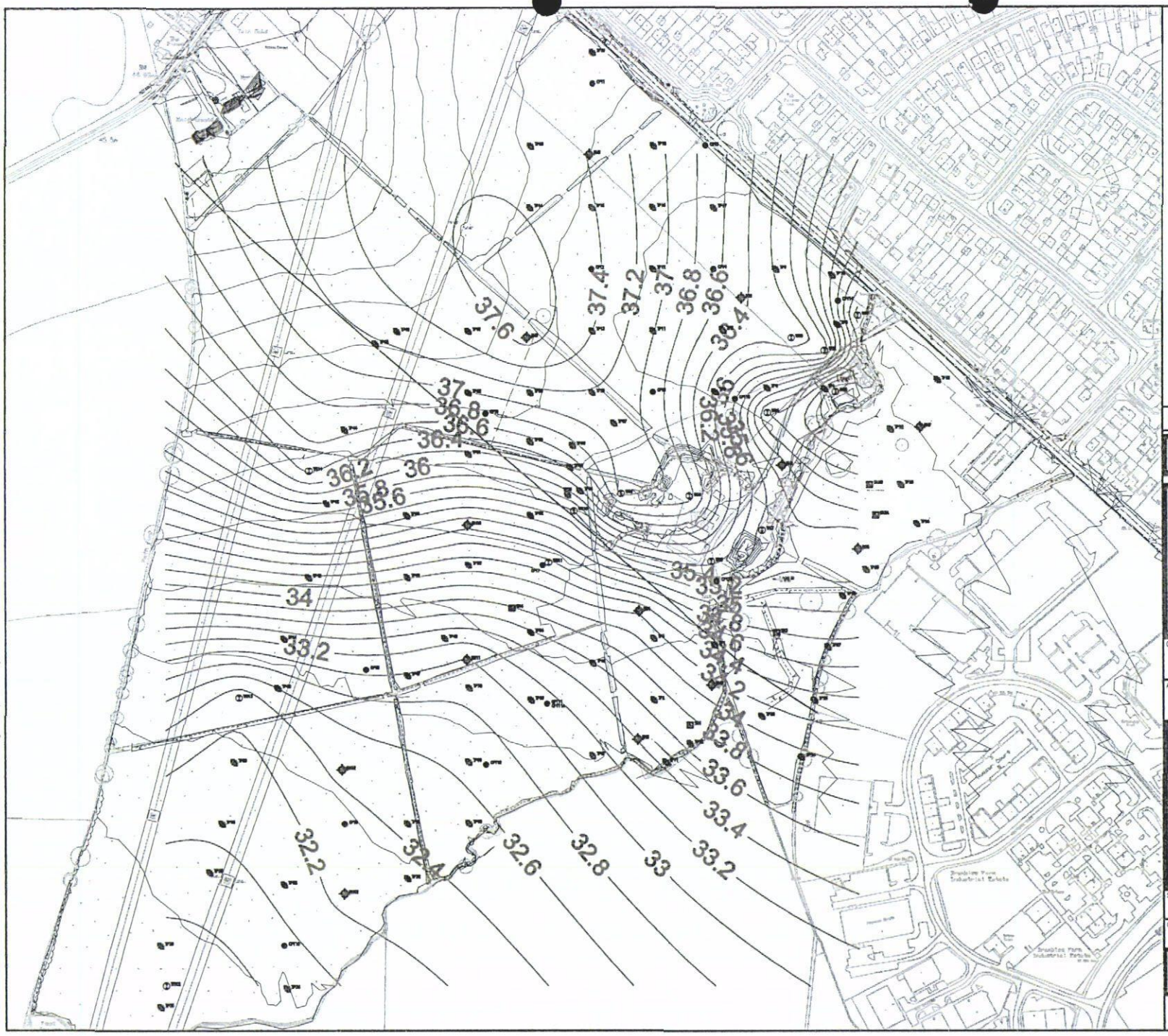
PROJECT: OLD PARK FARM
WATERLOOVILLE

TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GWL 24 OCT 2006 mbgl

SCALE @ A3:	CHECKED:	APPROVED:
NTS	IW	IW
CAD FILE:	DESIGN DRAWN:	DATE:
GWL 24 OCT mbgl.dwg	JEY	27.11.06
PROJECT No:	DRAWING No:	REV:
12220124	FIGURE 7D	

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N:\WSP Environmental\101 - 20001\24 - Waterlooville\Acad\GWL 24 OCT mbgl.dwg 28 Nov, 2006 - 3:13pm



DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

WSP

WSP House, The Chase, John Tate Road
Foxholes Business Park, Hertford SG13 7NN
Tel: +44 (0)1992 526000 Fax: +44 (0)1992 526001
http://www.wspgroup.com

CLIENT: GEORGE WIMPEY

ARCHITECT: RPS

PROJECT: OLD PARK FARM
WATERLOOVILLE

TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GWL 31 OCT 2006 mAOD

SCALE @ A3:	CHECKED:	APPROVED:
NTS	IW	IW
CAD FILE:	DESIGN-DRAWN:	DATE:
GWL 31 OCT mAOD.dwg	JEY	27.11.06
PROJECT No:	DRAWING No:	REV:
12220124	FIGURE 7E	

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DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

WSP

WSP House, The Chase, John Tate Road
Foxholes Business Park, Hertford SG13 7NN
Tel: +44 (0)1992 526000 Fax: +44 (0)1992 526001
http://www.wspgroup.com

CLIENT: GEORGE WIMPEY

ARCHITECT: RPS

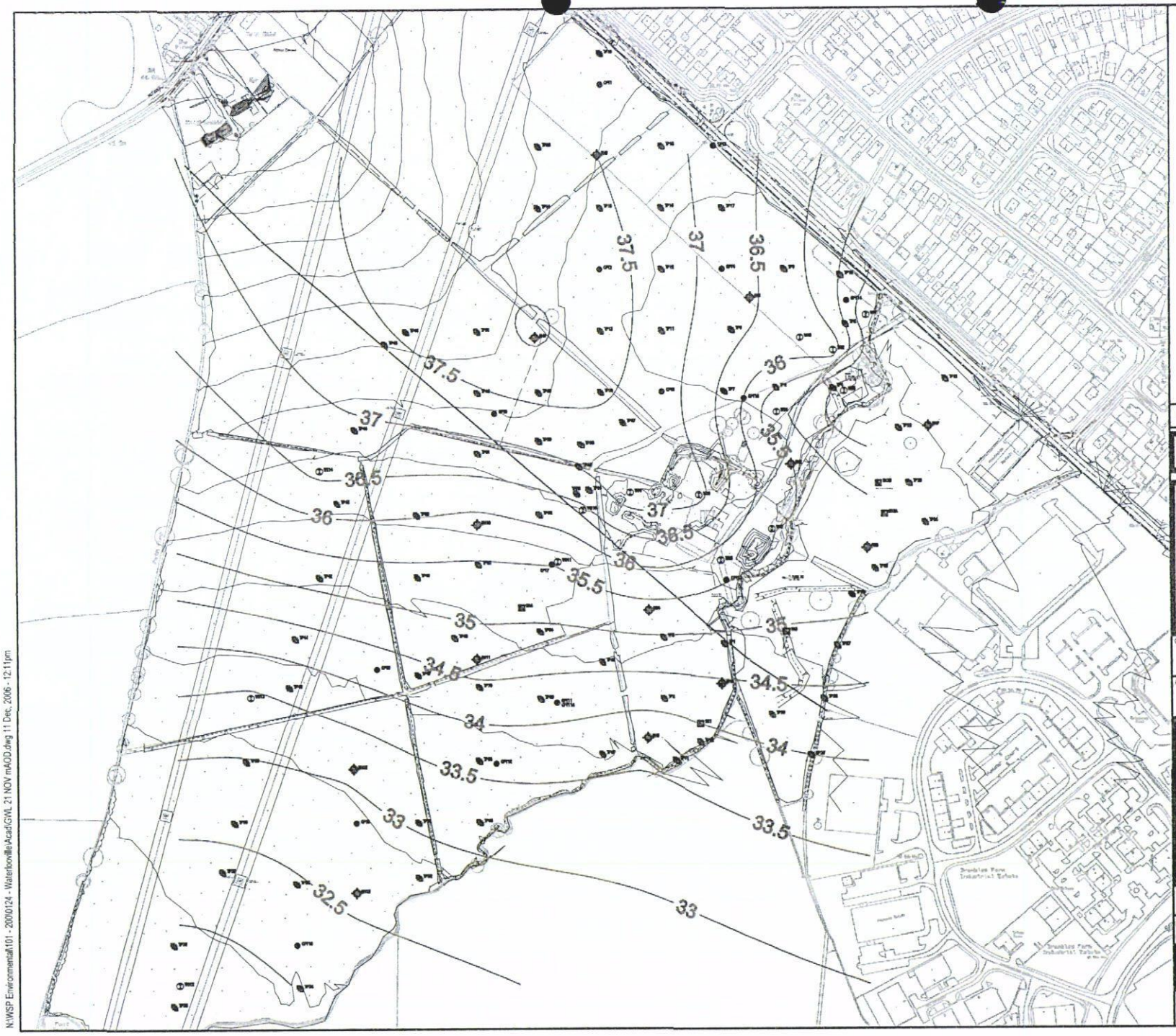
PROJECT: OLD PARK FARM
WATERLOOVILLE

TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GWL 31 OCT 2006 mbgl

SCALE @ A3:	CHECKED:	APPROVED:
NTS	IW	IW
CAD FILE:	DESIGN-DRAWN:	DATE:
GWL 31 OCT mbgl.dwg	JEY	28.11.06
PROJECT No:	DRAWING No:	REV:
12220124	FIGURE 7F	

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N:\WSP Environmental\101 - 2000\124 - Waterlooville\Acad\GWL 31 OCT mbgl.dwg 28 Nov, 2006 - 3:21pm



DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

WSP

WSP House, The Chase, John Tate Road
Foxholes Business Park, Hertford SG13 7NN
Tel: +44 (0)1992 526000 Fax: +44 (0)1992 526001
http://www.wspgroup.com

CLIENT: GEORGE WIMPEY

ARCHITECT: RPS

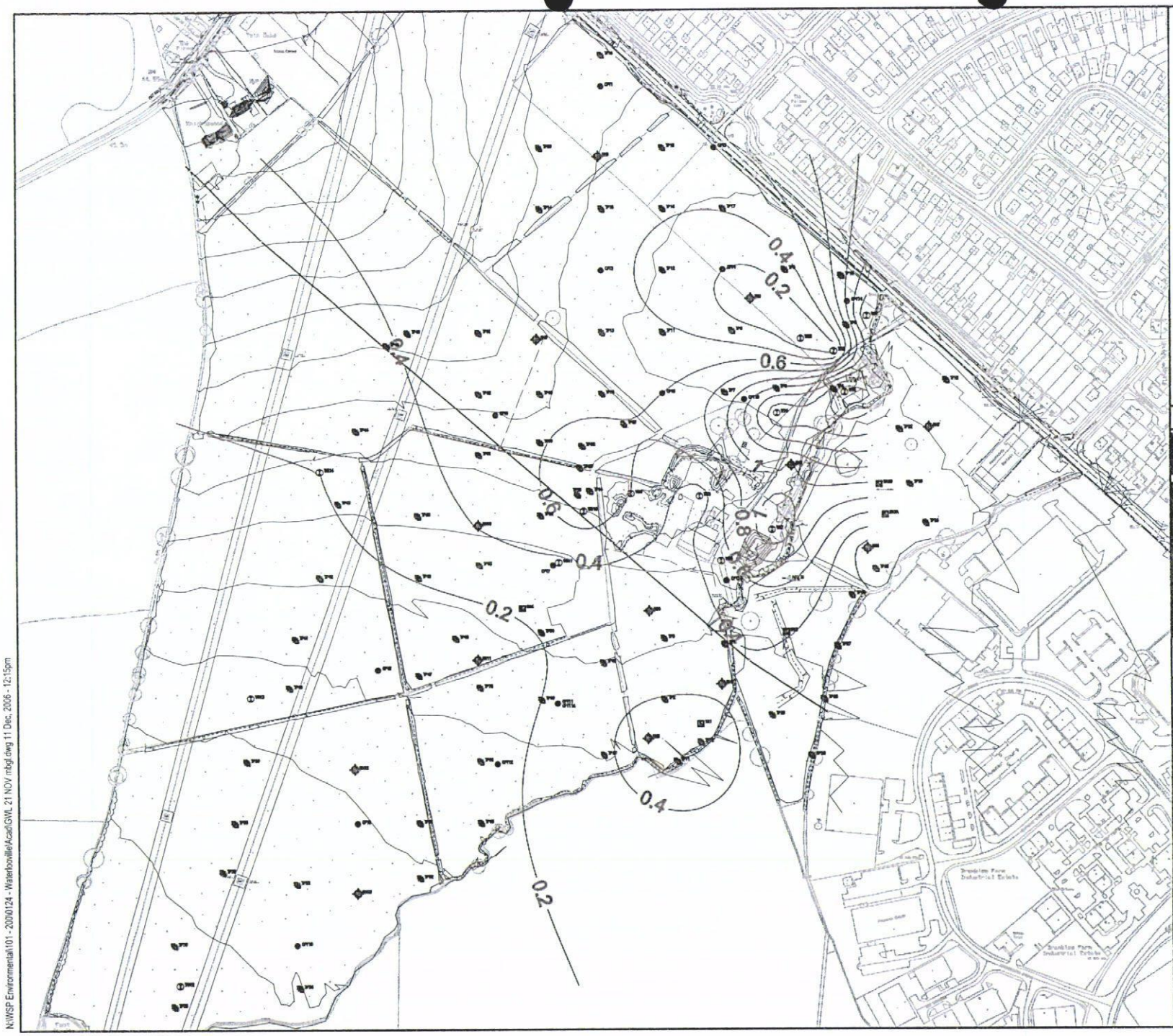
PROJECT: OLD PARK FARM
WATERLOOVILLE

TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GWL 21 NOV 2006 mAOD

SCALE @ A3:	CHECKED:	APPROVED:
NTS	IW	IW
CAD FILE:	DESIGN DRAWN:	DATE:
GWL 21 NOV mAOD.dwg	JEY	11.12.06
PROJECT No:	DRAWING No:	REV:
12220124	FIGURE 7G	

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DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

WSP House, The Chase, John Tate Road
Foxholes Business Park, Hertford SG13 7NN
Tel: +44 (0)1992 526000 Fax: +44 (0)1992 526001
http://www.wspgroup.com

CLIENT: GEORGE WIMPEY

ARCHITECT: RPS

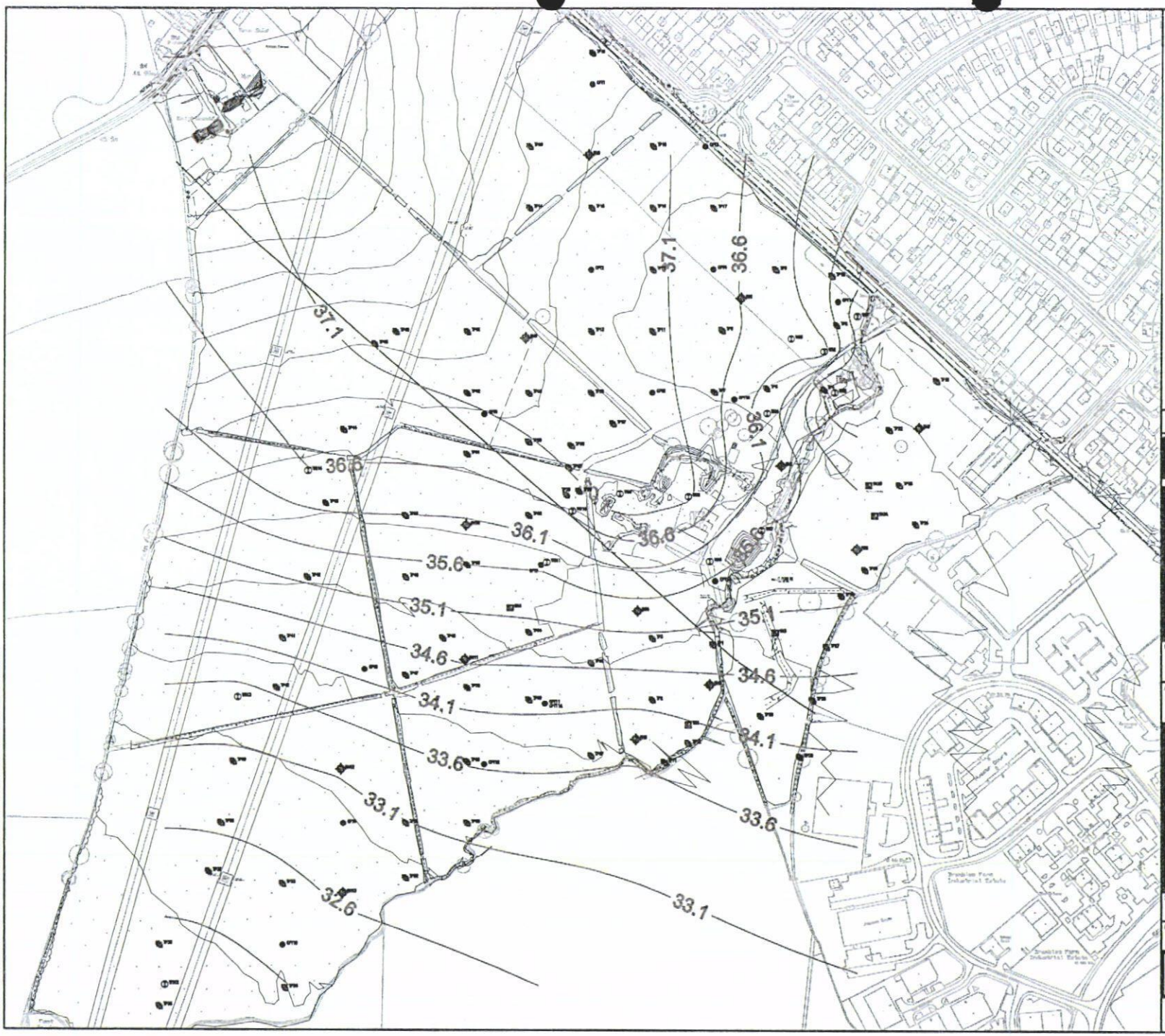
PROJECT: OLD PARK FARM
WATERLOOVILLE

TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GWL 21 NOV 2006 mbgl

SCALE @ A3:	CHECKED:	APPROVED:
NTS	IW	IW
CAD FILE:	DESIGN-DRAWN:	DATE:
GWL 21 NOV mbgl.dwg	JEY	11.12.06
PROJECT No:	DRAWING No:	REV:
12220124	FIGURE 7H	

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DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

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Foxholes Business Park, Hertford SG13 7NN
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http://www.wspgroup.com

CLIENT: GEORGE WIMPEY

ARCHITECT: RPS

PROJECT: OLD PARK FARM
WATERLOOVILLE

TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GWL 29 NOV 2006 mAOD

SCALE @ A3:	CHECKED:	APPROVED:
NTS	IW	IW
CAD FILE:	DESIGN-DRAWN:	DATE:
GWL 29 NOV mAOD.dwg	JEY	11.12.06
PROJECT No:	DRAWING No:	REV:
12220124	FIGURE 7I	

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REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS:

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http://www.wspgroup.com

CLIENT: GEORGE WIMPEY

ARCHITECT: RPS

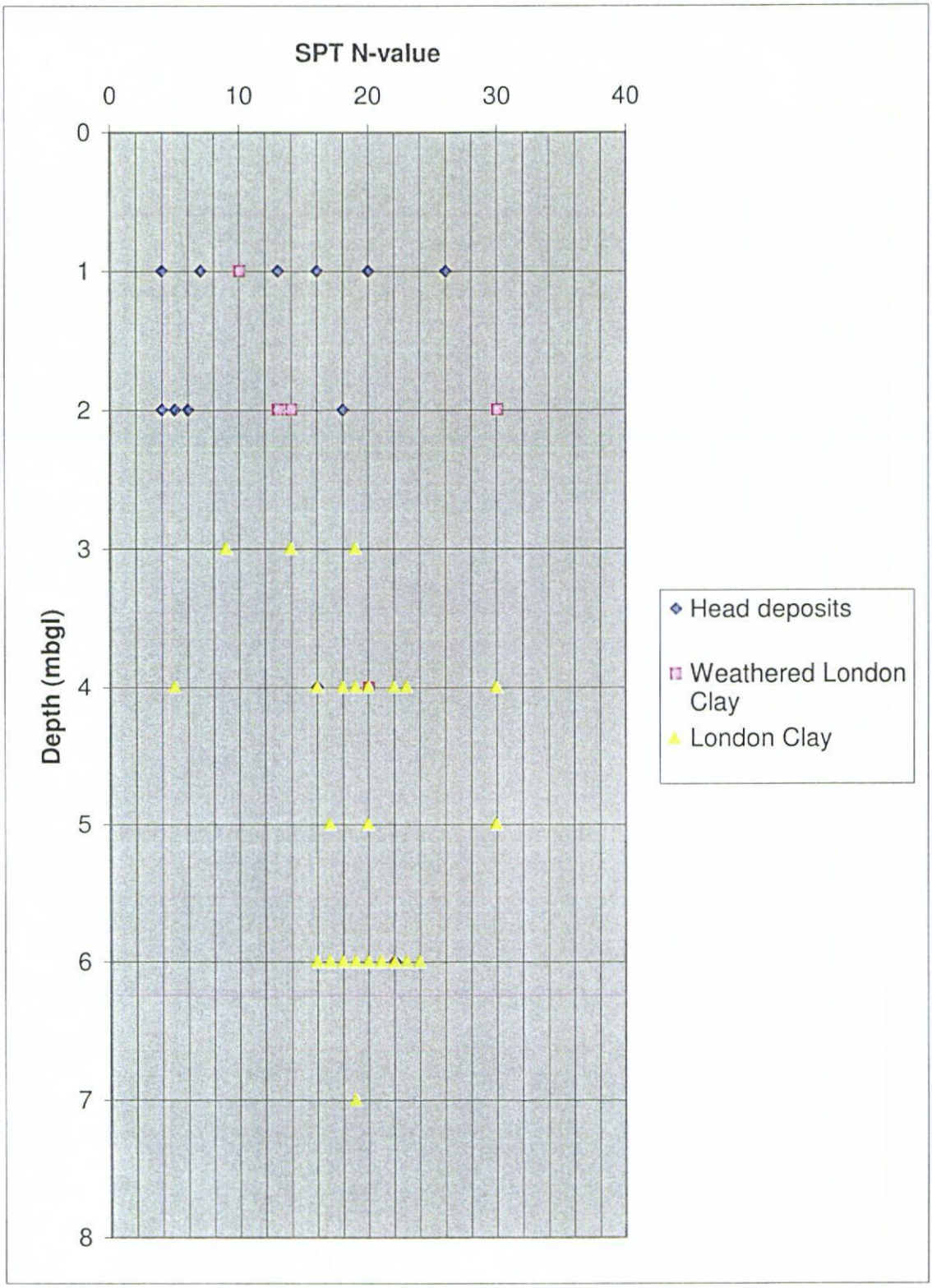
PROJECT: OLD PARK FARM
WATERLOOVILLE

TITLE: SITE INVESTIGATION LOCATION PLAN
SHOWING GWL 29 NOV 2006 mbgl

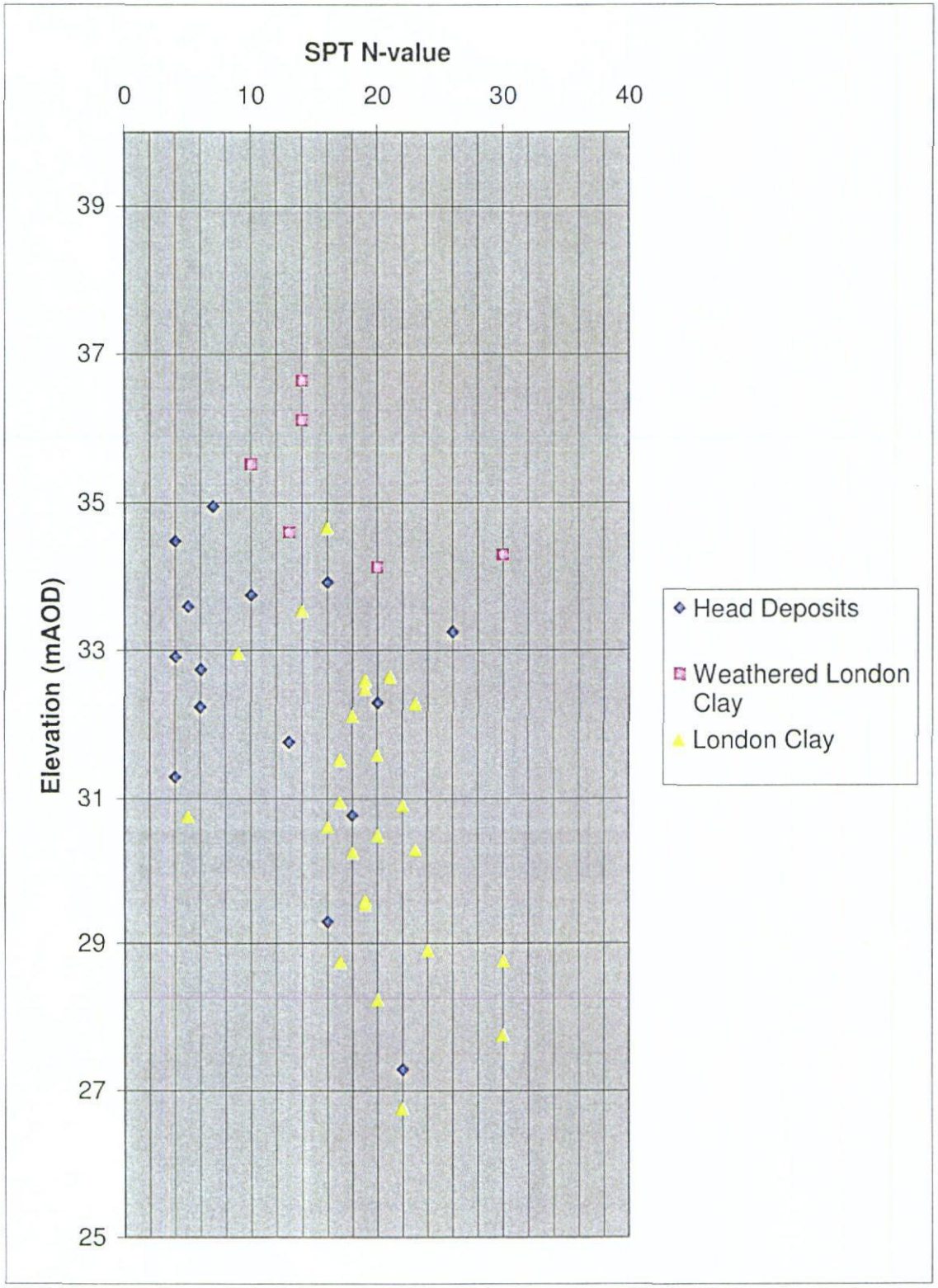
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NTS	IW	IW
CAD FILE:	DESIGN-DRAWN:	DATE:
GWL 29 NOV mbgl.dwg	JEY	11.12.06
PROJECT No:	DRAWING No:	REV:
12220124	FIGURE 7J	

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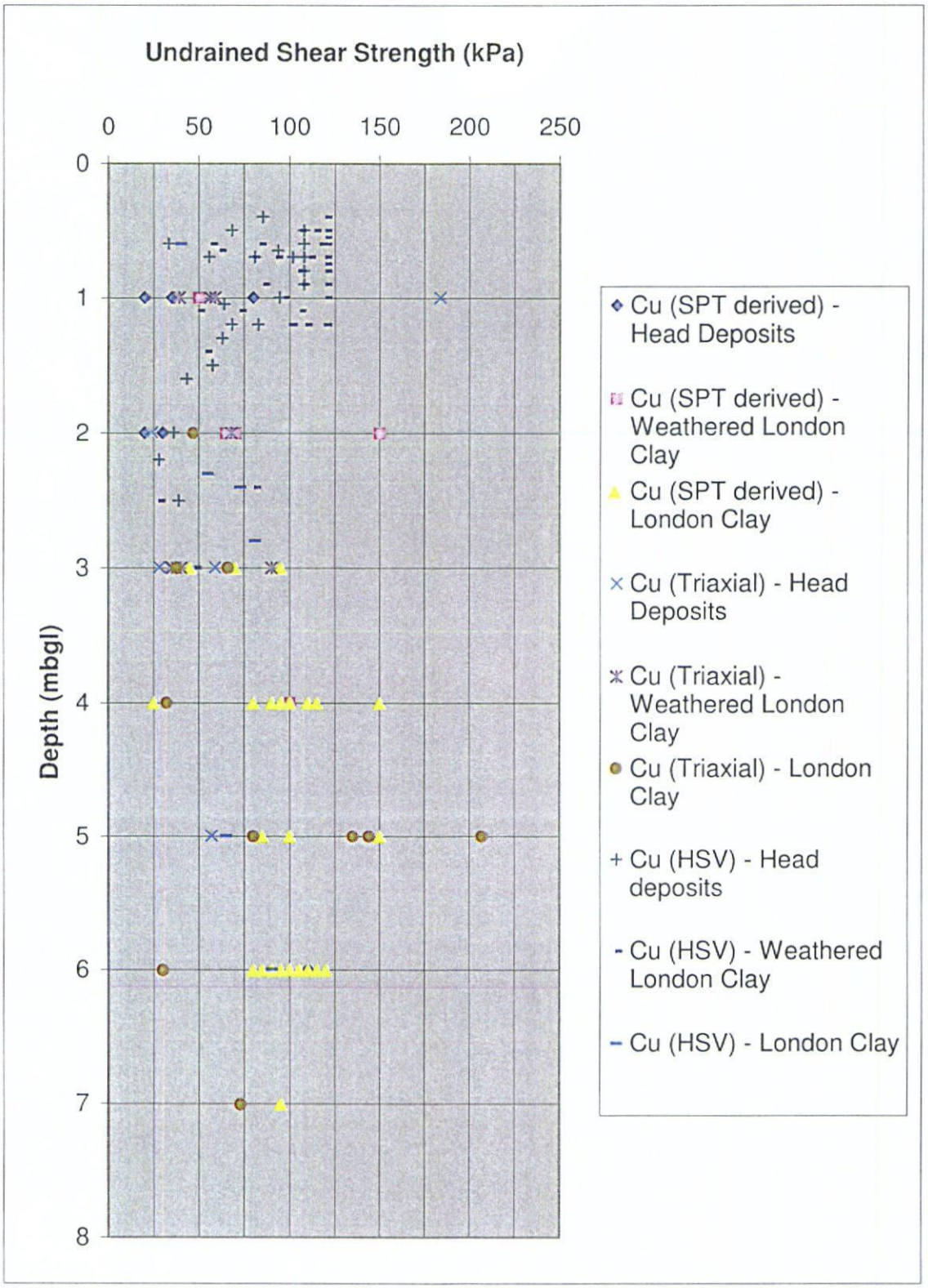
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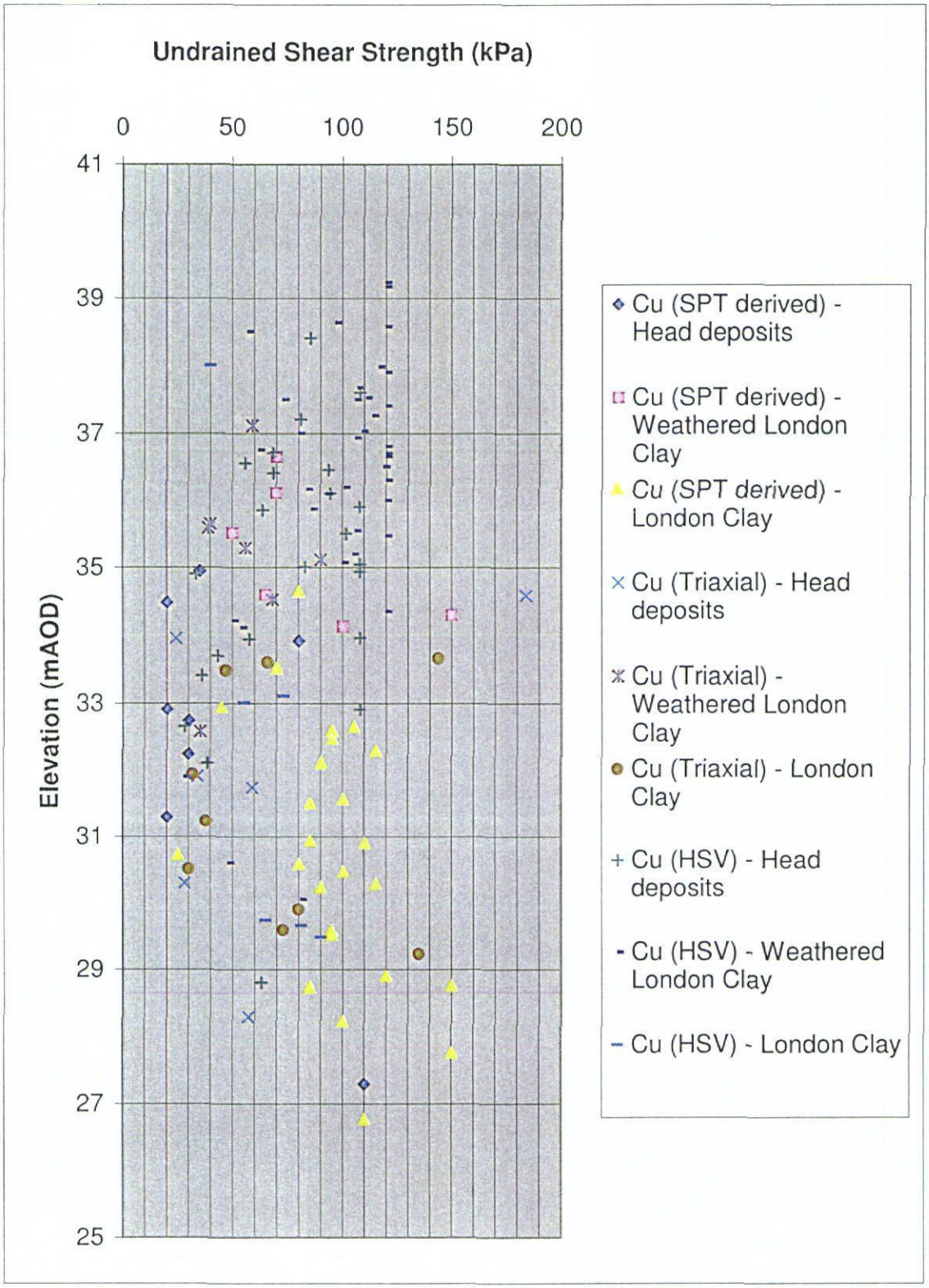
Made By:	AJR	Job:	12220124	Site:	Old Park Farm
Chk.	IW	Scale:	NTS		Waterlooville
App.	MW	Date	Nov-06	Title:	Plot of SPT 'N' versus Depth
WSP				Figure	F - 8



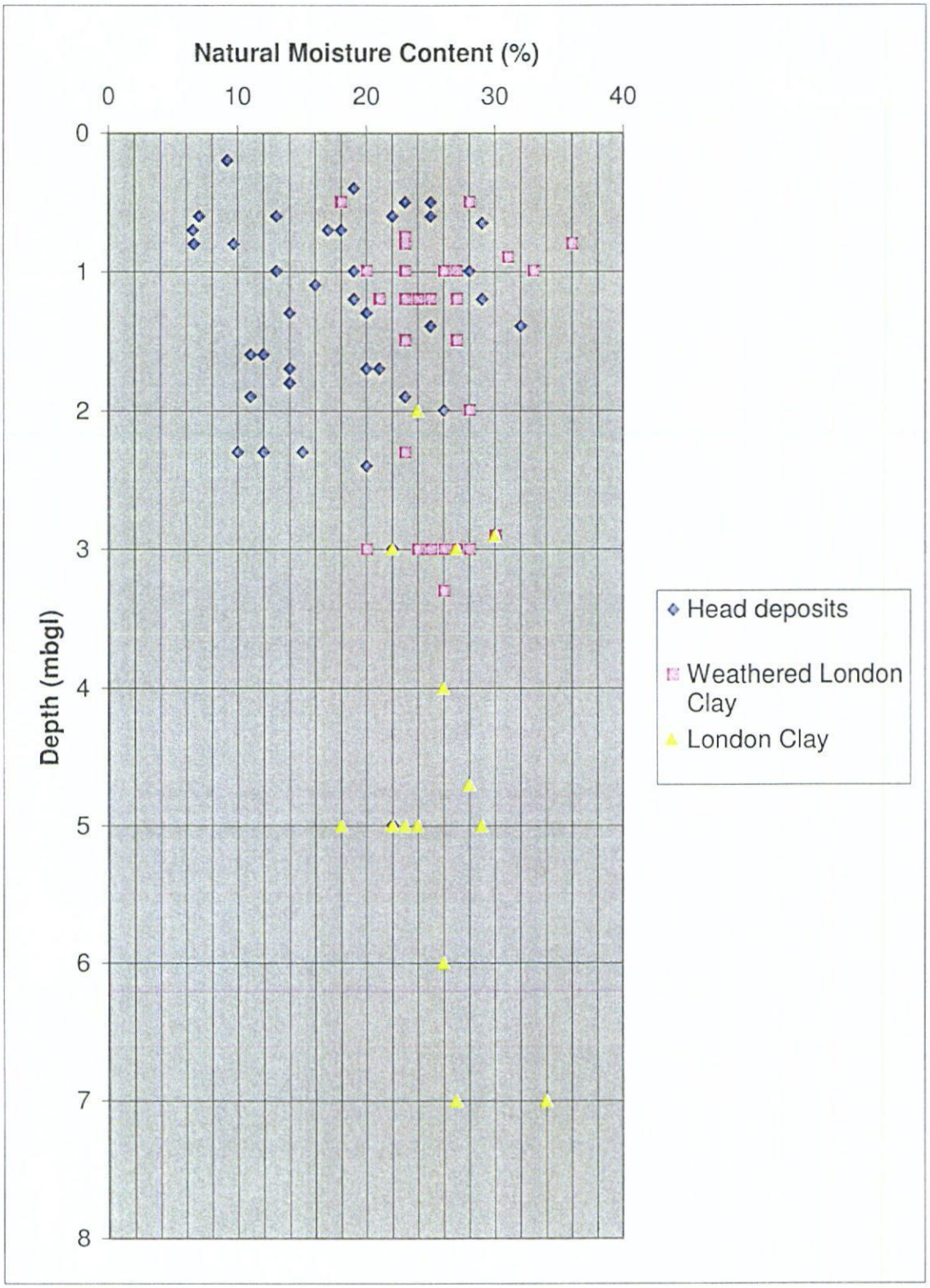
Made By:	AJR	Job:	12220124	Site:	Old Park Farm
Chk.	IW	Scale:	NTS		Waterlooville
App.	MW	Date	Nov-06	Title:	Plot of SPT 'N' versus Elevation
WSP				Figure	F - 9



Made By:	AJR	Job:	12220124	Site:	Old Park Farm
Chk.	IW	Scale:	NTS		Waterlooville
App.	MW	Date	Nov-06	Title:	Plot of Cu versus Depth
WSP				Figure	F-10

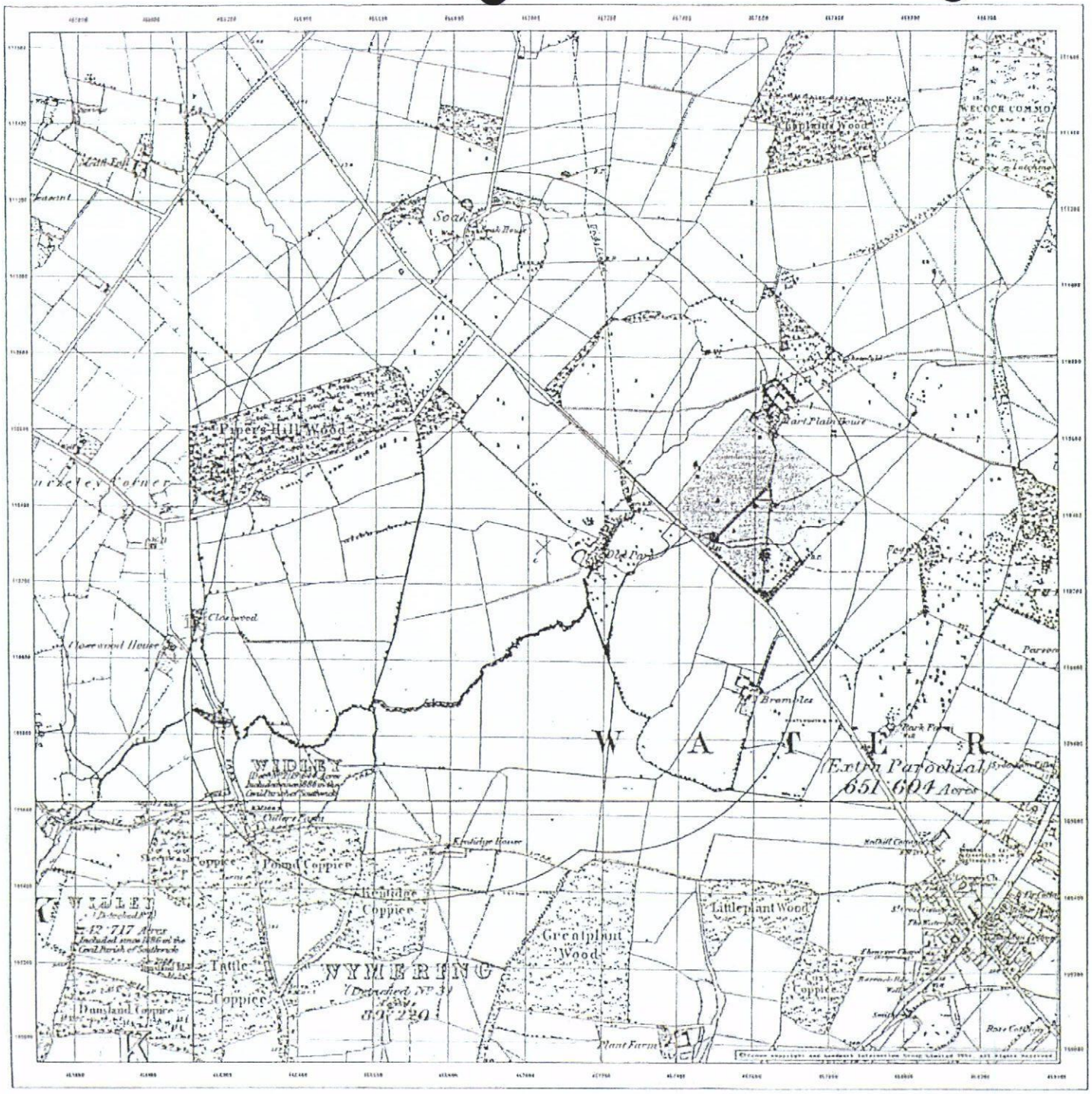


Made By:	AJR	Job:	12220124	Site:	Old Park Farm
Chk.	IW	Scale:	NTS		Waterlooville
App.	MW	Date	Nov-06	Title:	Plot of Cu versus Elevation
WSP				Figure	F-11



Made By:	AJR	Job:	12220124	Site:	Old Park Farm Waterlooville
Chk.	IW	Scale:	NTS		
App.	MW	Date	Nov-06	Title:	Plot of Moisture Content versus Depth
WSP				Figure	F-12

Appendix A Desk Study Information



Envirocheck®

A Landmark product

CLIENT DETAILS Envirocheck Order No. OC5052431_2_1

Customer Ref: G Roberts, 13876514
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467040 116300

Old Park Farm

Waterlooville

Historical Map Legend

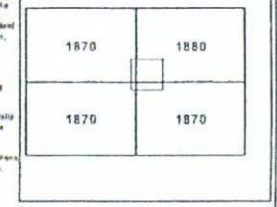
- Quarry
- Shingle
- Railway over Road
- Road over Railway
- Gravel Pit
- Sand Pit
- Level Crossing
- Railway over River
- Other Pits
- Road over Stream
- Road over Stream
- Rough Pasture
- Furze
- Road over River or Canal
- Marsh
- Reeds
- Sunken Road
- Raised Road
- Osiers
- Instrumental Contour
- Arrow denotes flow of Water
- Sketched Contour

HAMPSHIRE & ISLE OF WIGHT

The Historical maps shown were reproduced from maps predominantly sold at the scale adopted for England, Wales and Scotland in the 1840's, ie 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps were published - often all military camps and other strategic sites removed. These maps were latterly overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Survey map scale - 1:10,560

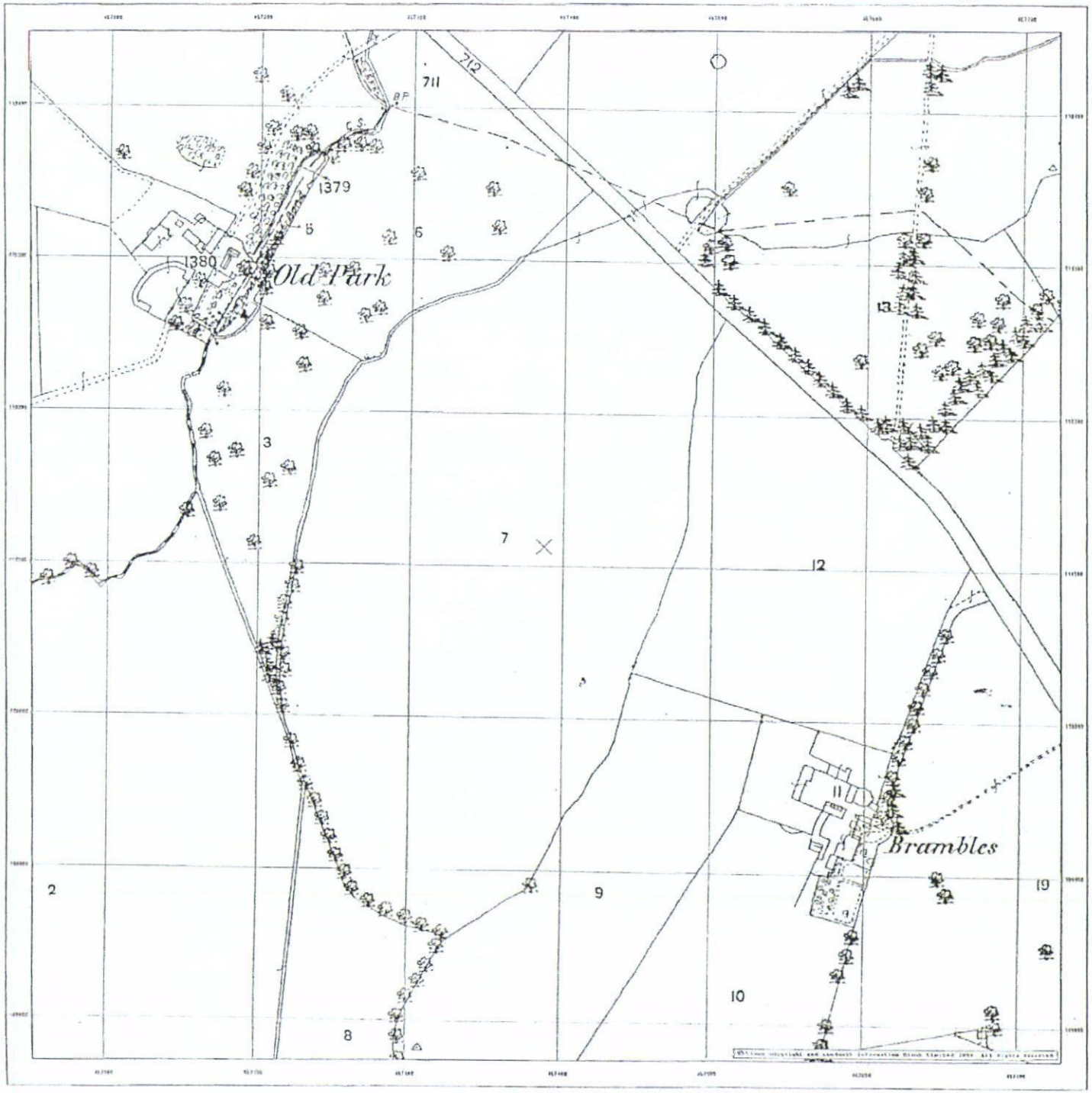


Date(s) of Publication

Ordnance Survey

LANDMARK Information Group

Produced by Landmark Information Group Limited. Tel: 01392 451797 Fax: 01392 451709



WSP

CLIENT DETAILS Envirocheck Order No: EC5052431_5_1

Customer Ref: G Roberts, 12478552
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467390 110110

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1856 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1918, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

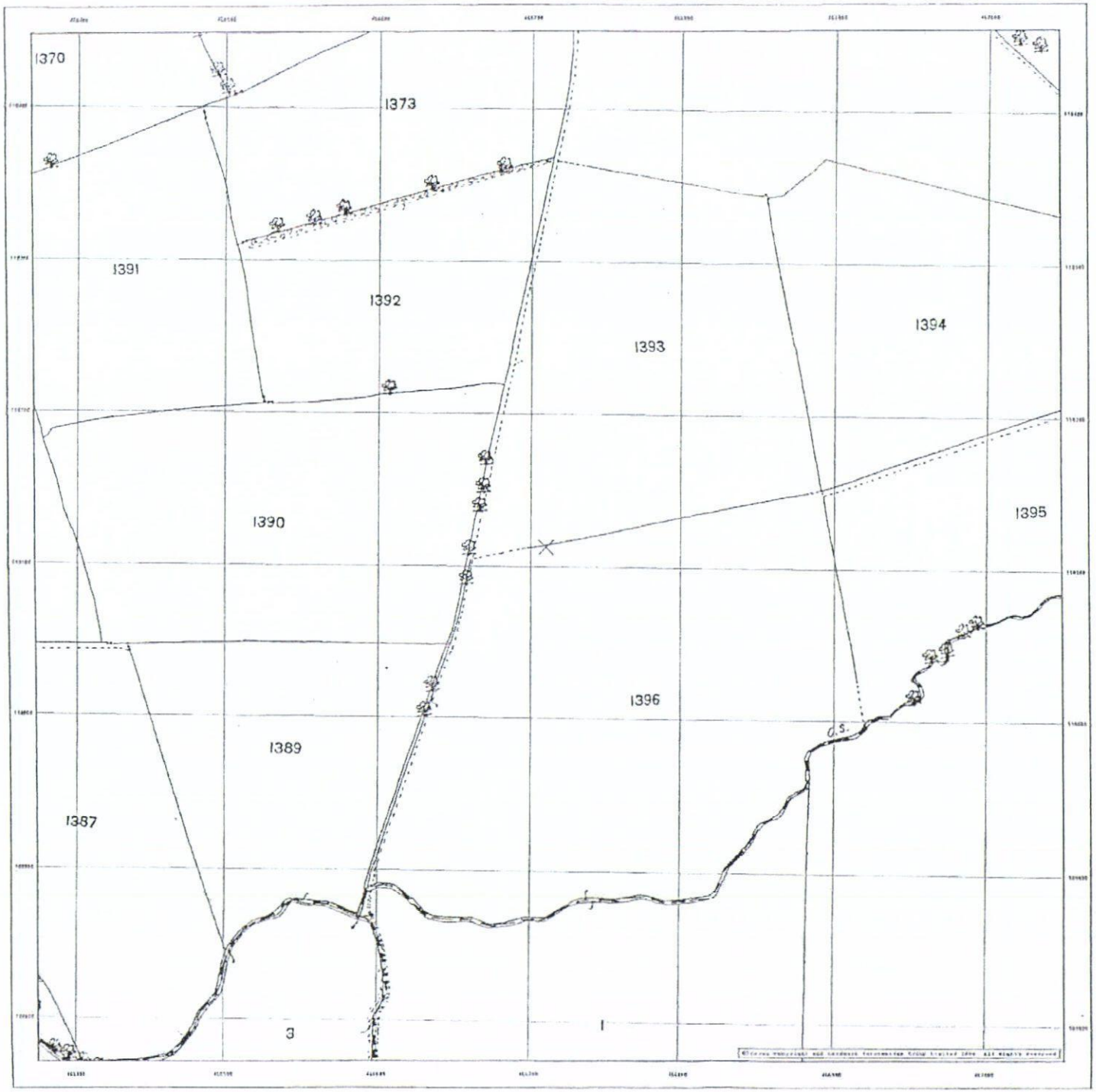
1881

Date(s) of Publication

Ordnance Survey

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Customer Ref: G Roberts 12070554
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 466710 110110

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps purchased by field at the scale adopted for England, Wales and Scotland in the 1840's. In 1853 the 1:2,500 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1918, all OS maps were based on the Cassini Projection, with independent surveys of a single county or groups of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

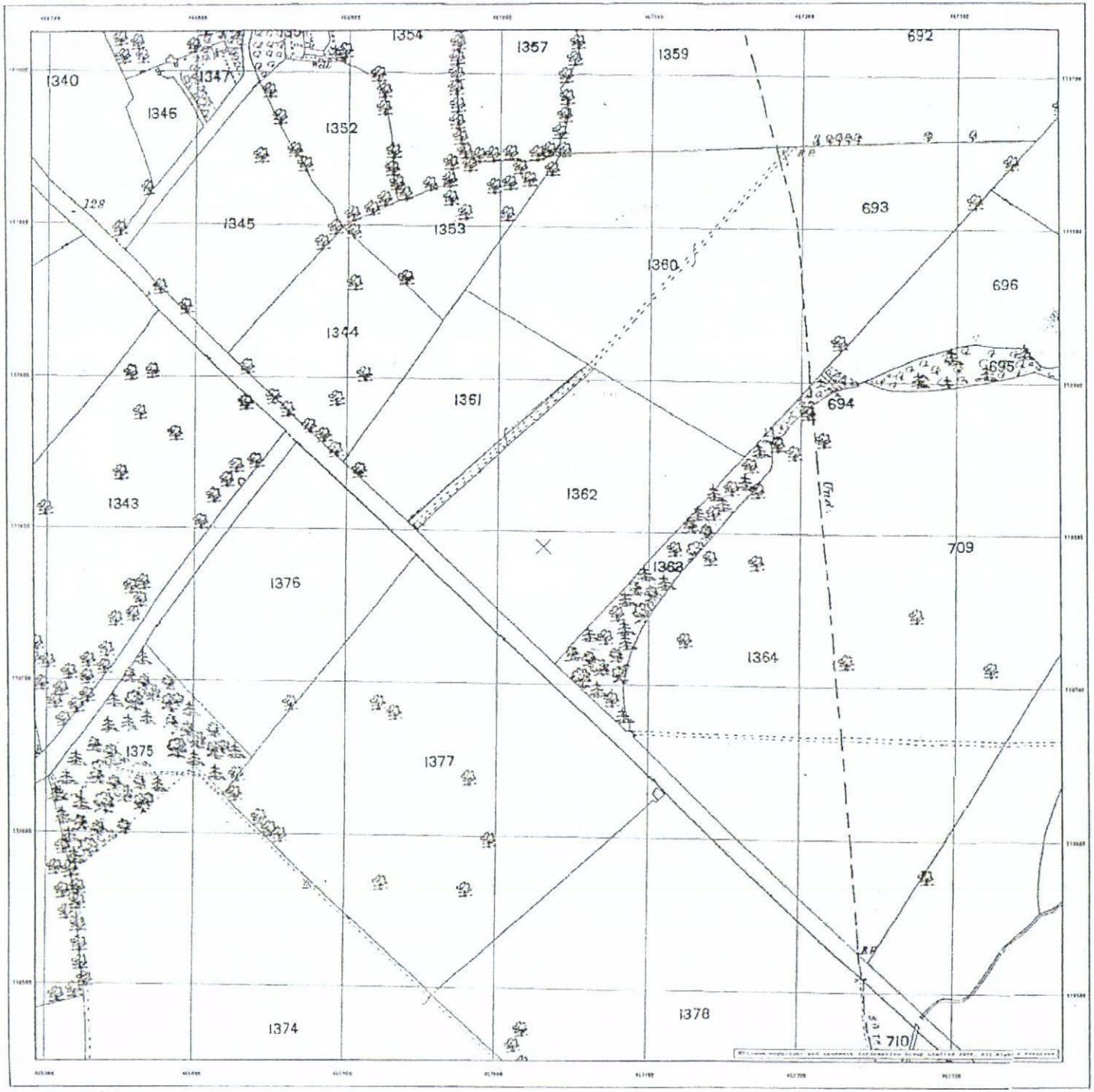
1881

Date(s) of Publication

Ordnance Survey

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WSP

CLIENT DETAILS Envirocheck Order No. EC5052431_3_1

Customer Ref: G Roberts, 13010584
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467030 110790

Old Work Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:1,250 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

1881

Date(s) of Publication

Ordnance Survey

LANDMARK Information Group

Produced by Landmark Information Group Limited Tel: 01392 441000 Fax: 01392 441001



WSP

CLIENT DETAILS Envirocheck Order No. EC5052431_5_1

Customer Ref: G Roberts, 12476594
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467390 110110

Old Park Farm

Waterlooville

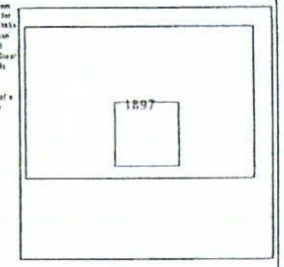
Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1856 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Sheets were at a scale of 1:2,500

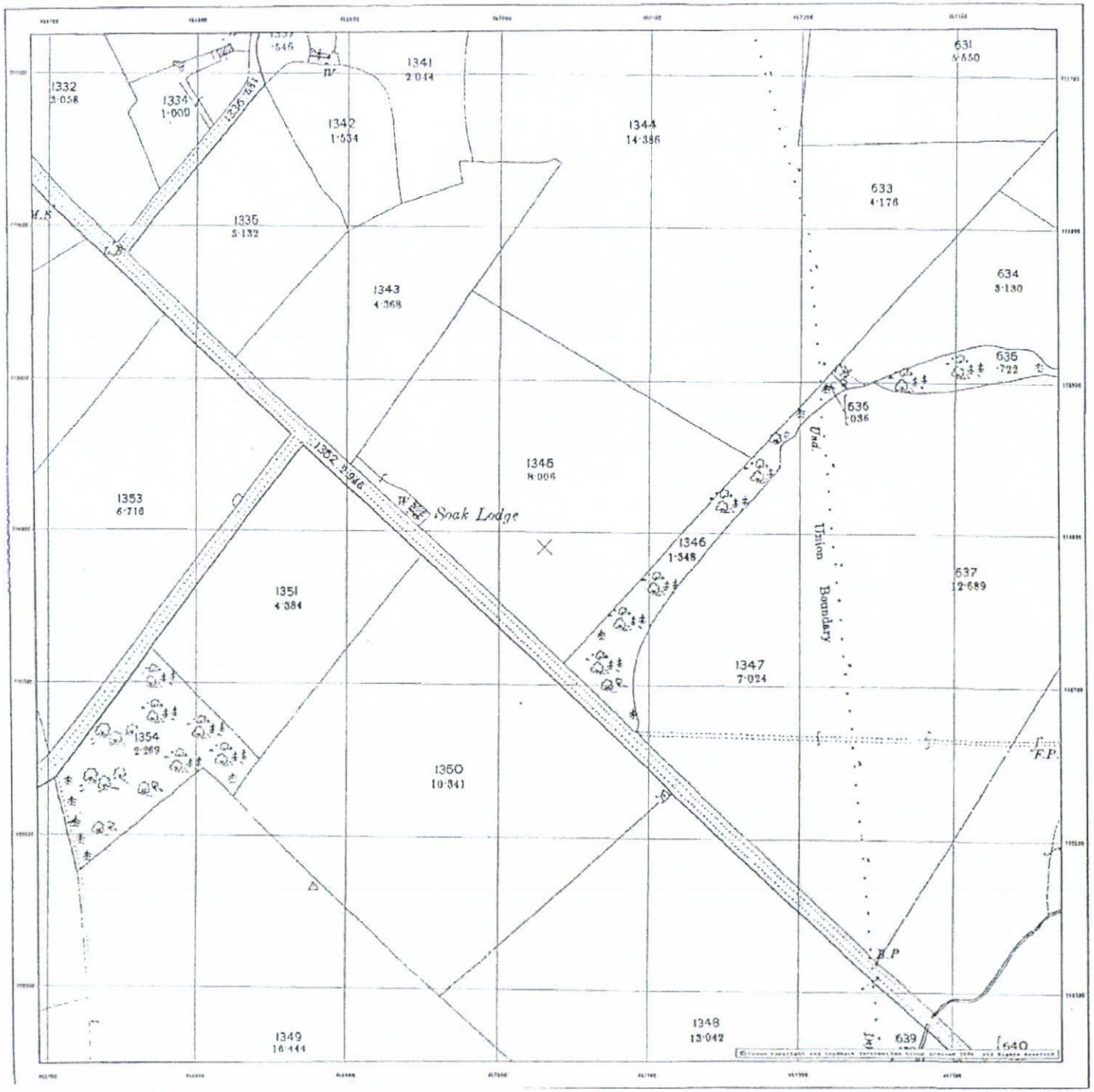


Date(s) of Publication

Ordnance Survey

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Customer Ref: G Roberts,
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467030 110750

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale supplied for England, Wales and Scotland. In the 1840's & 1854 the 1:1,500 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

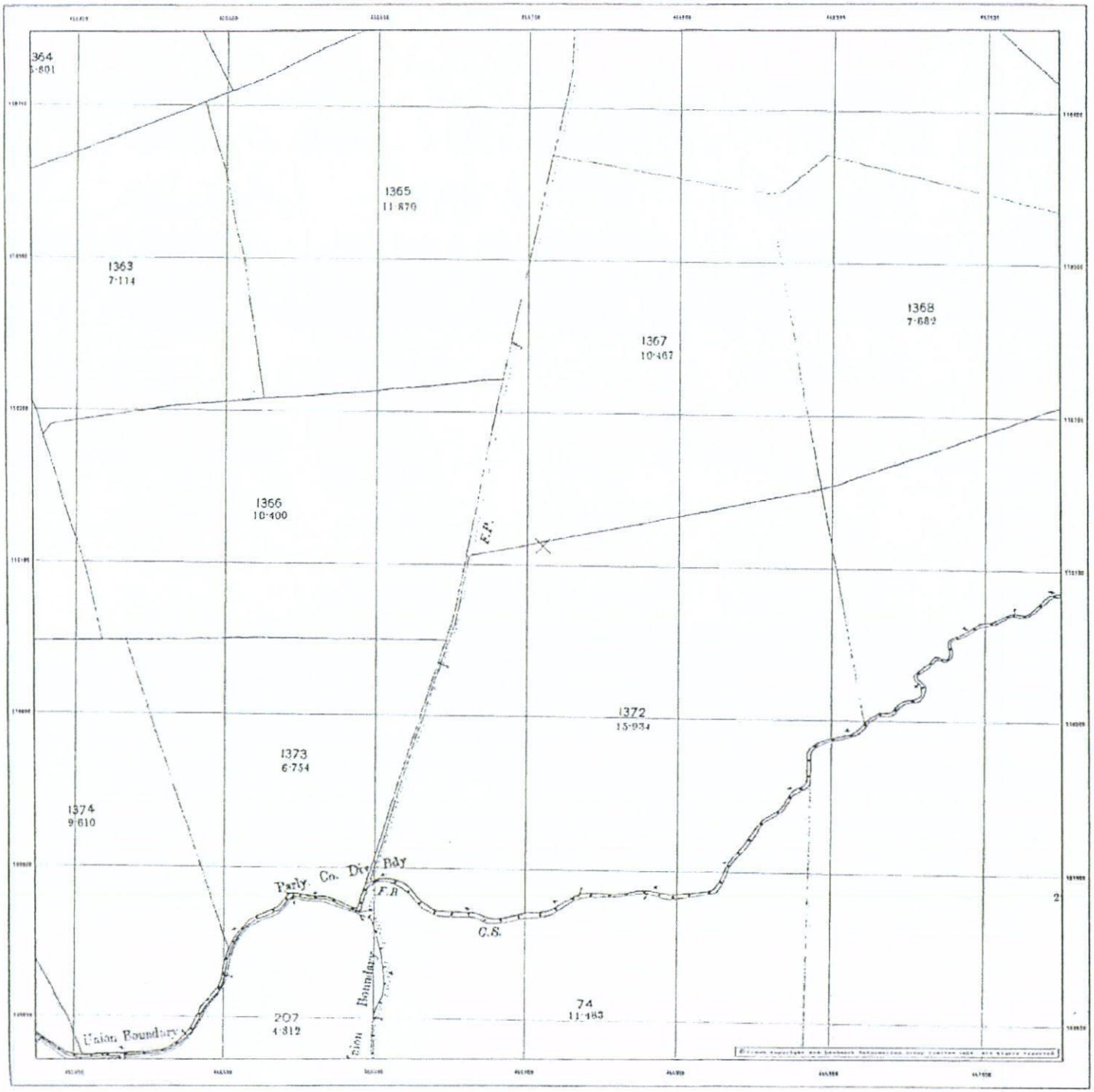
1897

Date(s) of Publication

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Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 466710 110110

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps published/county sets at the scale adopted for England, Wales and Scotland in the 1840's. In 1872 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1935, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

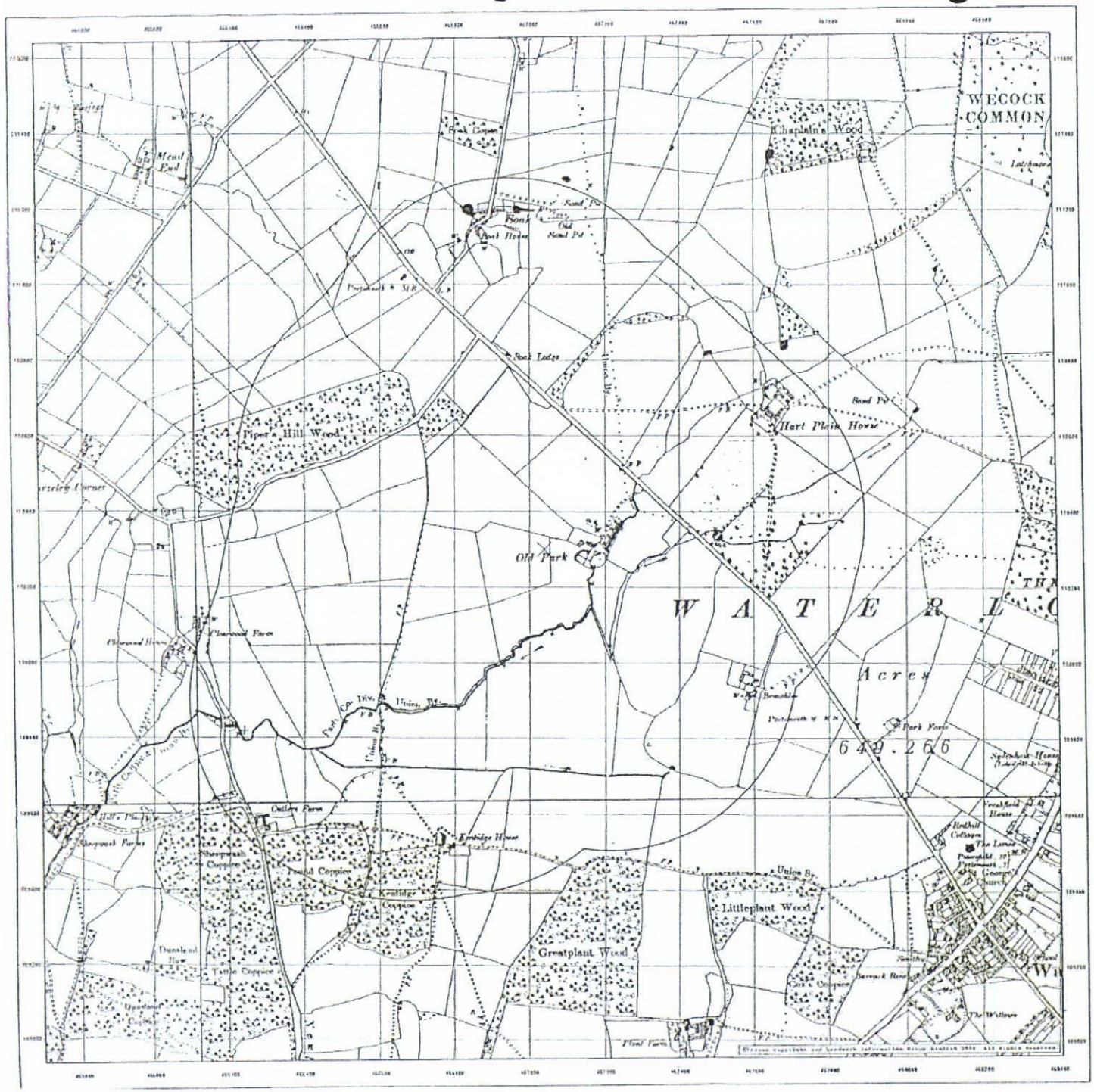
1897

Date(s) of Publication

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Customer Ref: G Roberts, 12078594
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467040 110300

Old Park Farm

Waterlooville

Historical Map Legend

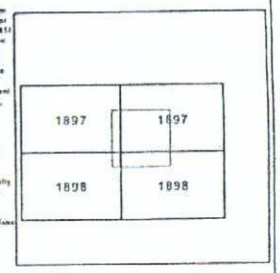
- Quarry
- Shingle
- Railway over Road
- Road over Railway
- Gravel Pit
- Sand Pit
- Level Crossing
- Railway over River
- Other Pits
- Road over Stream
- Road over Stream
- Rough Pasture
- Furze
- Road over River or Canal
- Marsh
- Reeds
- Sunken Road
- Raised Road
- Osiers
- Instrumental Contour
- Arrow denotes flow of Water
- Sketched Contour

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale appropriate for England, Wales and Scotland in the 1840's, the 1:2,500 scale was adopted for mapping urban areas; these maps were used to replace the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional 1:2500 was produced which updated the 1:10,560 mapping from a number of sources. The maps above outlined - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the final 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Source map scale - 1:10,560

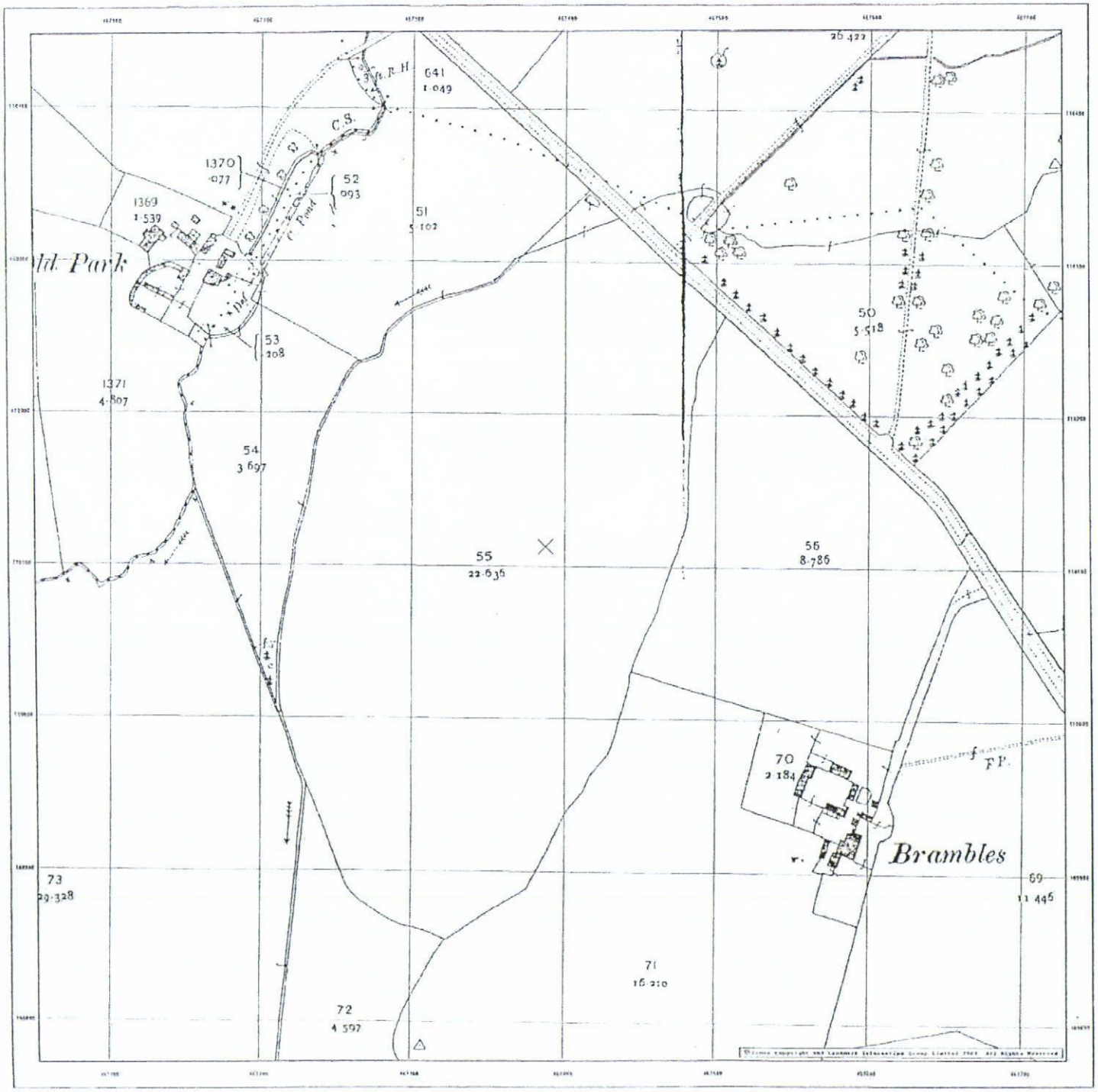


Date(s) of Publication

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WSP

CLIENT DETAILS Envirocheck Order No. EC5052431_5_1

Customer Ref: G Roberts, 13878594
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467390 110110

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The Historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1996 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1918, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in overlying areas.

Surface map scale - 1:2,500

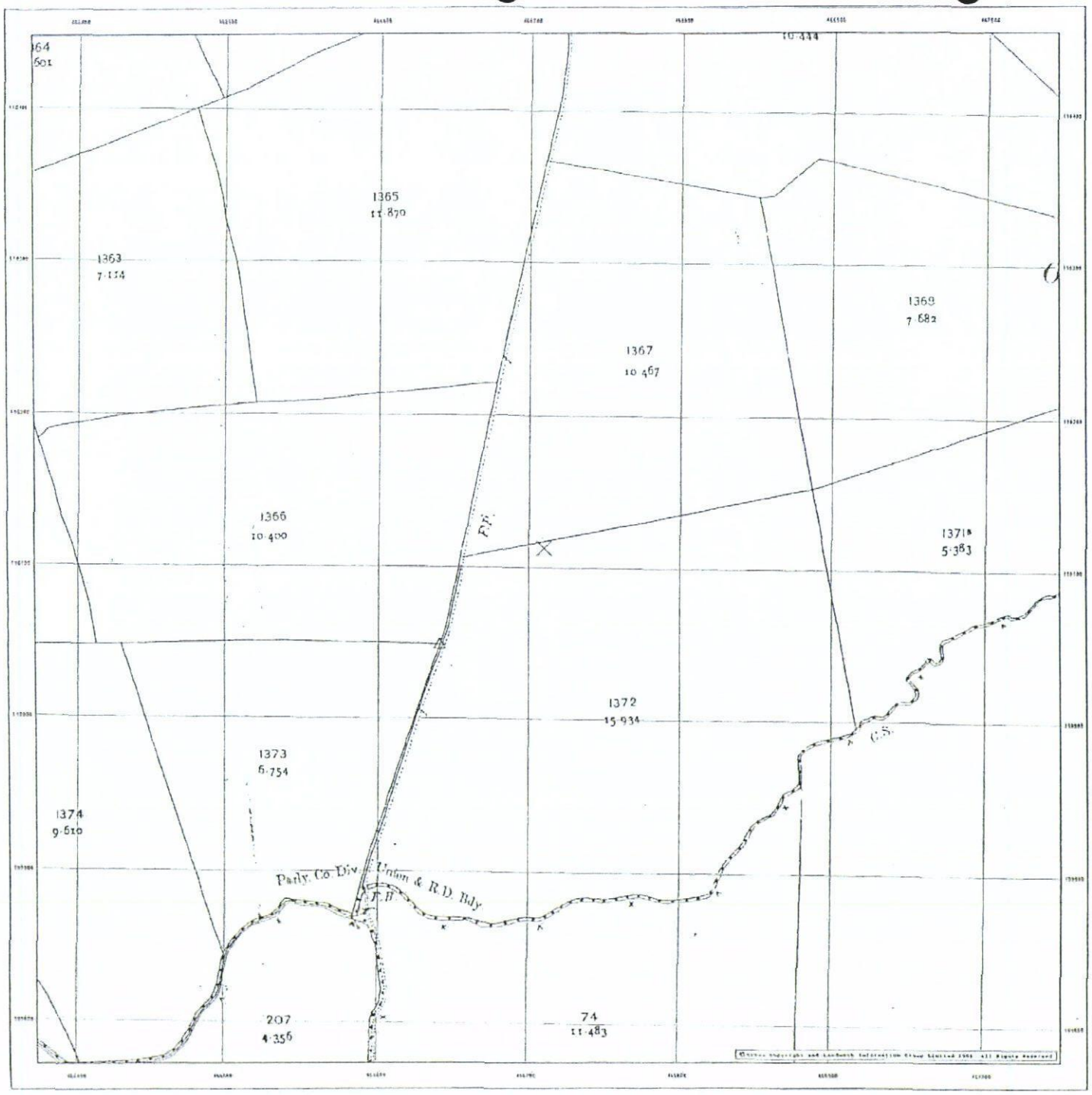
1909

Date(s) of Publication

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Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 466710 110110

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Feat
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:1,056 scale was adopted for mapping urban areas and by 1888 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published data given on the right is often some years later than the surveyed date. Before 1918, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

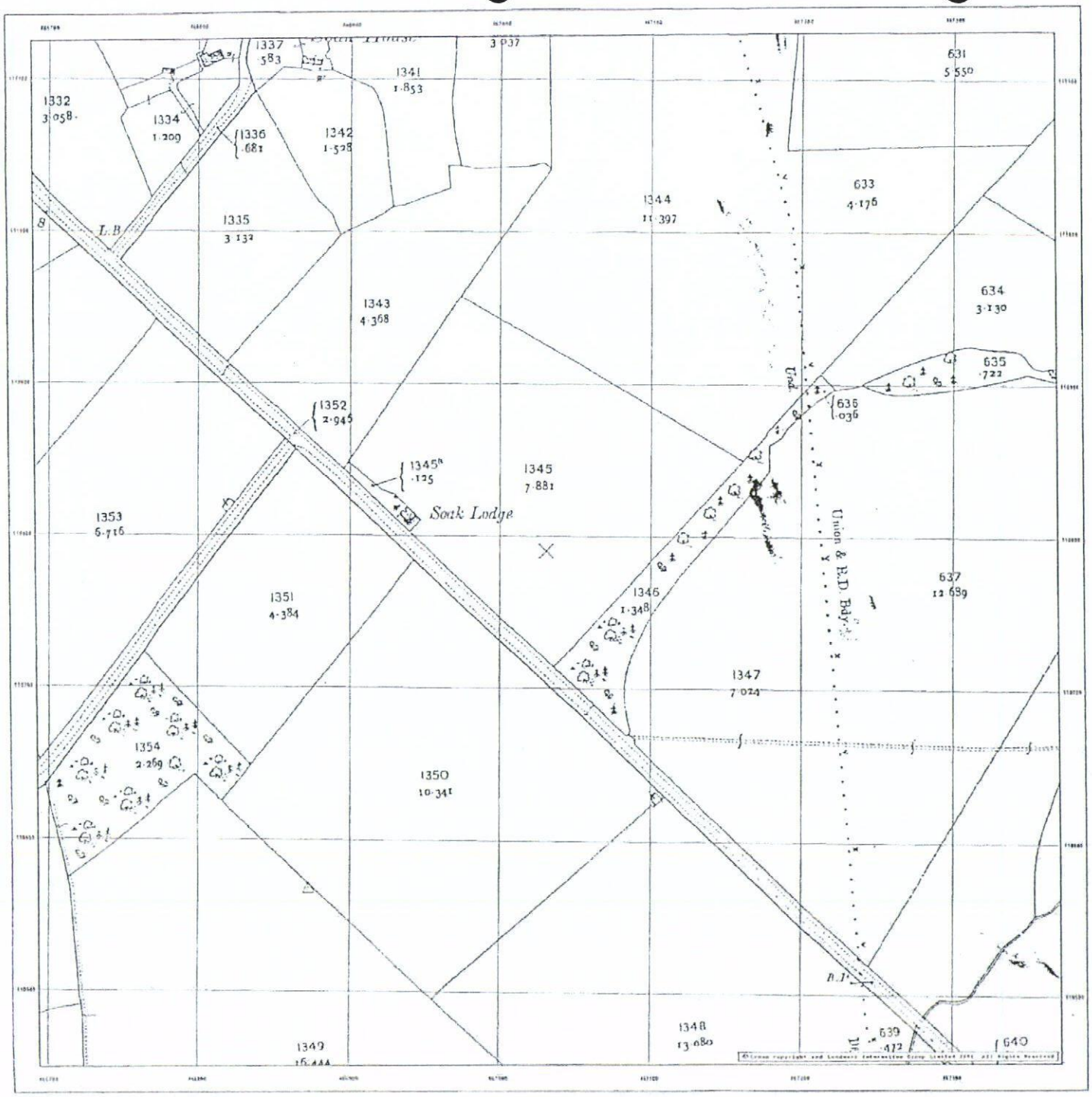
1909

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Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467030 110790

Old Park Farm

Winchester

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The Historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:1,056 scale was adopted for mapping urban areas and by 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1855, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in matching sheets.

Source map scale - 1:2,500

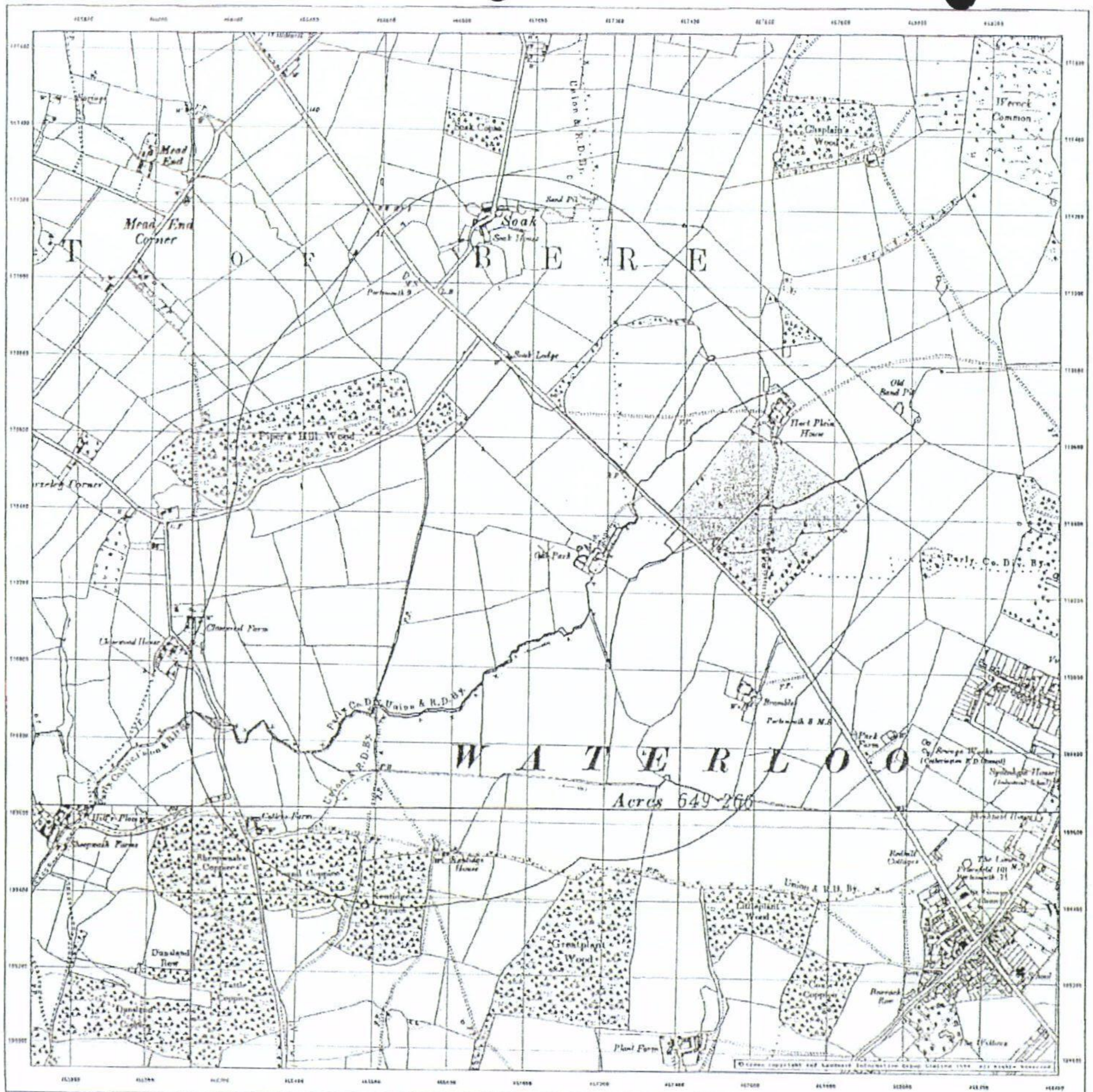
1909

Date(s) of Publication

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Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467040 110300

Old Park Farm

Waterlooville

Historical Map Legend

Quarry, Shingle, Railway over Road, Road over Railway, Gravel Pit, Sand Pit, Level Crossing, Railway over River, Other Pits, Road over Stream, Road over Stream, Rough Pasture, Furze, Road over River or Canal, Marsh, Reeds, Sunken Road, Raised Road, Osiers, Instrumental Contour, Arrow denotes flow of Water, Sketched Contour

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the sight therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Source map scale - 1:10,560

1909	1910
1910	1909

Date(s) of Publication

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Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467390 110110

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:1,500 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

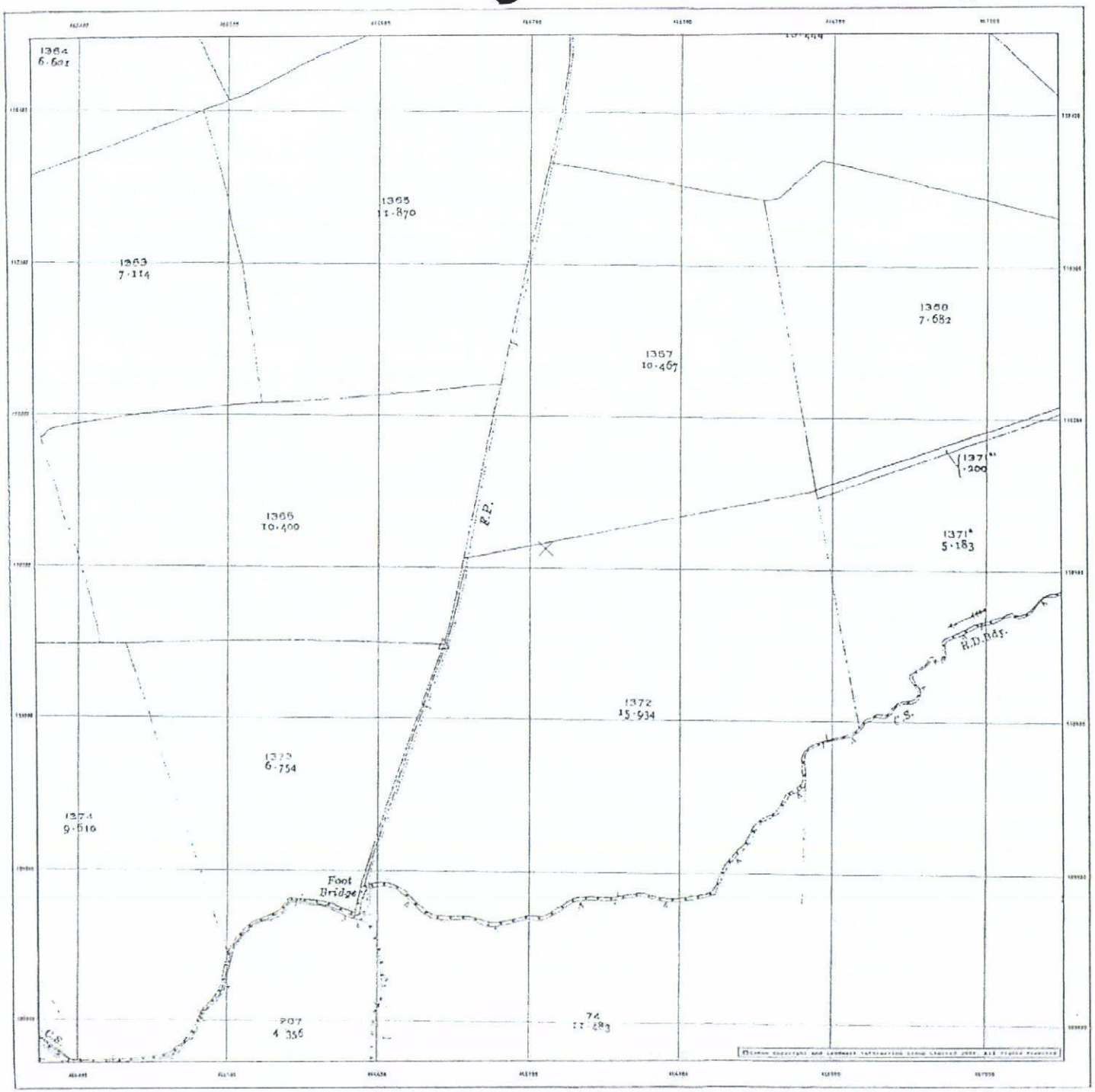
1932

Date(s) of Publication

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Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 466710 150110

Old Park Farm

Waterlooville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The Historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1935, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

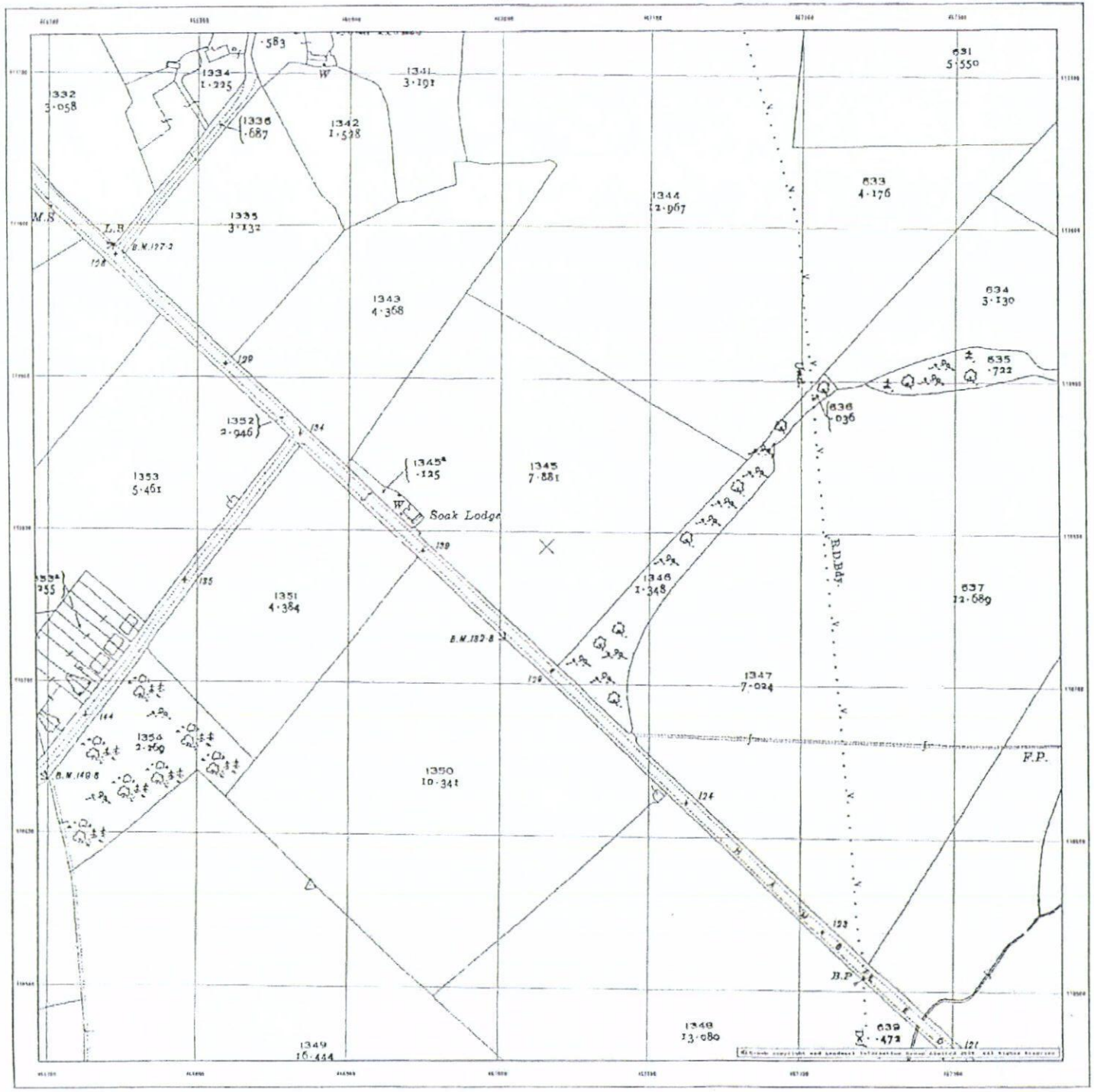
Source map scale - 1:2,500

1932

Date(s) of Publication

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Mountbatten House Basingstoke
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467030 110790

Old Park Farm

Watertonville

Historical Map Legend

Quarry
Sand Pit
Marsh
Reeds
Gravel Pit
Clay Pit
Rough Pasture
Furze
Refuse Heap
Shingle
Osiers
Ford
Railway crossing River or Canal
Railway crossing Road
Level Crossing
Embankment
Cutting
Road crossing Railway
Road over Single Stream
Road over River or Canal
Arrow denotes flow of Water

HAMPSHIRE & ISLE OF WIGHT

The Historical maps shown were compiled from many predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Between 1918 and 1952 maps were based on the Transverse Projection, with independent surveys of a single county or group of counties, giving rise to significant inconsistencies in matching areas.

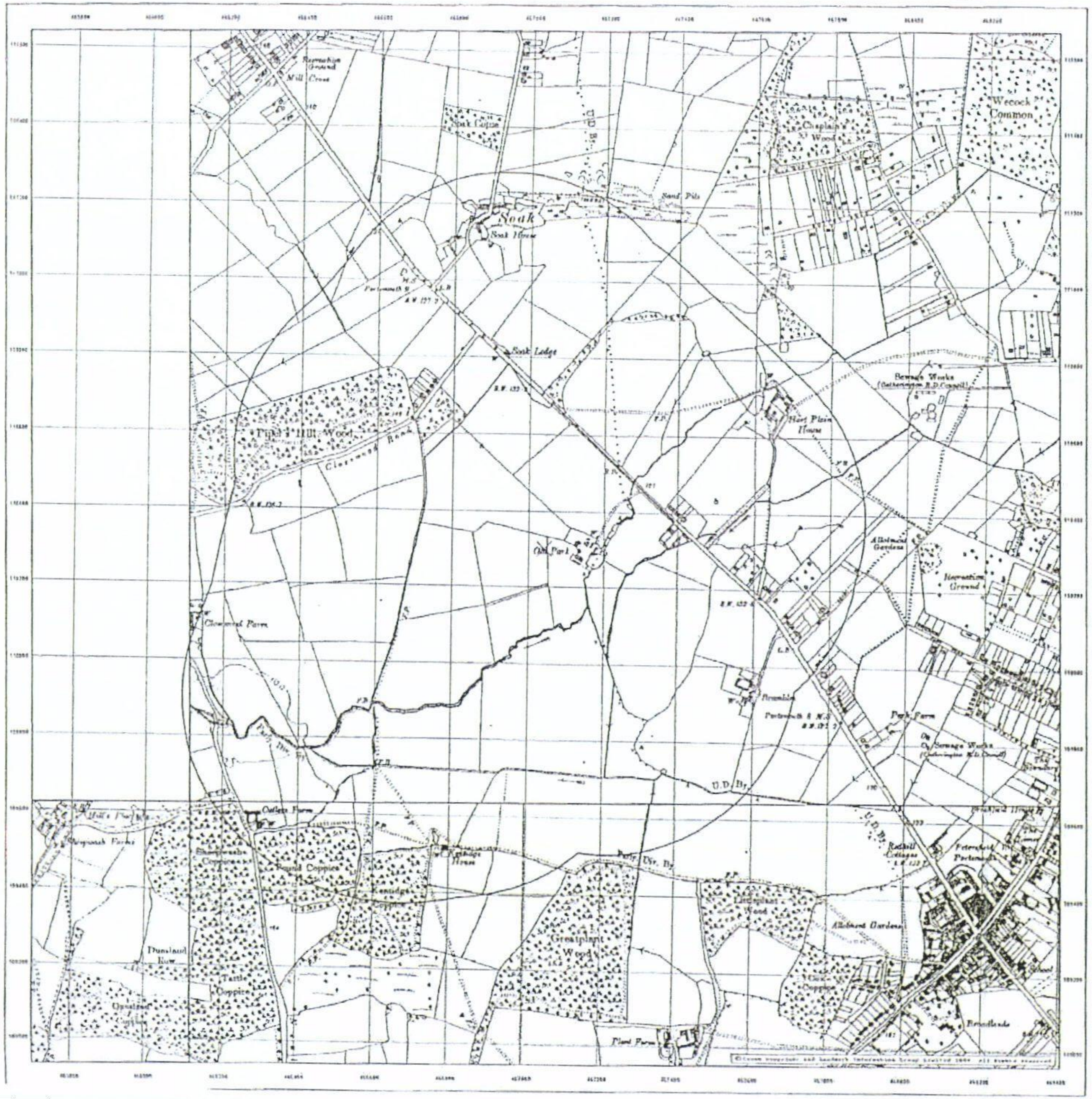
Source map scale - 1:2,500

1952

Date(s) of Publication

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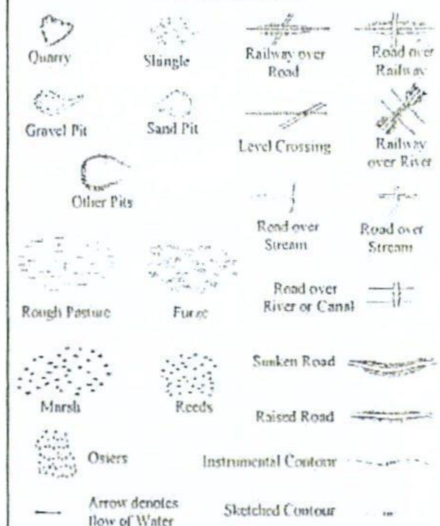
SITE DETAILS

Grid Reference 467040 110300

Old Park Farm

Waterlooville

Historical Map Legend

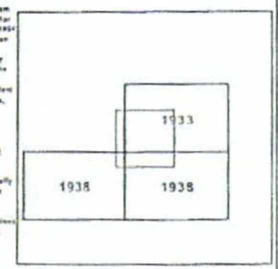


HAMPSHIRE & ISLE OF WIGHT

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the final 1:10,560 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Source map scale - 1:10,560

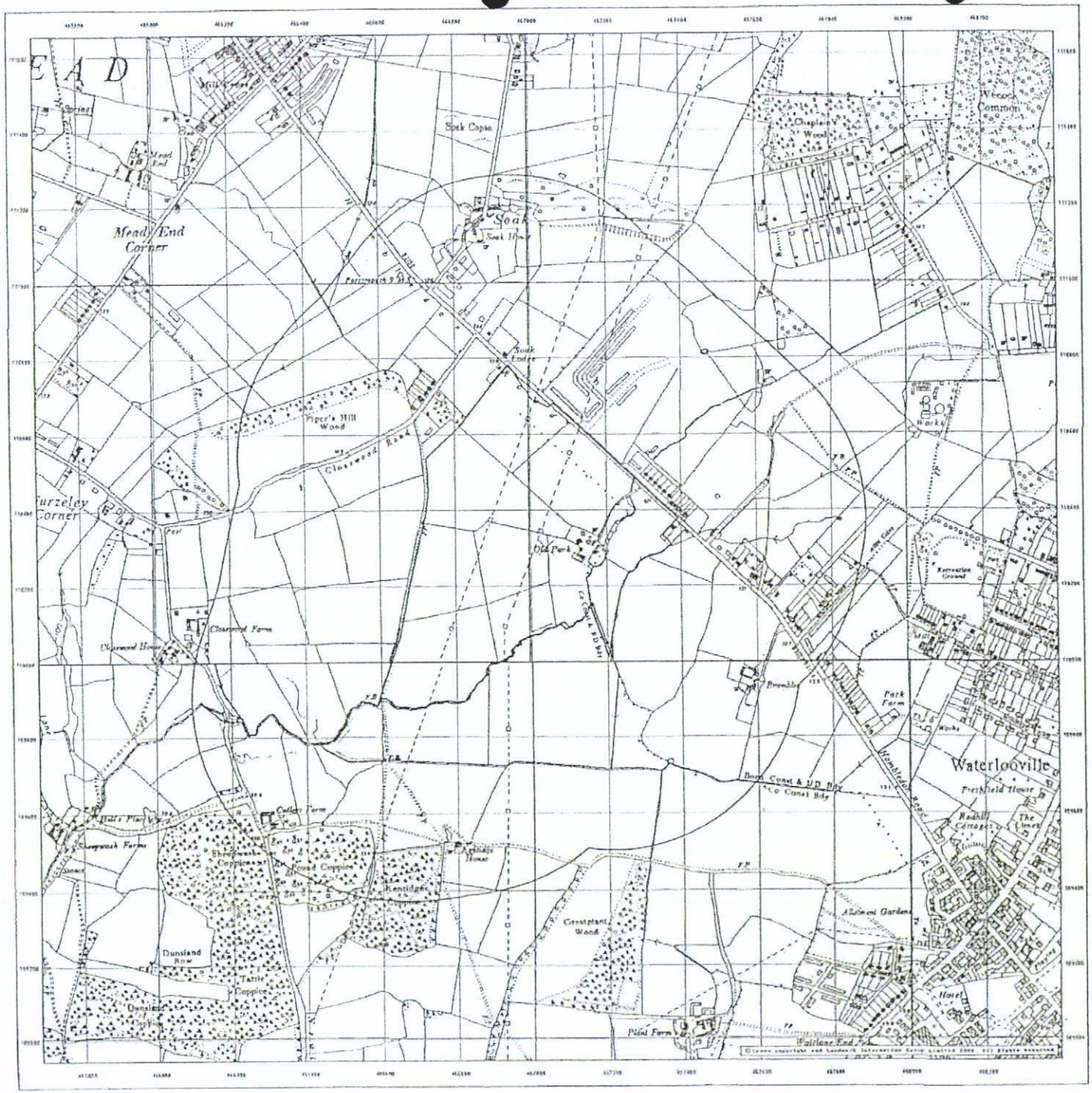


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Mountbatten House Basingstoke
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467040 110300

Park Farm

Waterlooville

Historical Map Legend

- Chalk Pit, Clay Pit, or Quarry
- Gravel Pit
- Sand Pit
- Disused Pit or Quarry
- Refuse or Slag Heap
- Direction of Flow of Water
- Cutting
- Road Under
- Road Over
- Level Crossing
- Foot Bridge
- Non-coniferous Trees
- Coniferous Trees
- Scrub
- Lake, Loch or Pond
- Pylon
- Electricity Transmission Line
- Pole
- Shingle
- Sand
- Embankment
- Bracken
- Heath
- Rough Grassland
- Reeds
- Saltings
- Marsh
- Standard Gauge Multiple Track
- Standard Gauge Single Track
- Siding, Tramway or Mineral Line
- Narrow Gauge

ORDNANCE SURVEY PLAN

The Historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in edge-matching.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with off-sheet names and other straight lines removed. These maps were initially programmed with the National Grid. In 1972, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 15 years or so for urban areas.

Source Map Scale - 1:10,560

1962

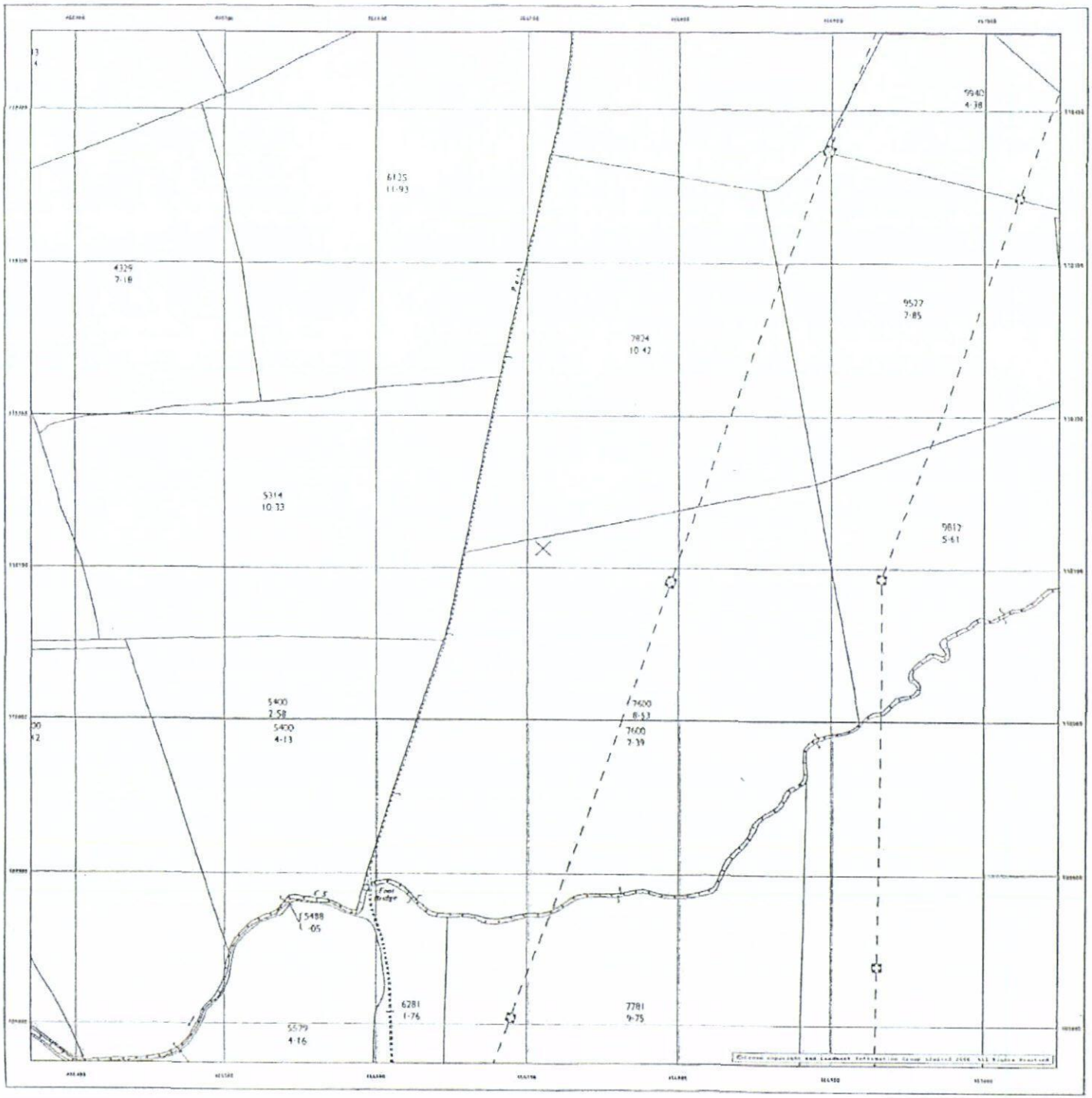
1963

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SITE DETAILS Grid Reference 466710 110110

Old Park Farm

Watermeetle

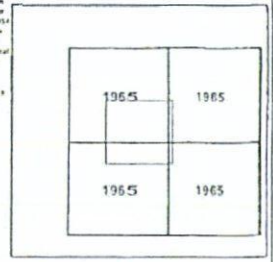
Historical Map Legend

- Inactive Quarry, Chalk Pit or Clay Pit
- Active Quarry, Chalk Pit or Clay Pit
- Culvert
- Slope
- Slope
- Pylon
- Electricity Transmission Line
- Direction of Water flow
- Coppice, Osier
- Marsh
- Saltings
- Orchard Tree
- Reeds
- Rough Grassland
- Scrub
- Heath
- Bracken
- Coniferous Tree (Surveyed)
- Coniferous Tree (Not Surveyed)
- Non-coniferous Tree (Surveyed)
- Non-coniferous Tree (Not Surveyed)

ORDNANCE SURVEY PLAN

The Historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's, ie 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in adjoining areas.

Source map scale - 1:2,500



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Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467390 110110

Old Park Farm

Waterlooville

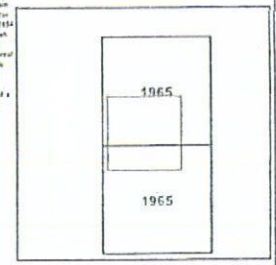
Historical Map Legend

Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Culvert
Slope
Slope
Pylon
Electricity Transmission Line
Direction of Water flow
Coppice, Osier
Marsh
Saltings
Orchard Tree
Reeds
Rough Grassland
Scrub
Heath
Bracken
Coniferous Tree (Surveyed)
Coniferous Tree (Not Surveyed)
Non-coniferous Tree (Surveyed)
Non-coniferous Tree (Not Surveyed)

ORDNANCE SURVEY PLAN

The historical maps shown were reproduced from maps ordinarily held at the scale adopted for England, Wales and Scotland in the 1949's. In 1854 the 1:1,056 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the settled parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

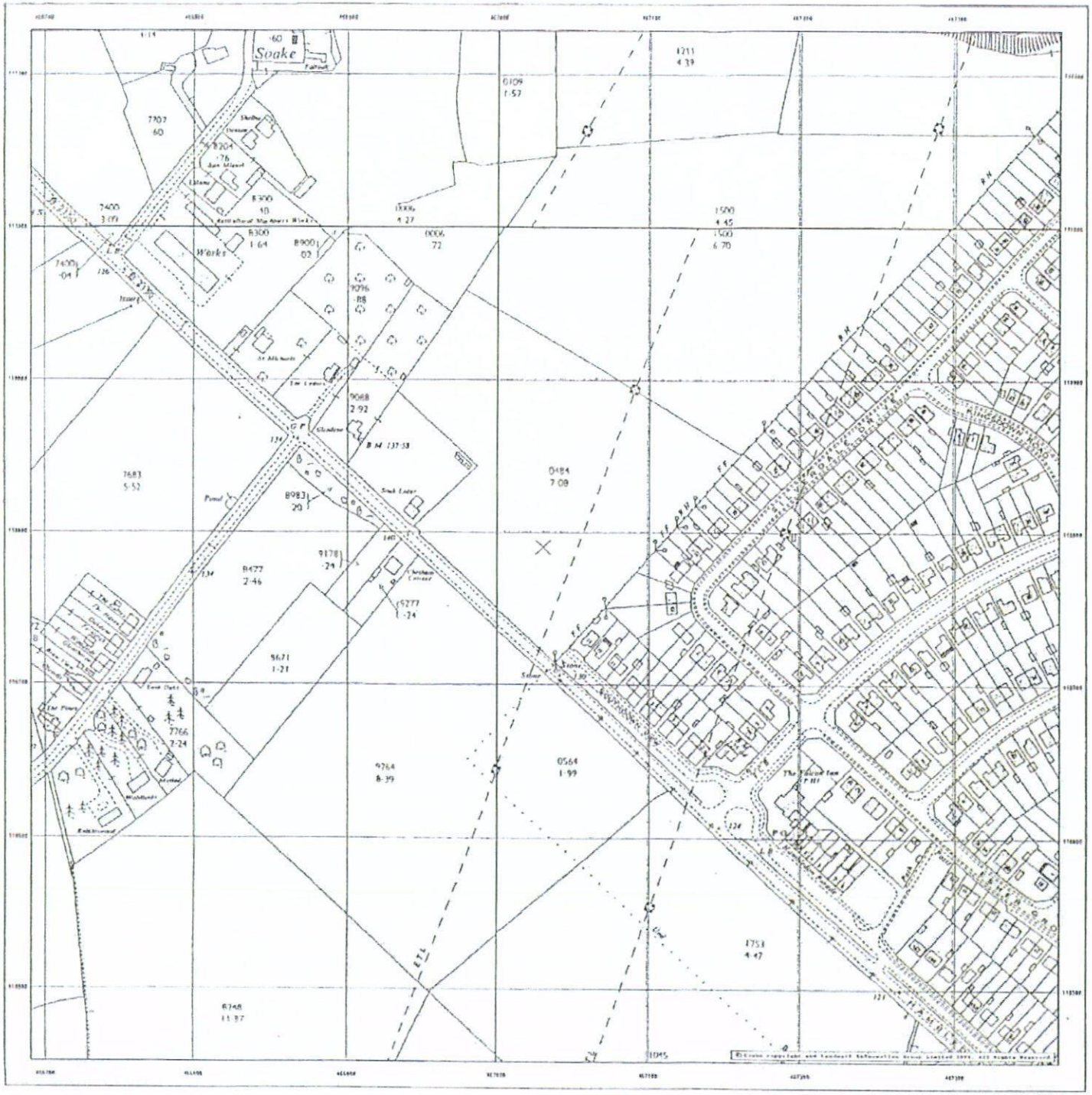


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Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467030 116790

Old Park Farm

Waterlooville

Historical Map Legend

Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Culvert
Slope
Slope
Pylon
Electricity Transmission Line
Direction of Water flow
Coppice, Osier
Marsh
Saltings
Orchard Tree
Reeds
Rough Grassland
Scrub
Heath
Bracken
Coniferous Tree (Surveyed)
Coniferous Tree (Not Surveyed)
Non-coniferous Tree (Surveyed)
Non-coniferous Tree (Not Surveyed)

ORDNANCE SURVEY PLAN

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1880's. In 1914 the 1:2,500 scale was adopted for mapping urban areas and by 1996 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1919, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

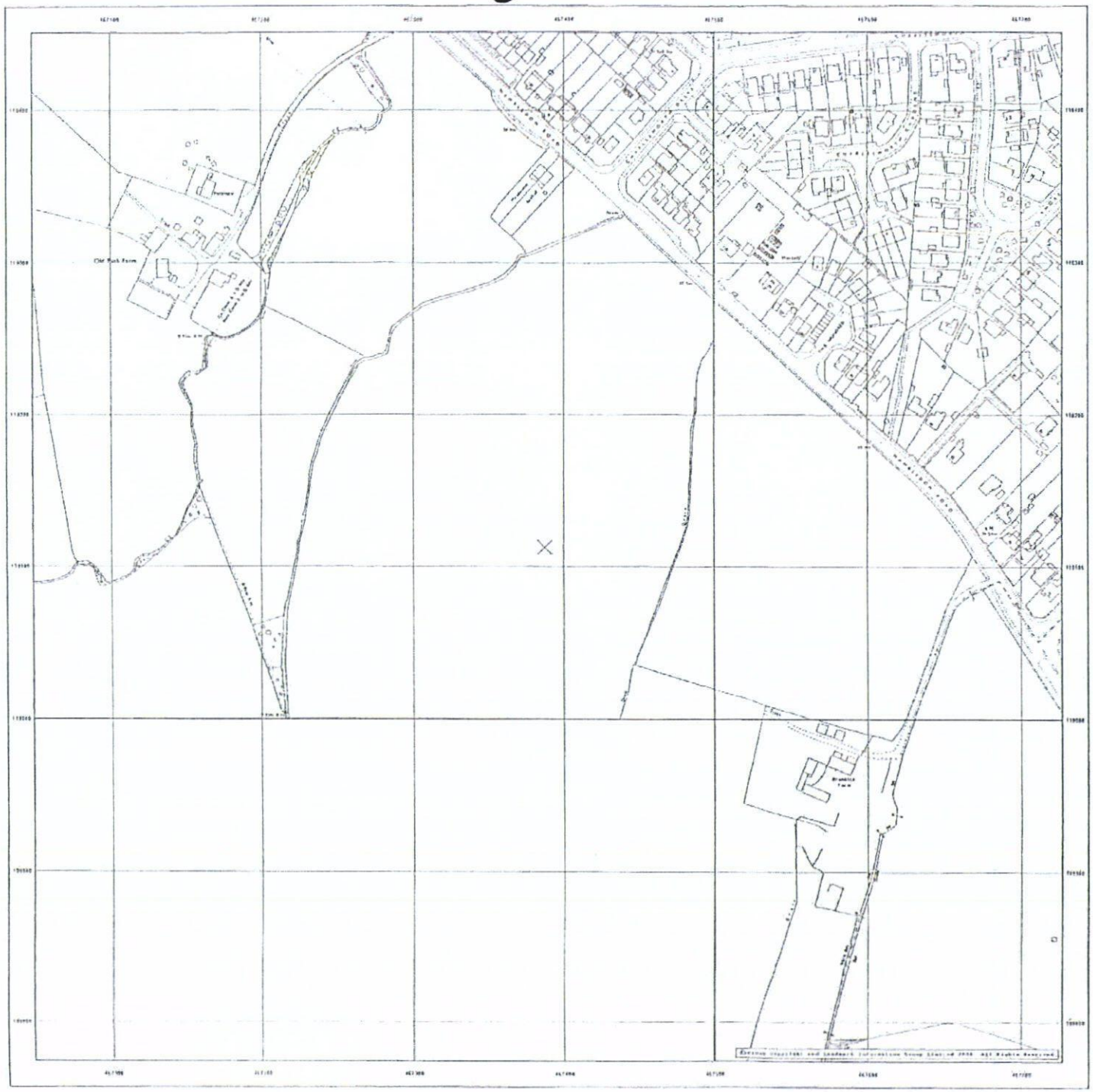
1966
1966
1965
1965

Date(s) of Publication

Ordnance Survey Leading the way

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Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467390 110110

Old Park Farm

Waterlooville

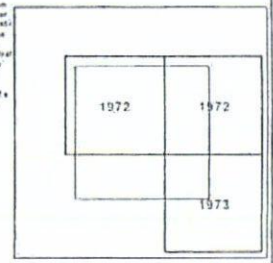
Historical Map Legend

- Inactive Quarry, Chalk Pit or Clay Pit
- Active Quarry, Chalk Pit or Clay Pit
- Culvert
- Slope
- Slope
- Pylon
- Electricity Transmission Line
- Direction of Water flow
- Coppice, Osier
- Marsh
- Saltings
- Orchard Tree
- Reeds
- Rough Grassland
- Scrub
- Heath
- Bracken
- Coniferous Tree (Surveyed)
- Coniferous Tree (Not Surveyed)
- Non-coniferous Tree (Surveyed
- Non-coniferous Tree (Not Surveyed)

ORDNANCE SURVEY PLAN

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 19th c. In 1855 the 1:2,500 scale was adopted for mapping urban areas and by 1890 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:1,250

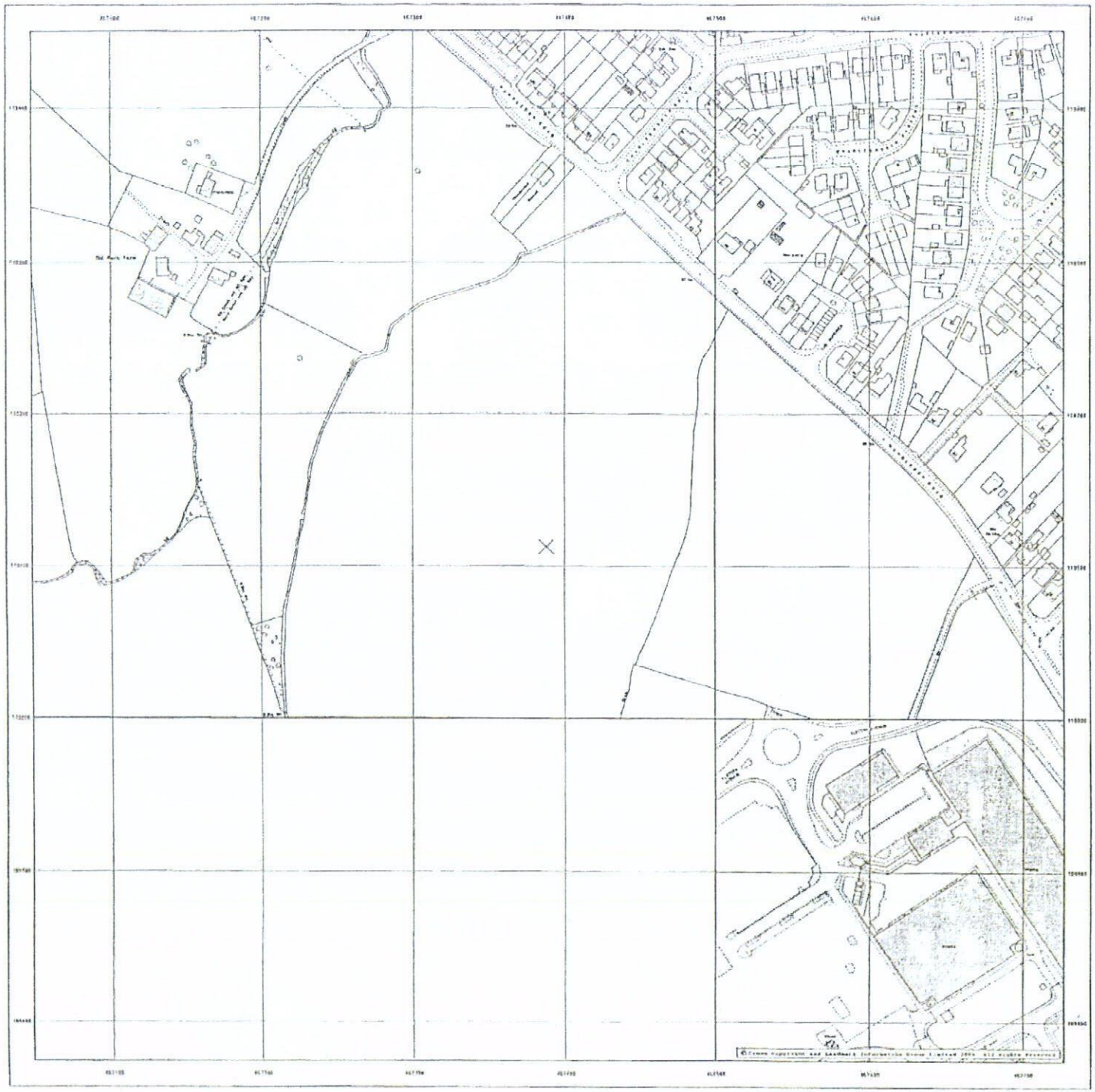


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WSP

CLIENT DETAILS Envirocheck Order No. EC5052431_5_1

Customer Ref: G Roberts, 13070594
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467390 110110

Old Park Farm

Waterlooville

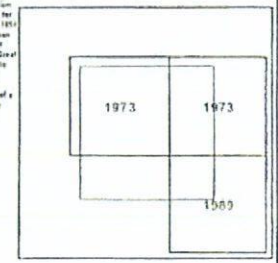
Historical Map Legend

Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Culvert
Slope
Slope
Pylon
Electricity Transmission Line
Direction of Water flow
Coppice Osier
Marsh
Saltings
Orchard Tree
Reeds
Rough Grassland
Scrub
Heath
Bracken
Coniferous Tree (Surveyed)
Coniferous Tree (Not Surveyed)
Non-coniferous Tree (Surveyed)
Non-coniferous Tree (Not Surveyed)

ORDNANCE SURVEY PLAN

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1800's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1880 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies at outlining areas.

Source map scale - 1:1,250

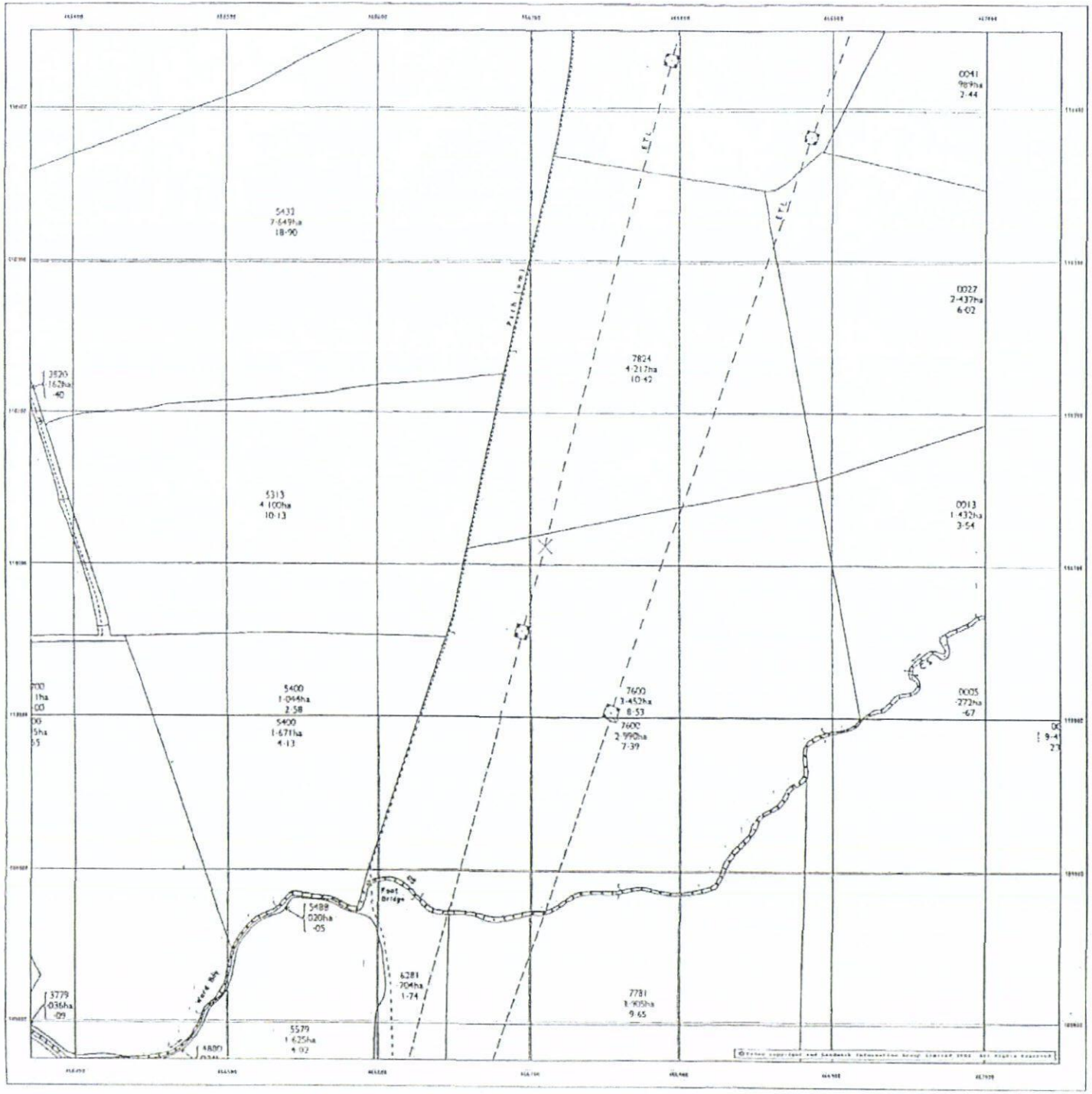


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WSP

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WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingstoke
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 466710 110110

Old Park Farm

Watersmeet

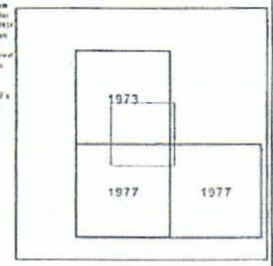
Historical Map Legend

Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Culvert
Slope
Slope
Pylon
Electricity Transmission Line
Direction of Water flow
Coppice, Osier
Marsh
Sallings
Orchard Tree
Reeds
Rough Grassland
Scrub
Heath
Bracken
Coniferous Tree (Surveyed)
Coniferous Tree (Not Surveyed)
Non-coniferous Tree (Surveyed)
Non-coniferous Tree (Not Surveyed)

ORDNANCE SURVEY PLAN

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1888 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1918, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Source map scale - 1:2,500

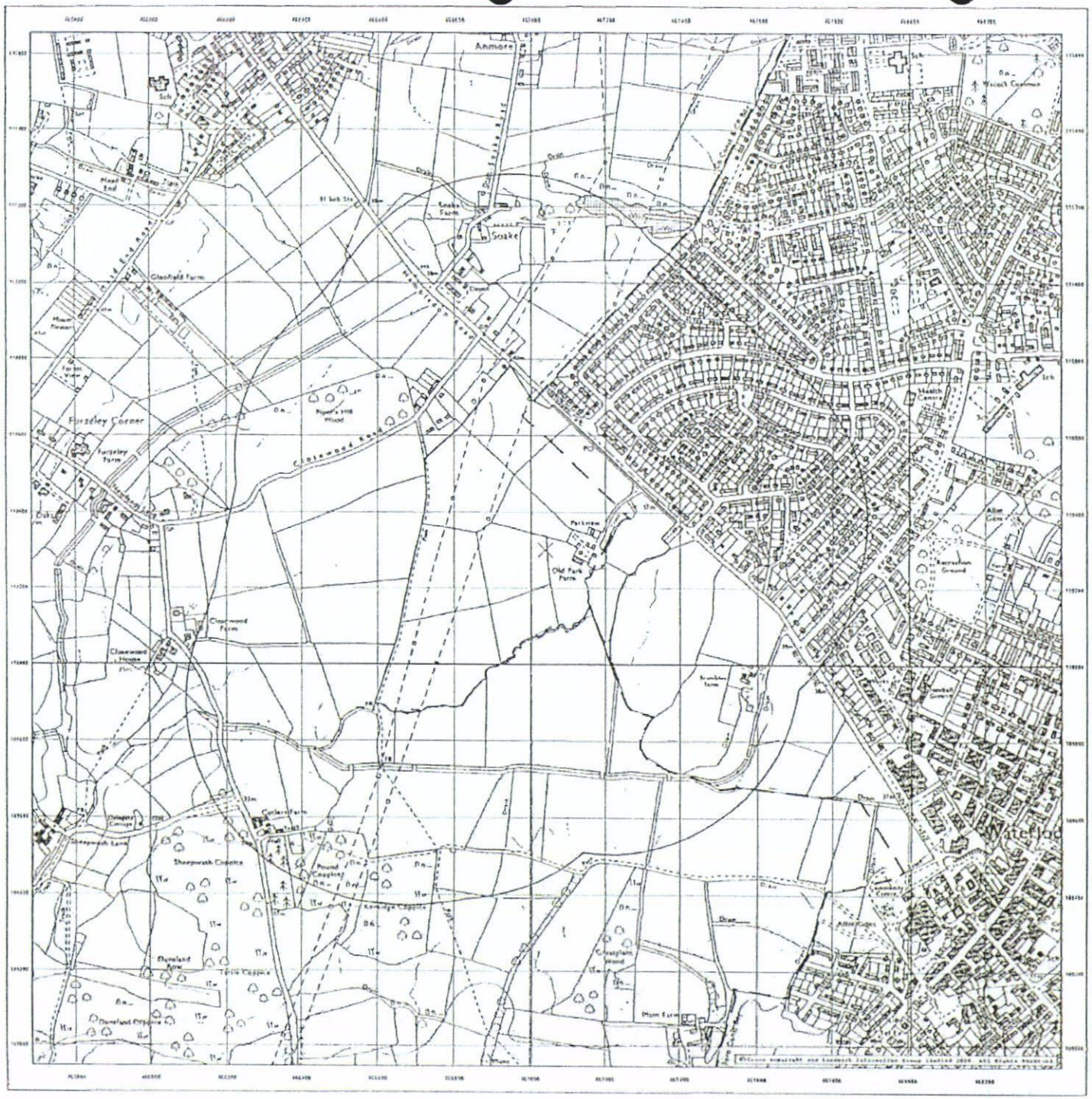


Date(s) of Publication

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LANDMARK Information Group

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Envirocheck®

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CLIENT DETAILS Envirocheck Order No. OC5052431_2_1

Customer Ref: G Roberts,12070554
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467040 110380

Old Park Farm

Waterlooville

Historical Map Legend

- Chalk Pit, Clay Pit, or Quarry
- Non-coniferous Trees
- Bracken
- Gravel Pit
- Coniferous Trees
- Heath
- Sand Pit
- Scrub
- Rough Grassland
- Lake, Loch or Pond
- Disused Pit or Quarry
- Pylon
- Reeds
- Electricity Transmission Line
- Refuse or Slag Heap
- Pole
- Saltings
- Direction of Flow of Water
- Marsh
- Shingle
- Sand
- Cutting
- Embankment
- Standard Gauge Multiple Track
- Road Under
- Road Over
- Level Crossing
- Foot Bridge
- Standard Gauge Single Track
- Siding, Tramway or Mineral Line
- Narrow Gauge

ORDNANCE SURVEY PLAN

The Historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 19th c. In 1855 the 1:2,500 scale was adopted for mapping urban areas. These maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in differing areas.

In the late 1940's, a Provisional Edition was produced, which replaced the 1:10,560 mapping from a number of sources. This maps appear enthralling - with all military camps and other drawings still removed. These maps were initially overprinted with the National Grid. In 1970 the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Source map scale - 1:10,560

1980

1982

Date(s) of Publication

Ordnance Survey

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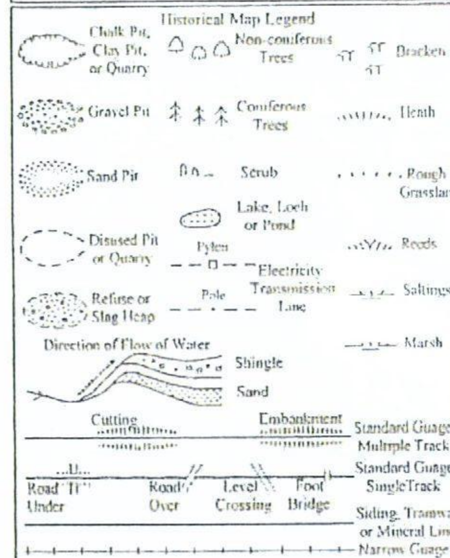
CLIENT DETAILS Envirocheck Order No. QC5052431_2_1

Customer Ref: G Roberts,12470554
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467040 110300

Old Park Farm

Waterlooville



ORDNANCE SURVEY PLAN

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially unoriginated with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Source map scale - 1:10,000

1992

1991

Date(s) of Publication

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CLIENT DETAILS Envirocheck Order No. QC5052431_2_1

Customer Ref: d Roberts/1970/04
WSP ENVIRONMENTAL LIMITED
Mountbatten House Basingview
Basingstoke
Hants RG21 4HJ

SITE DETAILS Grid Reference 467040 110300

Old Park Farm

Waterlooville

Historical Map Legend

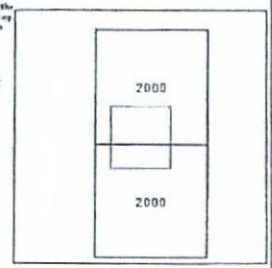
	Non-coniferous Trees		Pylon
	Coniferous Trees		Telephone Line (where shown)
	Orchard		Electricity Transmission Line (with poles)
	Rough Grassland		Gravel Pit
	Heath		Shingle
	Scrub		Refuse Tip or Slag Heap
	Marsh, Salt Marsh or Reeds	Sand	Sand
	County Boundary (England only)		Sand Pit
	Civil Parish or Community Boundary		Slopes
	Constituency Boundary		District, Unitary, Metropolitan, London Borough Boundary

ORDNANCE SURVEY PLAN

The Historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan ® which replaced the old 1:10,000 maps originally published in 1970.

The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depicting includes county, unitary authority, district, civil parish and constituency.

Source map scale = 1:10,000



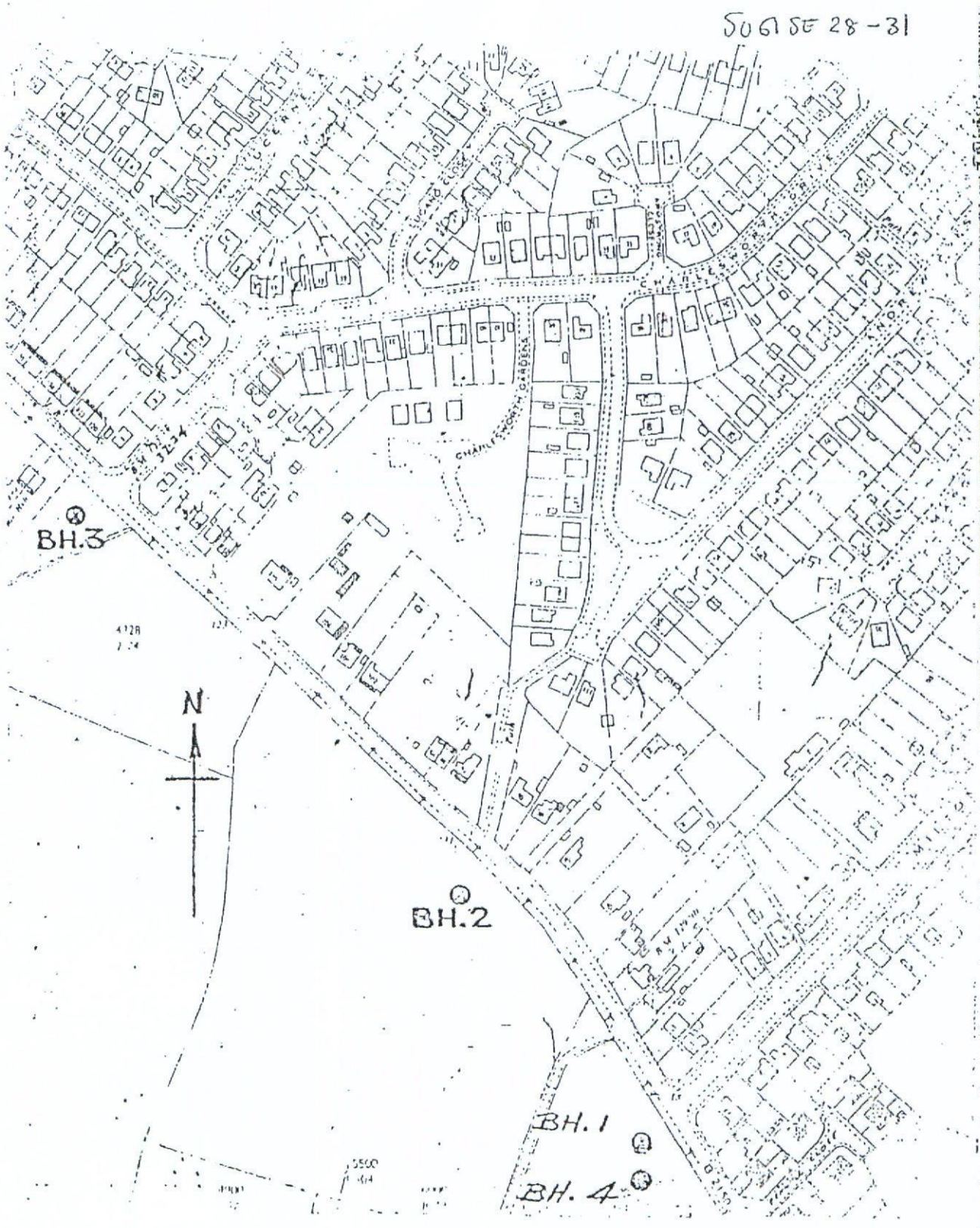
Date(s) of Publication

Ordnance Survey National Partner

LANDMARK Information Group

Produced by Landmark Information Group Limited. Tel: 01392 441700 Fax: 01392 441709

SU61SE 28-31



VT

HAMBLEDON RD.

Fig. 1.

British Geological Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

[SU61SE BJ 31]

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SU61SE100047

K Wardle Water Wells
Borehole Record and Drilling Log

D:STRATA LOG

Geo. Classification (B.G.S. use)	Description of strata	Thickness metres	Deptl metres
LONDON CLAY FORMATION	Yellow brown clay	3.50	3.50
	London clay	46.00	49.50
READING FORMATION	Reading Beds	34.00	83.50
UPPER CHALK FORMATION	Upper chalk - very weathered - caving below casing during pumping	55.00	138.50

SU 61 SE/30

NGR 6742 1033

RECORD OF BORING

Ored for: BOROUGH OF HAVANT

Type of boring: PERCUSSION

Diameter: 150mm

Date of boring: 2-2-79

Scale: 1:50

Location: HAMBLEDON RD. WATERLOOVILLE.

Borehole No: 3

Casing: 3.0m

Ground level:

Water level: FIRST SEEPAGE AT 1.0m
0.7m IN STANDPIPE ON 16-3-79

Description	Depth	Log	Samples TYPE	Samples NO	Samples DEPTH	Tests TYPE	Tests DEPTH	Tests BLOWS/6"			Remarks
TOPSOIL, CONCRETE AND BRICKS (FILL).											STANDPIPE INSTALLED TO 3.0m
	0.7										
FIRM YELLOWISH-BROWN ORGANIC CLAY.			U	536	0.9						
	1.1										
MEDIUM COMPACT BROWN CLAYEY FLINT GRAVEL.			D	537	1.5	S	1.5	2	5	6	HEAD
	1.6										
MEDIUM COMPACT BROWN F.M.C. FLINT GRAVEL IN RED CLAY MATRIX AT BASE.											
	2.2		U	538	2.3						
FIRM GREY FISSURED SILTY SANDY CLAY WITH SAND INCLUSIONS AND PLANT REMAINS.											LONDON CLAY.
			U	539	3.4						
END OF BOREHOLE	4.0										

U Indicates undisturbed sample

D Indicates disturbed sample

B Indicates bulk sample

W Indicates water sample

S Indicates standard penetration test

C Indicates cone penetration test

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

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[SU61SE BJ 30]

SU61SE100050

Southern HD
Southern EA

316 SU60/65

K Wardle Water Wells
Borehole Record and Drilling Log

SU60NE/244

LOWER HAMBLE GROUNDWATER INVESTIGATIONS STAGE 2 OVERALL

A: SITE DETAILS	
Borehole drilled for	Portsmouth Water PLC SITE 8
Location	Brambles Farm Industrial Estate Waterlooville
NGR (8 fig)	SU 6750 0973
Ground level (if known	
Borehole drilled by	K Wardle Water Wells
Date of drilling	December 1999 - January 2000

B: CONSTRUCTION DETAILS

Borehole Datum (point from which all measurements of depth are taken e.g. G.L., flange, edge of chamber)

G.L.

Diameter drilled	diameter		depths			
Preparation for Artesian	444.50	mm from	G.L.	to	11	m/depth
	311.15	mm from	11	to	88.50	m/depth
	150.00	mm from	88.50	to	138.50	m/depth
		mm from		to		m/depth

Casing material(type/size/depths)

type	diameter		depths			
Mild steel casing / welded / grouted	323.85	mm from	.- 0.60	to	11.00	m/depth
Mild steel casing to BS 879 square thread	168.00	mm from	.- 0.60	to	88.50	m/depth
flush butt joints / grouted		mm from		to		m/depth
		mm from		to		m/depth

Water struck at	Base of casing &	m/depth below datum
	below	m/depth below datum
Rest water level on completion	Artesian	m/depth below datum

C: TEST PUMPING DETAILS

Test Pumping datum (point from which all measurements of depth are taken e.g. G.L., flange, edge of chamber)

See Attached yield test results

Pump suction depth		m/below flange
Water level(start of test)		m/depth below datum
Water level(end of test)		m/depth below datum
Pumping rate		m/hr
For		hours
Recovery to		m/depth below datum
Within		
Date of measurements		

Lower Hamble Groundwater Investigations - Stage 2 - Overview

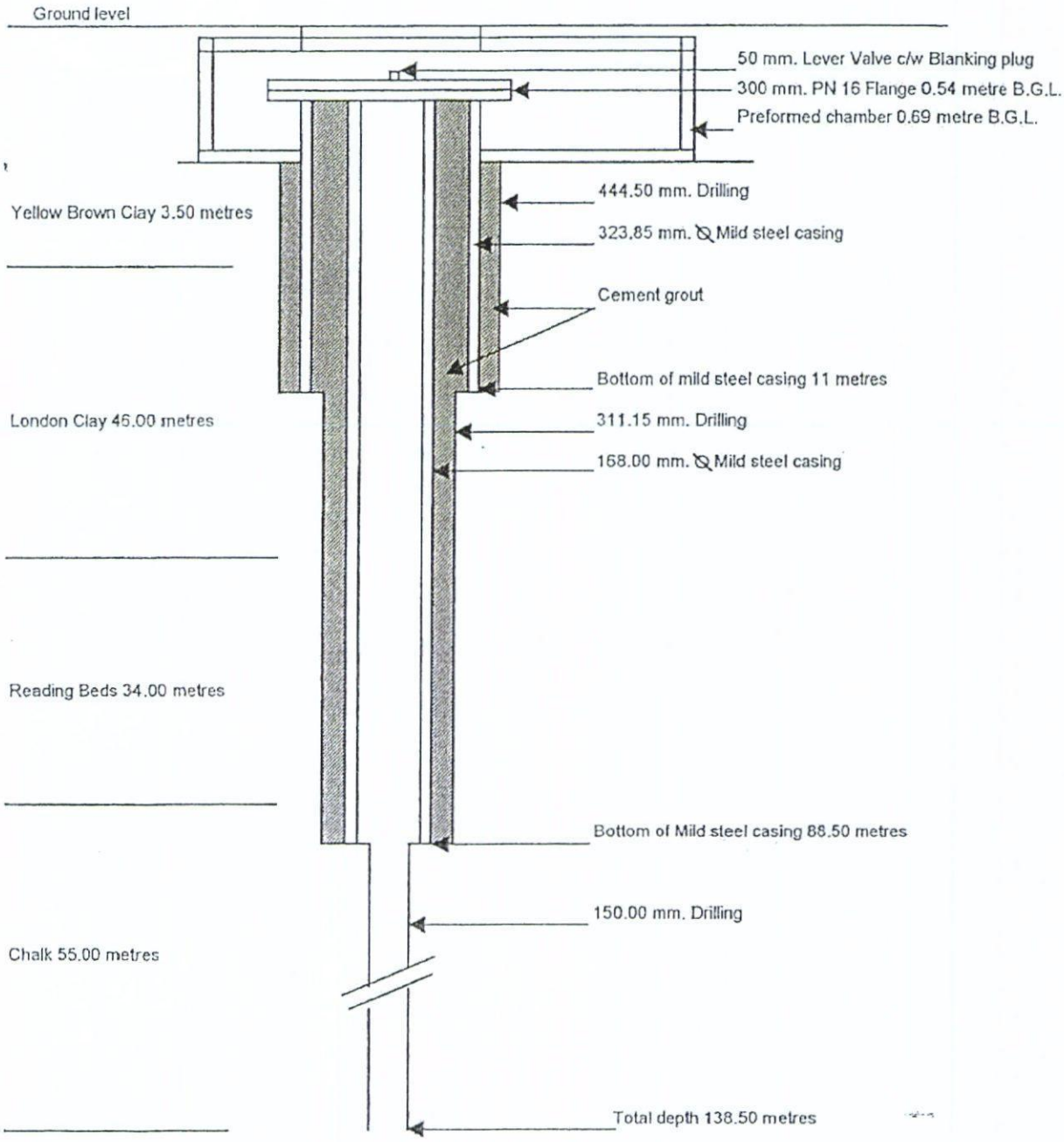
Site	NGR	Date of Construction	Total depth (m)	Chalk (m)	Tertiaries (m)	Casing (m)	Clearance pumping	Acidisation	Yield testing
Site 1 - Newtown Church Road Newtown SU61/138 NN990061	SU 6120 1265	Tertiaries - Oct 99 Chalk - Feb 00	152.00	100 (105)	47.00	52.00	Date pumped: Feb/March 00 Pumping rate: 20 m3/hr Duration of pumping: 2 hrs *RWL 14.83m PWL 51m **RWL 14.83m PWL 25m (from top of table - 1.10 m A.G.L.)	Mar-00	Date tested: Mar 00 Pumping rate: 58 m3/hr Duration of test: 26 mins R.W.L. 14.83 m P.W.L. 26.10 m (from top of table - 1.10 m A.G.L.)
Site 2 - Denmead Forest Road Denmead SU61/139 NN990062	SU 6490 1170	Nov-99	137.70	95 (100)	37.70	42.70	Date pumped: Nov 99 Pumping rate: 20 m3/hr Duration of pumping: 2.5 hrs R.W.L. 18.20 m P.W.L. 35 m (from top of table - 1.10 A.G.L.)	1st = Nov - 99 2nd = Dec - 99	*Date tested: Dec 99* *Pumping rate: 36 m3/hr* *Duration of test: 5 hrs* *R.W.L. 18.20 m P.W.L. 74.30 m* *(from top of table - 1.10 A.G.L)*
Site 3a - Oak Tree Farm Sciviers Lane Lower Upham SU51/77 NN990063	SU 523 187	Apr-00	160.00	101 (106)	54.00	59.00	Date pumped: April/May 00 Pumping rate: 20 m3/hr Duration of pumping: 1 hr *RWL 11.5m PWL 57m **RWL 11.15m PWL 13.15 (from G.L.)	May-00	Date tested: May 00 Pumping rate: 60 m3/hr Duration of test: 70 mins R.W.L. 11.5 m P.W.L. 19.5 m (from G.L.)
Site 4 - NW of Curdridge Wangfield Farm Wangfield Lane Botley SU51/78 NN990064	SU 5230 1420	Apr-00 Borehole 1 = 41 metres Borehole 2 = 40 metres Both aborted							
Site 6a - Heytesbury Farm Wickham Road Wickham SU50/28 NN990066	SU 571 098	Feb-00	120.60	100 (108.6)	12.00	20.6 due to very weathered chalk	Date pumped: March 00 Pumping rate: 3 - 4 m3/hr Duration of pumping: 3 hrs R.W.L. 34.55 m P.W.L. 76.20 m (from top of table - 1.10 m A.G.L.)	Feb-00	
Site 7 - Sheepwash Lane Road Verge Sheepwash Lane Furzehill SU61/140 NN990067	SU 6548 1047	Jan-00	120.00	50 (55)	65.00	70.00	Drilled percussion - not required		Date tested: Feb 00 Pumping rate: 20 m3/hr Duration of test: 1 hr R.W.L. 3 m P.W.L. 10.5 m (from top of flange - 0.3 m A.G.L.)
Site 8 - Brambles Ind. Est. Road Verge Electra Ave. Brambles Farm Ind. Est. Waterlooville SU60/65 NN990068	SU 6750 0973	Dec 99 - Jan 00	138.50	50 (55)	83.50	88.50	Drilled percussion - not required N.B. - R.W.L. on completion of drilling 1.13 m (from top of flange - 0.78 m A.G.L.)		Date tested: Feb 00 Pumping rate: 20 m3/hr Duration of test: 4 hrs R.W.L. 1.13 m (from top of flange) P.W.L. 4.42 m Recovery within minutes then flowing artesian @ approx. 6.14 m3/hr R.W.L. now 1.68 m A.G.L.

NB Re: Denmead - Yield test did not prove a good supply - only advise given by Stan that there is a good supply at other location on site still to be investigated

N.B.Clearance pumping Newtown & Oak Tree Farm * = PWL prior to acidisation ** = PWL after acidisation

SU60/65

SU60/65



Lower Hamble Groundwater Investigation - Stage 2

Site 8 - Brambles Farm Ind. Est. O.B. - NGR SU 6750 0973

Not to scale - Diagramatic only

SU60/65.

K Wardle Water Wells
Site 8 - Brambles Farm Ind. Est. - Yield Test

Date of test: *7th February 2000*				Pumping rate:20.58 m3/hr		
Time test started: 12:05 hrs				Time test stopped:16:05 hrs		
R.W.L.at start of test = 1.13 metres below top of flange				* Measurements taken from:Top of flange 0.78 metres AGL		
Date	Time	Elapsed Time (Hrs)	W.L.*	Meter Reading (m3)	Pumping Rate	Remarks
07-Feb	12:05	0	1.13	608.97		Started test water very chalky
	13:05	+1	4.37	629.55	20.58	Water cloudy
	14:05	+2	4.42	650.13	"	Water clear
	15:05	+3	4.42	670.71	"	
	16:05	+4	4.42	691.29	"	Stopped test
						Recovery within minutes - now flowing Artesian at approx. 6.14 m3/hr

Appendix B Fieldwork Records


SYMBOLS
TRIAL PIT
BOREHOLE
WINDOW SAMPLE
SOAKAWAYS
CPT
DRAFT FOR INFORMATION
WSP
GEORGE WIMPEY
RPS
OLD PARK FARM
WATERLOOVILLE
SITE INVESTIGATION
LOCATION PLAN
12220124
APPENDIX B
© WSP Group plc

WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH1
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	22-09-06	36.600	E 467172.101 N 110476.765	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.50	D			36.30	0.30	Grass over TOPSOIL. Topsoil comprises brown slightly sandy clay. Frequent roots and rootlets were noted.			
0.50-1.00	D					Firm light brown mottled orange CLAY. Pockets of orange fine sand were noted within the clay. (WEATHERED LONDON CLAY)			
1.00-1.45	U100	35 blows							
1.45-1.50	D								
1.70-1.90	D				(3.15)				
2.00		2,2,3 3,4,3 N=13							
2.50-3.00	D								
3.00-3.45	U100	35 blows		33.15	3.45				
3.45-3.50	D					Firm to stiff becoming very stiff blue / grey CLAY. (LONDON CLAY)			
3.50-4.00	D								
4.00		3,3,4 4,5,6 N=19							
4.50-5.00	D								
5.00-5.45	U100	40 blows							
5.45-5.50	D				(4.05)				
5.50-6.00	D								
6.00		2,2,4 4,4,4 N=16							
6.50-7.00	D								
7.00-7.45	U100	52 blows		29.10	7.50				
7.45-7.80	D								

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Groundwater was not encountered. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.
Date	Time	Strike	Minutes	Standing	Casing						

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH2
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	22-09-06	36.510	E 467204.827 N 110340.826	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.50	D			36.01	(0.50) 0.50	Grass over TOPSOIL. Topsoil comprises brown sandy clay. Frequent roots and rootlets were noted.			
0.50-1.00	D					Firm brown mottled orange slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)			
1.00		1,1,2 2,3,3 N=10			(2.20)				
1.70	D								
2.00-2.45	U100	35 blows							
2.45-2.50	D			33.81	2.70				
2.70-3.00	D					Firm to stiff blue / grey slightly sandy CLAY. Sand was fine. (LONDON CLAY)			
3.00		2,2,3 3,4,4 N=14							
3.50-4.00	D								
4.00-4.45	U100	55 blows							
4.45-4.50	D								
4.50-5.00	D								
5.00		2,4,4 4,5,4 N=17			(4.80)	5.00 Becoming firm to stiff at 5.0m bgl.			
5.50-6.00	D								
6.00-6.45	U100	60 blows							
6.45-6.50	D								
6.50-7.00	D								
7.00		2,3,4 5,5,5 N=19		29.01	7.50				

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt
Date	Time	Strike	Minutes	Standing	Casing

Chiselling			Water Added	
From	To	Hours	From	To
			0.5	0.7

GENERAL REMARKS

Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.
Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH3
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	34.700	E 467147.527 N 110162.531	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.50	D			34.30	0.40	Grass over TOPSOIL. Topsoil comprises red / brown gravelly sandy clay. Gravel was predominantly fine to coarse flint and sand was fine. Frequent roots and rootlets were noted.			
0.50-1.00	D					Loose to medium dense red / brown clayey GRAVEL. Gravel was predominantly sub rounded to sub angular fine to coarse flint and chalk. (HEAD DEPOSITS)			
1.00		3,3,3 2,3,2 N=10	1		(1.60)				
1.80	D			32.70	2.00				
2.00		1,1,1 1,2,2 N=6				Soft to firm dark brown mottled grey slightly sandy CLAY. Rare gravel of predominantly fine flint and chalk was noted. (HEAD DEPOSITS)			
2.80	D				(1.80)				
3.00-3.45	U100	40 blows							
3.45-3.50	D								
3.70	D		1	30.90	3.80				
				30.80	3.90	Grey siltstone, recovered as medium to coarse gravel.	x x x		
4.00		1,2,3 4,4,4 N=15				Firm dark grey / blue CLAY. (LONDON CLAY) 4.00 Clay was slightly gravelly, predominantly sub angular fine to medium flint, between 4.0m and 5.0m bgl.			
4.70	D								
5.00-5.45	U100	55 blows							
5.45-5.50	D				(3.10)				
5.70	D								
6.00		1,2,3 4,5,5 N=17				6.00 Becoming stiff at 6.0m bgl.			
				27.70	7.00				
7.00	D								

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt
Date	Time	Strike	Minutes	Standing	Casing
		3.80	20	1.50	1.50

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Groundwater was encountered at 3.8m bgl, rising to 1.5m bgl after 20mins.
No visual or olfactory evidence of contamination encountered.
Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH4
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	35.580	E 467088.085 N 110222.485	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.50	D			35.18	0.40	Grass over TOPSOIL. Topsoil comprises brown sandy clay. Frequent roots and rootlets were noted.			
0.50-1.00	D					Soft to firm, red / brown very gravelly CLAY. Gravel was predominantly sub angular to rounded fine to coarse flint. (HEAD DEPOSITS)			
1.00-1.45	U100	38 blows			(1.30)				
1.45-1.50	D			33.88	1.70				
1.80	D					Loose red / brown very clayey GRAVEL. Gravel was predominantly sub angular fine to medium flint. (HEAD DEPOSITS)			
2.00		3,3,2 1,1,1 N=5	1		(1.10)				
2.70	D		1	32.78	2.80				
3.00-3.45	U100	40 blows				Soft to firm, grey mottled brown slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)			
3.45-3.50	D				(1.20)				
3.80	D			31.58	4.00				
4.00		3,2,4 5,5,6 N=20				Stiff dark grey / blue CLAY. (LONDON CLAY)			
4.80	D								
5.00-5.45	U100	50 blows							
5.45-5.50	D				(3.00)				
5.80	D								
6.00		2,3,4 4,5,6 N=19							
				28.58	7.00				
7.00	D								

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt
Date	Time	Strike	Minutes	Standing	Casing
		3.00	20	2.50	1.15

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Groundwater was encountered at 3.0m bgl, rising to 2.5m bgl after 20mins.
No visual or olfactory evidence of contamination encountered.
Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:62.5	Contractor / Driller	Method/Plant Used	Logged By
	Wessex Drilling	Cable Percussion Rig	AJR

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH5
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	34.150	E 467086.525 N 110118.285	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				33.85	0.30	Grass over TOPSOIL. Topsoil comprises firm dark brown slightly sandy very gravelly clay. Gravel was predominantly subangular fine to medium flint.		TS	
0.50	D					Medium dense reddish brown clayey GRAVEL. Gravel was predominantly angular to subangular fine to coarse flint. (HEAD DEPOSITS)			
1.00		3,4,5 7,8,6 N=26			(1.60)				
1.70	D			32.25	1.90				
2.00		1,1,1 2,1,2 N=6			(1.10)	Soft grey brown CLAY. (HEAD DEPOSITS)			
2.70	D		1	31.15	3.00				
3.00-3.45	U100	45 blows				Firm grey CLAY. (LONDON CLAY)			
3.45-3.50	D								
3.70	D								
4.00		2,2,4 4,4,6 N=18			(2.80)	4.00 Becoming stiff at 4.0m bgl.			
4.70	D								
5.00-5.45	U100	50 blows							
5.45-5.50	D		1	28.35	5.80				
5.80	D			28.15	6.00	Grey SILTSTONE, recovered as subangular coarse gravel.			
6.00		2,3,3 5,5,7 N=20			(1.00)	Stiff grey CLAY. (LONDON CLAY)			
				27.15	7.00				
7.00	D								

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt
Date	Time	Strike	Minutes	Standing	Casing
29-09-06	09.35	5.80	20	3.00	3.00

Chiselling			Water Added	
From	To	Hours	From	To
			0.3	0.7

GENERAL REMARKS

Groundwater encountered at 5.80m bgl. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:62.5	Contractor / Driller	Method/Plant Used	Logged By
	Wessex Drilling	Cable Percussive Rig	LS

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH6
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	35.550	E 467265.410 N 110272.828	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.30	D			35.15	0.40	Grass over TOPSOIL. Topsoil comprises brown slightly gravelly sandy clay. Frequent roots and rootlets were noted.			
0.50-1.00	D		1		(0.60)	Brown very clayey GRAVEL. Gravel was predominantly fine to coarse flint and chalk. (HEAD DEPOSITS)			
				34.55	1.00				
1.00		1,1,1 1,1,1 N=4			(1.00)	Soft to firm, brown sandy, slightly gravelly CLAY. Gravel was predominantly fine to coarse flint. (HEAD DEPOSITS)			
1.80	D			33.55	2.00				
2.00-2.45	U100	22 blows				Firm to stiff grey CLAY. (LONDON CLAY)			
2.45-2.50	D								
3.00		2,3,5 4,4,6 N=19							
3.80	D								
4.00-4.45	U100	50 blows							
4.45-4.50	D				(5.00)				
4.80	D								
5.00		2,3,5 5,5,5 N=20							
5.50	D								
6.00-6.45	U100	80 blows							
6.45-6.50	D								
				28.55	7.00				
7.00	D								

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Groundwater was encountered at 0.9m bgl, rising to 0.7m bgl after 20mins. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.
Date	Time	Strike	Minutes	Standing	Casing						
		0.90	20	0.70							

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH7
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	36.000	E 467315.823 N 110371.670	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.30	D			35.70	0.30	Grass over TOPSOIL. Topsoil comprises brown sandy, slightly gravelly clay. Gravel was predominantly fine to coarse flint. Frequent roots and rootlets were noted.			
0.30-1.00	D				(0.80)	Dense brown clayey GRAVEL. Gravel was predominantly fine to coarse flint and fine to medium chalk. (HEAD DEPOSITS)			
1.00		2,1,2 1,2,2 N=7		34.90	1.10	Soft to firm brown / grey CLAY. (HEAD DEPOSITS) 1.10 Rare fine flint and chalk gravel, and fine sand were noted in the upper part of the clay stratum.			
1.80	D								
2.00-2.45	U100	38 blows			(1.90)				
2.45-2.50	D								
2.70	D			33.00	3.00				
3.00		2,1,2 2,3,2 N=9				Soft to firm blue / grey CLAY. (LONDON CLAY)			
3.80	D								
4.00-4.45	U100	45 blows							
4.45-4.50	D								
4.80	D				(4.00)				
5.00		1,2,2 5,5,5 N=17				5.00 Becoming firm to stiff at 5.0m bgl.			
5.80	D								
6.00-6.45	U100	50 blows							
6.45-6.50	D								
7.00	D			29.00	7.00				

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Groundwater was not encountered. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.
Date	Time	Strike	Minutes	Standing	Casing						

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH8
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-08-06	38.060	E 467047.296 N 110593.148	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend		
0.30-0.50	D			37.56	(0.50) 0.50	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Sand was fine. Frequent roots and rootlets were noted.			
1.00-1.45	U100	35 blows				Firm brown / grey CLAY. (WEATHERED LONDON CLAY)			
1.45-1.50	D								
1.80	D								
2.00		1,2,4 3,4,3 N=14							
2.80	D								
3.00-3.45	U100	50 blows			(5.00)	3.00 Becoming stiff at 3.0m bgl.			
3.45-3.50	D								
3.80	D								
4.00		4,4,4 4,6,6 N=20							
4.70	D								
5.00-5.45	U100	65 blows							
5.45-5.50	D			32.56	5.50				
5.70	D					Stiff blue / grey CLAY. (LONDON CLAY)			
6.00		1,2,3 4,5,6 N=18			(1.50)				
7.00	D			31.06	7.00				

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Groundwater was not encountered. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.
Date	Time	Strike	Minutes	Standing	Casing						

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH9
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	38.600	E 466997.305 N 110445.049	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				38.30	0.30	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly slightly clayey sand. Gravel was predominangular to subangular flint.		TS	
0.50	D					Firm to stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)			
1.00-1.45	U100	40 blows							
1.45-1.50	D								
1.70	D								
2.00		2,2,3 3,4,4 N=14			(3.70)	2.00 Becoming firm at 2.0m bgl.			
2.70	D								
3.00-3.45	U100	50 blows							
3.45-3.50	D								
3.70	D			34.60	4.00				
4.00		3,4,3 3,5,5 N=16				Firm to stiff blue grey CLAY. (LONDON CLAY)			
4.70	D								
5.00-5.45	U100	80 blows							
5.45-5.50	D				(3.00)				
5.80	D								
6.00		3,3,4 5,6,6 N=21							
				31.60	7.00				
7.00	D								

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No groundwater encountered. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.
Date	Time	Strike	Minutes	Standing	Casing						

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussive Rig	Logged By LS

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH10
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	36.220	E 466949.275 N 110292.350	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				36.02	0.20	Grass over TOPSOIL. Topsoil comprises brown sandy clay. Frequent roots and rootlets noted.			
0.50	D					Firm brown / grey CLAY. (WEATHERED LONDON CLAY)			
1.00-1.45	U100	35 blows			(2.00)				
1.45-1.50	D								
1.70	D								
2.00		2,10,12 9,5,4 N=30		34.02	2.20				
				33.72	2.50	Grey siltstone, recovered as a coarse gravel.			
2.70	D					Firm to stiff brown / grey CLAY. (WEATHERED LONDON CLAY)			
3.00-3.45	U100	50 blows			(1.20)				
3.45-3.50	D			32.52	3.70				
3.80	D					Stiff to very stiff blue / grey CLAY. (LONDON CLAY)			
4.00		4,3,4 6,6,7 N=23							
4.70	D								
5.00-5.45	U100	60 blows			(3.30)				
5.45-5.50	D								
5.70	D								
6.00		2,5,3 5,7,8 N=23							
				29.22	7.00				
7.00	D								

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
									0.5	0.7	Groundwater was not encountered. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.
Date	Time	Strike	Minutes	Standing	Casing						

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH11
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	34.810	E 466948.270 N 110182.919	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.30-0.50	D			34.31	(0.50) 0.50	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.			
0.80	D					Firm brown, slightly sandy CLAY. (HEAD DEPOSITS)			
1.00		4,3,3 4,3,6 N=16			(1.10)				
				33.21	1.60				
1.70	D			32.81	2.00	Loose red / brown very clayey GRAVEL. Gravel was predominantly fine to coarse flint and chalk. (HEAD DEPOSITS)			
2.00		3,3,1 1,1,1 N=4	1			Soft red / brown slightly gravelly CLAY. Gravel was predominantly fine to coarse flint and chalk. (HEAD DEPOSITS)			
2.70	D				(1.20)				
3.00-3.45	U100	30 blows		31.61	3.20				
3.45-3.50	D					Stiff grey / blue CLAY. (LONDON CLAY)			
3.80	D				(1.40)				
4.00		4,4,4 6,6,6 N=22	1						
				30.21	4.60				
4.60	D			30.11	4.70	Grey siltstone, recovered as coarse gravel and cobbles.			
5.00-5.45	U100	65 blows				Stiff to very stiff grey CLAY. (LONDON CLAY)			
5.45-5.50	D								
5.70	D				(2.30)				
6.00		2,3,5 5,6,8 N=24							
				27.81	7.00				
7.00	D								

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To
Date	Time	Strike	Minutes	Standing	Casing					
		4.60	20	2.70	1.50					

GENERAL REMARKS

Groundwater was encountered at 4.6m bgl, rising to 2.7m bgl in 20mins.
No visual or olfactory evidence of contamination was encountered. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussion Rig	Logged By AJR

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH12
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	33.180	E 466847.689 N 110094.066	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.20	D			32.68	(0.50) 0.50	Grass over TOPSOIL. Topsoil comprises very stiff brown gravelly clay. Gravel was predominantly angular to subangular fine to medium flint.			
0.80	D					Medium dense reddish brown very clayey GRAVEL. Gravel was predominantly angular to subangular fine to coarse flint. (HEAD DEPOSITS)			
1.00		10,4,5 5,5,5 N=20			(1.50)				
1.80	D			31.18	2.00				
2.00		2,2,1 1,1,1 N=4			(0.70)	Soft brown CLAY. (HEAD DEPOSITS)			
2.80	D			30.48	2.70				
3.00-3.45	U100	50 blows				Firm to stiff blue grey slightly gravelly CLAY. Gravel is subangular fine flint. (HEAD DEPOSITS)			
3.45-3.50	D								
3.80	D								
4.00		3,2,4 4,4,4 N=16			(3.90)				
4.80	D								
5.00-5.45	U100	55 blows	1						
5.45-5.50	D								
5.70	D								
6.00		2,3,4 5,5,8 N=22	1	26.58	6.60				
				26.48	6.70	Grey SILTSTONE, recovered as subangular coarse gravel.			
				26.18	7.00	Very stiff blue grey CLAY. (LONDON CLAY)			
7.00	D								

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt
Date	Time	Strike	Minutes	Standing	Casing
28-09-06		6.60	20	5.30	3.00

Chiselling			Water Added	
From	To	Hours	From	To
			0.2	0.6

GENERAL REMARKS

Groundwater encountered at 6.60m bgl. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussive Rig	Logged By LS

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BOREHOLE LOG

Project				BOREHOLE No
Waterlooville				BH13
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	32.640	E 466849.262 N 109992.502	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				32.44	0.20	Grass over TOPSOIL. Topsoil comprises soft brown slightly gravelly clay. Gravel was predominantly subangular fine to medium flint.			
0.30	D					Medium dense reddish brown very clayey subangular fine to coarse GRAVEL of flint and occasional chalk. (HEAD DEPOSITS)			
0.80	D		1						
1.00		3,4,5 4,2,2 N=13			(2.50)				
1.80	D								
2.00		1,2,4 5,5,4 N=18		29.94	2.70				
2.70	D					Very stiff grey CLAY. (LONDON CLAY)			
3.00-3.45	U100	60 blows							
3.45-3.50	D				(2.00)				
3.70	D		2						
4.00		3,4,6 7,8,9 N=30		27.94	4.70				
4.70	D		3			Medium dense, grey, very clayey SAND. Sand was fine and wet. (LONDON CLAY)			
5.00		4,6,5 7,9,9 N=30							
5.70	D				(2.30)				
6.00		3,3,4 5,6,7 N=22		25.64	7.00				
7.00	D								

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt
Date	Time	Strike	Minutes	Standing	Casing
28-09-06	08.25	1.00	20	0.90	
28-09-06	10.45	5.00	20	4.10	

Chiselling			Water Added	
From	To	Hours	From	To
			0.3	0.9

GENERAL REMARKS

Groundwater encountered at 1.00m and 5.00m bgl. No visual or olfactory evidence of contamination encountered. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:62.5	Contractor / Driller Wessex Drilling	Method/Plant Used Cable Percussive Rig	Logged By LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS1
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.240	E 467265.488 N 110462.403	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				36.04	0.20	Grass over TOPSOIL. Topsoil comprises light grey slightly gravelly sand. Gravel was predominantly subangular fine flint with frequent rootlets.		TS	
0.30-0.40	ES			35.74	(0.30) 0.50	Light grey slightly clayey gravelly SAND. Gravel is angular to subangular fine to coarse flint and chalk. (HEAD DEPOSITS)			
				35.54	0.70	Very stiff orange brown slightly gravelly CLAY. Gravel is subangular to angular fine to medium flint. (HEAD DEPOSITS)			
0.80-0.90	ES				(1.10)	Very stiff orange brown mottled grey slightly gravelly CLAY. Gravel subangular fine to medium flint. (HEAD DEPOSITS) 1.00 Becoming grey mottled orange at 1.0m bgl			
				34.44	1.80				
					(0.60)	Stiff brown mottled blue grey CLAY. (WEATHERED LONDON CLAY)			
				33.84	2.40				
				33.64	2.60	Stiff blue grey mottled brown CLAY. (WEATHERED LONDON CLAY)			
					(1.40)	Stiff blue / grey CLAY. (LONDON CLAY) 2.80 Becoming very stiff at 2.8m bgl.			
				32.24	4.00				
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

No groundwater encountered. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller Southern Ground Testing	Method/Plant Used Window Sample Rig	Logged By LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS2
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.400	E 467238.934 N 110434.271	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.10-0.20	ES			36.20	0.20	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly slightly clayey sand. Gravel was predominantly angular to subangular flint.		TS	
0.50-0.60	ES			35.70	(0.50) 0.70	Very stiff grey brown very gravelly CLAY. Gravel is angular to subangular fine to medium flint and rare chalk. (HEAD DEPOSITS)			
				34.60	(1.10) 1.80	Firm orange brown mottled grey CLAY. (HEAD DEPOSITS) 1.10 - 1.80 with rare subangular fine to medium gravel of flint.			
				33.70	(0.90) 2.70	Firm brown mottled grey and orange CLAY. (WEATHERED LONDON CLAY)			
				32.40	(1.30) 4.00	Stiff grey CLAY. (LONDON CLAY) 3.00 becoming very stiff			
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

No groundwater encountered. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller Southern Ground Testing	Method/Plant Used Window Sample Rig	Logged By LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS3
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.370	E 467212.755 N 110444.411	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				36.07	(0.30) 0.30	Grass over TOPSOIL. Topsoil comprises dark brown slightly gravelly clayey sand. Gravel was predominantly subangular fine flint, with frequent roots and rootlets.		TS	
0.40-0.50	ES			35.77	(0.30) 0.60	Stiff brown mottled orange slightly gravelly CLAY. Gravel is angular to subangular fine to medium flint. (HEAD DEPOSITS)			
				35.47	(0.30) 0.90	Stiff orange brown mottled grey gravelly CLAY. Gravel is angular to subangular fine to medium flint. (HEAD DEPOSITS)			
1.00-1.20	ES			34.87	(0.60) 1.50	Firm orange brown very gravelly CLAY. Gravel is angular to subangular fine to medium flint. (HEAD DEPOSITS)			
				34.07	(0.80) 2.30	Stiff grey mottled orange slightly sandy CLAY. (WEATHERED LONDON CLAY) 1.50 - 2.00 with rare rootlets			
				33.87	2.50	Stiff brown grey CLAY. (WEATHERED LONDON CLAY)			
				32.37	(1.50) 4.00	Stiff blue / grey CLAY. (LONDON CLAY)			
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

No groundwater encountered. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller Southern Ground Testing	Method/Plant Used Window Sample Rig	Logged By LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS4
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.850	E 467193.388 N 110383.679	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				36.65	0.20	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly subangular fine to medium flint.		TS	
0.20-0.40	ES			36.45	0.40	Firm orange brown very sandy CLAY. (HEAD DEPOSITS)			
					(0.80)	Very stiff orange brown mottled grey CLAY. With rare rootlets. (HEAD DEPOSITS)			
0.80-0.90	ES					0.70 grey mottled orange			
				35.65	1.20				
				35.63	1.22	Orange fine SAND. (HEAD DEPOSITS)			
					(1.68)	Very stiff brown mottled orange and grey slightly sandy CLAY. (WEATHERED LONDON CLAY)			
						2.20 - 2.50 becoming sandy and damp			
				33.95	2.90				
					(1.10)	Very stiff blue grey CLAY. (LONDON CLAY)			
				32.85	4.00				
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

No groundwater encountered. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller	Method/Plant Used	Logged By
	Southern Ground Testing	Window Sample Rig	LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS5
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.060	E 467247.684 N 110400.918	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.10-0.20	ES			35.86	0.20	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. With frequent rootlets.		TS	
				35.76	0.30	Reddish brown gravelly slightly sandy CLAY. Gravel is angular to subangular fine to medium flint. (HEAD DEPOSITS)			
0.60-0.70	ES					Very stiff grey mottled orange brown slightly gravelly CLAY. Gravel is subangular fine flint and chalk. (HEAD DEPOSITS)			
					(1.80)				
				33.96	2.10				
						Stiff blue grey CLAY. (LONDON CLAY)			
					(1.90)				
						3.50 becoming very stiff			
				32.06	4.00				
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

No groundwater encountered. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller	Method/Plant Used	Logged By
	Southern Ground Testing	Window Sample Rig	LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS6
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	37.900	E 467073.780 N 110317.927	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.05	ES			37.70	0.20	MADE GROUND: Light brown gravelly sand. Gravel is angular to subangular fine to coarse brick, flint, wood, chalk, slate, plastic and pottery with occasional cobbles of brick and flint. Possible asbestos containing material present (Chrysotile).		MG	
0.20-0.30	ES				(0.40)				
				37.30	0.60	Dark brown slightly gravelly SAND. Gravel is subangular fine to medium chalk and flint, with much rootlets and organic matter. (HEAD DEPOSITS)			
0.70-0.80	ES				(0.60)	Very stiff grey mottled orange slightly gravelly CLAY. Gravel is angular to subangular medium to coarse flint. (HEAD DEPOSITS)			
				36.70	1.20	Stiff orange mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular fine to coarse flint. (HEAD DEPOSITS)			
					(2.30)				
						3.00 very stiff			
				34.40	3.50				
					(0.50)	Very stiff blue grey slightly sandy CLAY. (LONDON CLAY)			
				33.90	4.00				
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

No groundwater encountered. Material visually similar to asbestos containing materials present within the Made Ground. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller	Method/Plant Used	Logged By
	Southern Ground Testing	Window Sample Rig	LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS7
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.730	E 467189.019 N 110288.123	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.20-0.40	ES			36.13	(0.60) 0.60	MADE GROUND: Dark brown gravelly SAND. Gravel is angular to subrounded fine to coarse brick, glass, flint, slate wire and sandstone with occasional cobbles of brick, flint and sandstone.		MG	
				35.73	(0.40) 1.00	MADE GROUND: White sandy slightly clayey subangular to subrounded fine to coarse gravel of chalk and flint. 0.90 concrete cobble		MG	
1.00-1.20	ES			35.33	(0.40) 1.40	MADE GROUND: Stiff dark brown sandy slightly gravelly clay. Gravel is subangular fine to coarse coal, brick, flint and chalk.		MG	
1.40-1.60	ES			34.73	(0.60) 2.00	Firm grey black mottling slightly gravelly CLAY. Organic odour and occasional organic matter and plant remains. (HEAD DEPOSITS)			
			▼	33.63	(1.10) 3.10	Firm green grey slightly gravelly CLAY. Gravel is subangular to subrounded chalk, flint, rootlets and plant remains with organic odour. (HEAD DEPOSITS) 3.00 groundwater encountered			
				32.93	(0.70) 3.80	Stiff brown mottled orange slightly sandy CLAY. (WEATHERED LONDON CLAY)			
				32.73	4.00	Very stiff blue grey CLAY. (LONDON CLAY)			
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

Groundwater encountered at 3.00m bgl. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller Southern Ground Testing	Method/Plant Used Window Sample Rig	Logged By LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS8
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.250	E 467147.647 N 110263.095	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	Reduced Level	Depth (Thick-ness)	STRATA DESCRIPTION	Legend	Geology	Instrument/ Backfill
Depth	Type No	Test Result							
				36.05	0.20	MADE GROUND: Light brown slightly gravelly SAND. Gravel is subangular fine to coarse of red brick, flint and chalk, with occasional cobbles of red brick.		MG	
				35.95	0.30	MADE GROUND: White gravelly sand. Gravel is subrounded fine to medium chalk.		MG	
0.30-0.40	ES				(0.60)	MADE GROUND: Dark brown gravelly sand. Gravel is subangular fine to coarse brick, chalk and flint.		MG	
				35.35	0.90				
				35.05	(0.30) 1.20	Firm green grey brown mottled orange slightly gravelly CLAY. Gravel is subangular fine to medium flint. (HEAD DEPOSITS)			
1.20-1.40	ES			34.75	(0.30) 1.50	Firm orange mottled grey CLAY. (HEAD DEPOSITS)			
				34.35	(0.40) 1.90	Firm orange gravelly CLAY. Gravel is angular to subangular fine to coarse flint. (HEAD DEPOSITS)			
			▼1		(1.10)	Firm orange brown slightly sandy CLAY. (WEATHERED LONDON CLAY)			
				33.25	3.00				
					(1.00)	Very stiff blue grey CLAY. (LONDON CLAY)			
				32.25	4.00				

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

Groundwater encountered 2.60m bgl. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller	Method/Plant Used	Logged By
	Southern Ground Testing	Window Sample Rig	LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS9
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	37.450	E 467130.201 N 110315.617	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.20-0.40	ES			37.05	(0.40) 0.40	MADE GROUND: Dark brown slightly gravelly sand. Gravel is subangular to subrounded fine to coarse brick, slate, sandstone, wood, chalk with cobbles of brick and sandstone.		MG	
0.70-0.80	ES			35.45	(1.60) 2.00	Stiff grey mottled orange slightly sandy CLAY. (HEAD DEPOSITS)			
				34.45	(1.00) 3.00	Stiff brown mottled orange brown slightly sandy CLAY. With rare subangular medium gravel of chalk. (HEAD DEPOSITS)			
				33.45	(1.00) 4.00	Very Stiff blue grey slightly sandy CLAY. (LONDON CLAY)			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

No groundwater encountered. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller	Method/Plant Used	Logged By
	Southern Ground Testing	Window Sample Rig	LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS10
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	37.110	E 467035.142 N 110303.742	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.10-0.30	ES			37.01	0.10	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly subangular fine to medium flint, with occasional rootlets.		TS	
				36.81	0.30	Light brown slightly clayey SAND. (HEAD DEPOSITS)			
0.70-0.80	ES				(1.70)	Very stiff orange mottled grey CLAY. (WEATHERED LONDON CLAY)			
				35.11	2.00				
			▼1		(1.20)	Stiff brown mottled grey slightly sandy CLAY. (WEATHERED LONDON CLAY)			
				33.91	3.20	3.00 - 3.20 strata wet			
					(0.80)	Very stiff grey CLAY. (LONDON CLAY)			
				33.11	4.00				
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

Groundwater encountered at 3.00m bgl. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller	Method/Plant Used	Logged By
	Southern Ground Testing	Window Sample Rig	LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS11
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	35.900	E 467014.646 N 110262.120	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.00-0.10	ES			35.70	0.20	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly subangular to subrounded fine flint, with occasional rootlets.		TS	
						Very stiff orange brown mottled grey CLAY. (HEAD DEPOSITS)			
						1.00 Stiff			
1.30-1.40	ES					1.30 Firm			
					(2.80)				
						1.90 with occasional subangular fine to coarse flint.			
			1			2.50 strata wet			
				32.90	3.00				
						Very stiff blue grey CLAY. (LONDON CLAY)			
					(1.00)				
				31.90	4.00				
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

Groundwater encountered 2.50m bgl. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller	Method/Plant Used	Logged By
	Southern Ground Testing	Window Sample Rig	LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS12
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	31.680	E 466704.579 N 109917.500	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
				31.38	(0.30) 0.30	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly subangular fine flint, with frequent rootlets.		TS	
0.30-0.40	ES			30.98	(0.40) 0.70	Very stiff brown slightly gravelly CLAY. Gravel is angular to subangular medium to coarse flint and chalk. (WEATHERED LONDON CLAY)			
				30.18	(0.80) 1.50	Very stiff brown mottled grey slightly sandy CLAY. (WEATHERED LONDON CLAY)			
1.60-1.70	ES			29.18	(1.00) 2.50	Firm orange brown mottled grey CLAY. (WEATHERED LONDON CLAY)			
			▼1	28.68	(0.50) 3.00	Firm brown slightly sandy CLAY. (WEATHERED LONDON CLAY) 2.90 strata damp			
				27.68	(1.00) 4.00	Very stiff blue grey CLAY. (LONDON CLAY)			
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

Groundwater encountered at 2.90m bgl. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller Southern Ground Testing	Method/Plant Used Window Sample Rig	Logged By LS

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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS13
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	33.500	E 466763.625 N 110152.191	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend		
0.20-0.30	ES			33.20	(0.30) 0.30	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly subangular to subrounded fine to medium flint.		TS	
				33.00	0.50	Very stiff brown slightly sandy CLAY. (HEAD DEPOSITS)			
0.80-0.90	ES				(1.00)	Very stiff red brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. (HEAD DEPOSITS) 1.10 soft and very gravelly 1.30 - 1.50 strata damp			
				32.00	1.50				
				31.40	(0.60) 2.10	Stiff light grey very gravelly CLAY. Gravel is angular to subangular fine to coarse flint. (HEAD DEPOSITS)			
				30.75	(0.65) 2.75	Light brown very clayey GRAVEL. Gravel was predominantly angular to subangular fine to medium flint. (HEAD DEPOSITS) 2.20 groundwater encountered			
				30.60	2.90	Soft brown CLAY. (HEAD DEPOSITS)			
				29.50	(1.10) 4.00	Stiff blue grey CLAY. (LONDON CLAY)			
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

Strata damp between 1.30-1.50m bgl. Groundwater encountered at 2.20m bgl. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller Southern Ground Testing	Method/Plant Used Window Sample Rig	Logged By LS

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Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
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WINDOW SAMPLE LOG

Project				BOREHOLE No
Waterlooville				WS14
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	36.820	E 466820.548 N 110336.690	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

SAMPLES & TESTS			Water	STRATA					
Depth	Type No	Test Result		Reduced Level	Depth (Thick-ness)	DESCRIPTION	Legend	Geology	Instrument/ Backfill
0.10-0.20	ES			36.62	0.20	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly angular to subangular fine to medium flint.		TS	
					(0.50)	Firm dark brown very gravelly CLAY. Gravel is angular to subangular fine to coarse flint. (HEAD DEPOSITS)			
				36.12	0.70				
0.70-0.90	ES		1	35.92	0.90	Firm orange slightly gravelly CLAY. Gravel is subangular medium flint. (HEAD DEPOSITS)			
					(0.60)	Grey very clayey GRAVEL. Gravel was predominantly subangular fine to coarse flint. (HEAD DEPOSITS) 1.00 groundwater encountered			
				35.32	1.50				
					(0.40)	Brown very clayey GRAVEL. Gravel was predominantly subangular fine to coarse flint. (HEAD DEPOSITS)			
			2	34.92	1.90				
					(0.90)	Soft very gravelly slightly sandy CLAY. Gravel is subangular fine to medium flint. (HEAD DEPOSITS) 1.90 strata wet			
				34.02	2.80				
				33.82	3.00	Stiff dark brown CLAY. (WEATHERED LONDON CLAY)			
					(1.00)	Very stiff blue CLAY. (LONDON CLAY)			
				32.82	4.00				
						Window Sample complete at 4.00m bgl.			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt

GENERAL REMARKS

Groundwater encountered at 0.90m and 1.90m bgl. No visual or olfactory evidence of hydrocarbon contamination observed during formation. Installed with combined gas and groundwater monitoring pipe.

All dimensions in metres Scale 1:37.5	Contractor / Driller Southern Ground Testing	Method/Plant Used Window Sample Rig	Logged By LS

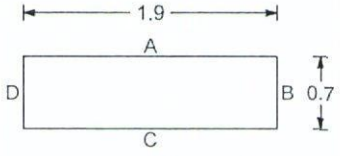
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				SK1
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	05-10-06	34.370	467130 110130	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		34.07	Grass over TOPSOIL. Topsoil comprises brown sandy slightly gravelly clay. Gravel was predominantly medium to coarse flint. Frequent roots and rootlets were noted.					
	0.30-0.70 (0.40)		33.67	Grey very clayey slightly sandy GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint and sand was medium. (HEAD DEPOSITS)					
1	0.70-1.50 (0.80)		32.87	Red / brown very clayey, sandy GRAVEL. Gravel was predominantly fine to coarse flint and sand was medium. (HEAD DEPOSITS)		1.10	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered at 1.5m bgl, and rose to 1.1m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

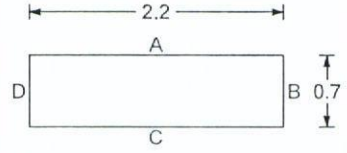
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				SK2A
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	05-10-06	35.630	467280 110300	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.33	Grass over TOPSOIL. Topsoil comprises brown sandy gravelly clay. Frequent roots and rootlets were noted.					
	0.30-0.55 (0.25)		35.08	Brown clayey GRAVEL. Gravel was predominantly medium to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)					
	0.55-0.90 (0.35)		34.73	Red / brown very clayey GRAVEL. Gravel was predominantly fine to coarse, with occasional cobbles of flint and fine to medium chalk. (HEAD DEPOSITS)					
1	0.90-1.00		34.63	Grey clayey GRAVEL. Gravel was predominantly fine to coarse, with rare cobbles of flint. Gravel was wet. (HEAD DEPOSITS)					

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater was encountered at 1m bgl.
No visual of olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

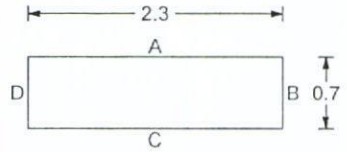
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				SK2B
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	05-10-06	35.550	467275 110325	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.25	Grass over TOPSOIL. Topsoil comprises brown clayey slightly gravelly sand. Frequent roots and rootlets were noted.					
	0.30-0.55 (0.25)		35.00	Brown / grey very clayey slightly sandy GRAVEL. Gravel was predominantly fine to coarse, with occasional cobbles of flint and fine to medium chalk. Sand was medium. (HEAD DEPOSITS)					
▼1	0.55-1.00 (0.45)		34.55	Firm to stiff, brown / grey CLAY. (WEATHERED LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater was encountered at 1.0m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

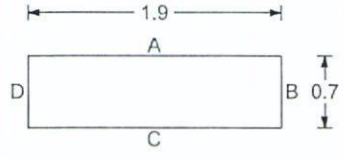
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				SK3
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	05-10-06	34.980	467200 110205	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.45 (0.45)		34.53	MADE GROUND: Grass over topsoil. Topsoil comprises brown very sandy clay. Frequent roots and rootlets were noted.					
1	0.45-0.60		34.38	MADE GROUND: Grey / brown sandy gravel. Gravel was predominantly fine to coarse black granular material, gravel was wet, and sand was medium.		0.60	DV		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered at 0.6m bgl.
A black granular material, possibly asphalt gravel was noted between 0.45m and 0.60m bgl.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

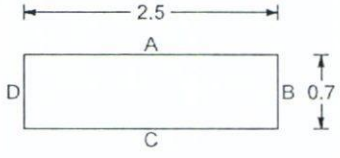
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				SK4
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	05-10-06	35.300	466985 110225	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.00	Grass over TOPSOIL. Topsoil comprises a brown sandy clay. Frequent roots and rootlets were noted.					
	0.30-1.25 (0.95)		34.05	Stiff to very stiff brown mottled grey CLAY. (HEAD DEPOSITS)					
1	1.25-2.30 (1.05)		33.00	Red / brown clayey sandy silty GRAVEL. Gravel was predominantly fine to coarse, with occasional cobbles of flint, gravel was damp. (HEAD DEPOSITS)		1.70	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered at 2.3m bgl as a slight ingress.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

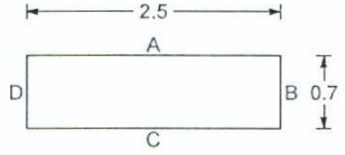
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP1
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	35.040	467150 110195	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		34.84	Grass over TOPSOIL. Topsoil comprising orange / brown, slightly gravelly, fine to medium grained sand. Gravel was predominantly fine to medium flint. Frequent roots noted within sand.					
	0.20-1.10 (0.90)		33.94	Brown, clayey GRAVEL. Gravel was fine to coarse with occasional cobbles, and predominantly consisted of sub angular flint. (HEAD DEPOSITS)		0.20 0.70	DV B		
1	1.10-1.40 (0.30)		33.64	Firm, brown, slightly gravelly CLAY. Gravel was predominantly medium flint. (HEAD DEPOSITS)		1.20	D		
	1.40-2.50 (1.10)		32.54	Firm, brown mottled grey, slightly sandy, CLAY. Sand was fine. (WEATHERED LONDON CLAY)					
2	2.50-3.10 (0.60)		31.94	Firm, grey, slightly sandy CLAY. Sand was fine. (LONDON CLAY)		2.70	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered as a slight ingress at 1.1m and 3.1m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

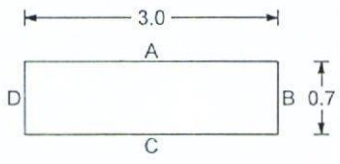
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP2
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	34.500	467100 110150	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.50 (0.50)		34.00	Grass over TOPSOIL. Topsoil comprising light brown, slightly gravelly, medium to coarse grained sand. Gravel was predominantly sub angular, fine to medium flint.					
	0.50-1.10 (0.60)		33.40	Orange / brown slightly sandy, slightly clayey, GRAVEL. Gravel was predominantly sub angular, fine to coarse flint and chalk. (HEAD DEPOSITS)		0.60-0.70	DV		
	1.10-1.60 (0.50)		32.90	Soft, red / brown, very gravelly CLAY. Gravel was predominantly sub angular, fine to coarse flint with fine chalk. (HEAD DEPOSITS)		1.10-1.60	B		
	1.60-2.70 (1.10)		31.80	Firm, orange / brown mottled grey sandy CLAY. (WEATHERED LONDON CLAY)		1.80	D		
	2.70-3.50 (0.80)		31.00	FIrm to stiff, blue / grey slightly sandy CLAY. (LONDON CLAY)		2.80	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

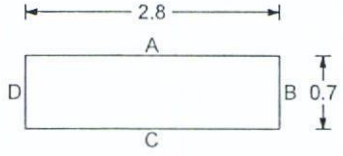
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP3
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	35.400	467100 110200	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.50 (0.50)		34.90	MADE GROUND: Grass over topsoil. Topsoil comprising brown clayey, slightly gravelly, fine to medium grained sand. Sand was dry. Gravel was predominantly fine to medium flint. Roots were noted within the sand.		0.40-0.50	DV		
	0.50-0.80 (0.30)		34.60	MADE GROUND: Light brown, very clayey gravel. Gravel was predominantly fine to coarse flint with rare cobbles and boulders. 0.75 Former land drain noted at 0.75m bgl.					
	0.80-1.10 (0.30)		34.30	Brown clayey GRAVEL. Gravel was predominantly round to sub angular, medium to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)					
	1.10-1.70 (0.60)		33.70	Firm, red / brown, very gravelly CLAY. Gravel was fine to coarse, flint and chalk. Gravel was damp. (HEAD DEPOSITS)		1.60	D		
▼1	1.70-2.10 (0.40)		33.30	Soft to firm, brown / grey, sandy, very gravelly CLAY. Gravel was predominantly fine to coarse flint. Gravel was wet. (HEAD DEPOSITS)		2.00	D	2.00	40
	2.10-2.50 (0.40)		32.90	Firm brown sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		2.30	D		
	2.50-3.40 (0.90)		32.00	Firm to stiff grey / blue sandy CLAY. Sand was fine. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater encountered at 2.0m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

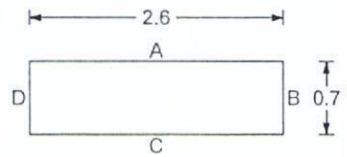
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP4
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	35.900	467239 110403	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		35.50	Grass over TOPSOIL. Topsoil comprises light brown, slightly gravelly , slightly clayey sand.					
	0.40-0.60		35.30	Firm to stiff, orange / brown, very gravelly, CLAY. Gravel was predominantly sub angular, fine to coarse flint, and fine chalk. (HEAD DEPOSITS)		0.40-0.60 0.40-0.60	B DV		
	0.60-1.80 (1.20)		34.10	Stiff blue / grey mottled orange, slightly sandy CLAY. Occasional roots and rootlets were noted to a depth of 1.8m bgl. (WEATHERED LONDON CLAY)		0.80	D		
	1.80-3.40 (1.60)		32.50	Stiff, blue / grey CLAY. (LONDON CLAY)		2.60	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

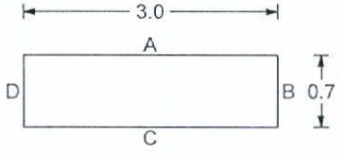
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP5
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	36.500	467249 110455	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		36.30	Grass over TOPSOIL. Topsoil comprises light grey, slightly gravelly sand.		0.00-0.20	DV		
	0.20-0.50 (0.30)		36.00	Light grey, slightly sandy very clayey GRAVEL. Gravel was predominantly sub angular, fine to medium flint and chalk. (HEAD DEPOSITS)		0.20-0.50	B		
	0.50-0.70		35.80	Orange / brown slightly clayey, sandy GRAVEL. Gravel was predominantly sub angular to angular, fine to medium flint. (HEAD DEPOSITS)					
	0.70-2.70 (2.00)		33.80	Stiff, grey / blue mottled orange CLAY. Frequent rootlets noted. (WEATHERED LONDON CLAY)		0.90	D		
	2.70-3.30 (0.60)		33.20	Stiff blue CLAY. (LONDON CLAY)		3.30	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

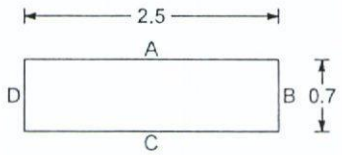
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP6
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	36.800	467193 110404	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		36.50	Grass over TOPSOIL. Topsoil comprises light brown clayey, slight gravelly sand.		0.00-0.30	DV		
	0.30-0.50		36.30	Firm light brown slightly sandy CLAY. (WEATHERED LONDON CLAY)					
	0.50-2.80 (2.30)		34.00	Stiff orange mottled grey, slighty sandy CLAY. Frequent rootlets noted. (WEATHERED LONDON CLAY)		0.70	DV	0.70	93
						0.90	D		
	2.80-3.40 (0.60)		33.40	Stiff to very stiff, grey / blue CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

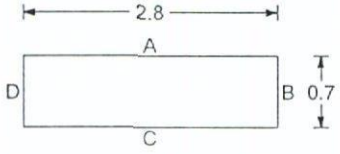
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP7
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	25-09-06	36.700	467151 110401	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		36.40	Grass over TOPSOIL. Topsoil comprises light brown, slightly clayey sand.		0.20-0.30	DV		
	0.30-3.10 (2.80)			Stiff to very stiff grey mottled orange / brown, CLAY. (WEATHERED LONDON CLAY)		0.70	D	0.70	120+
				1.10 A very clayey SILT band was noted at 1.1m bgl, approximately 0.05m thick.		1.10-1.50	B		
						1.90	D		
	3.10-3.40 (0.30)		33.60	Very stiff blue / grey CLAY. (LONDON CLAY)					
			33.30			3.30	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

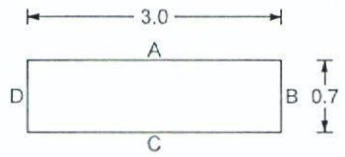
WSP Environmental
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP8
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	36.770	467157 110451	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		36.47	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand.					
	0.30-2.90 (2.60)		33.87	Firm - stiff, orange / brown mottled grey CLAY. (WEATHERED LONDON CLAY).		0.60	DV	0.60 0.90	84 86
	2.90-3.40 (0.50)		33.37	Very stiff blue grey CLAY. (LONDON CLAY)		3.20	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

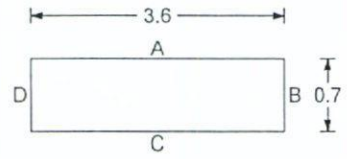
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP9
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	36.700	467200 110500	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		36.40	Grass over TOPSOIL. Topsoil comprises light brown, slightly clayey sand. Frequent rootlets noted.					
	0.30-0.50		36.20	Firm, light brown slightly sandy, slightly gravelly CLAY. Gravel was predominantly sub angular to sub rounded, fine to medium flint. (HEAD DEPOSITS)		0.50-0.70	DV		
	0.50-0.80 (0.30)		35.90	Firm, orange / brown, slightly gravelly CLAY. Gravel was predominantly sub angular to sub rounded, fine to coarse flint. Lenses of orange / brown clayey gravel were noted at varying depths between 0.6m and 0.8m bgl. (HEAD DEPOSITS)		1.00	D		
	0.80-3.00 (2.20)		33.70	Firm brown mottled grey / blue, slightly gravelly CLAY. Gravel was predominantly fine to coarse flint. (HEAD DEPOSITS)		2.00	D		
	3.00-3.40 (0.40)		33.30	Very stiff blue / grey CLAY. (LONDON CLAY).					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

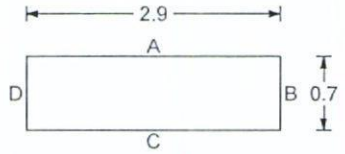
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP10
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	36.650	467245 110495	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		36.45	Grass over TOPSOIL. Topsoil comprises light brown. slightly gravelly sand. Gravel was predominantly sub angular, fine to medium flint.		0.10-0.20	DV		
	0.20-0.50 (0.30)		36.15	Light grey sandy GRAVEL. Gravel was predominantly sub angular, fine to coarse flint and chalk. (HEAD DEPOSITS)					
	0.50-1.00 (0.50)		35.65	Orange / brown, slightly clayey, slightly sandy GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint. (HEAD DEPOSITS)					
	1.00-3.00 (2.00)		33.65	Stiff orange / brown CLAY. (WEATHERED LONDON CLAY).		1.90	D	1.10	106
	3.00-3.20		33.45	Very stiff blue / grey CLAY. (LONDON CLAY)		2.90	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

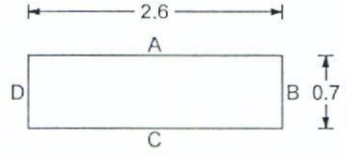
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP11
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	36.900	467100 110450	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		36.60	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine. Frequent roots and rootlets noted.					
	0.30-1.60 (1.30)		35.30	Firm brown mottled grey very slightly sandy CLAY. Sand was orange and fine. (HEAD DEPOSITS)		0.50	DV	0.50	76
								1.05	71
	1.60-2.50 (0.90)		34.40	Firm grey mottled brown slightly gravelly CLAY. Gravel was predominantly fine to medium flint and chalk. (HEAD DEPOSITS)		1.80	D		
	2.50-3.30 (0.80)		33.60	Stiff to very stiff blue / grey CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

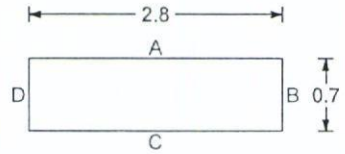
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP12
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	37.250	467100 110500	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.25 (0.25)		37.00	Grass over TOPSOIL. Topsoil comprises dark brown clayey sand.		0.10-0.20	DV		
	0.25-1.10 (0.85)		36.15	Firm brown CLAY. (HEAD DEPOSITS)		0.70	D	0.70	62
	1.10-2.00 (0.90)		35.25	Stiff brown mottled blue / grey slightly gravelly CLAY. Gravel was predominantly fine to medium chalk. (HEAD DEPOSITS)		1.20	D		
	2.00-3.50 (1.50)		33.75	Stiff to very stiff blue / grey CLAY. (LONDON CLAY)		2.00	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

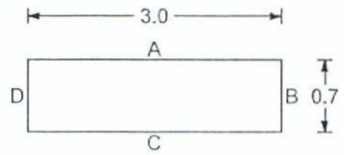
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP13
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	37.700	467050 110450	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		37.30	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Frequent roots and rootlets noted.		0.10-0.20	DV		
	0.40-1.90 (1.50)		35.80	Firm to stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)		0.70	D	0.70	80
				1.20 Becoming stiff at 1.2m bgl.				1.20	119
	1.90-3.40 (1.50)		34.30	Very stiff blue / grey CLAY. Small pockets of firm brown clay were noted towards the top of the stratum. (LONDON CLAY)		2.00	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

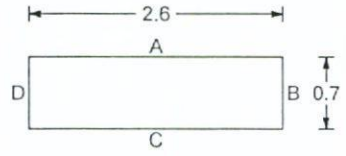
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP14
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	38.800	467000 110550	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		38.50	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.					
	0.30-1.40 (1.10)		37.40	Stiff brown / grey slightly sandy CLAY. Sand was fine and orange. (HEAD DEPOSITS)		0.40	DV	0.40	95
	1.40-2.60 (1.20)		36.20	Stiff blue / grey mottled brown, slightly sandy, slightly gravelly CLAY. Gravel was predominantly fine to medium chalk and sand was fine. (HEAD DEPOSITS)		1.60	D		
	2.60-3.60 (1.00)		35.20	Very stiff blue / grey CLAY. (LONDON CLAY)		2.80	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

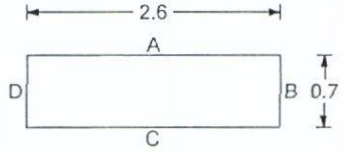
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP15
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	38.100	467050 110550	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		37.80	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Frequent roots and rootlets were noted.					
	0.30-1.10 (0.80)		37.00	Very stiff grey / brown CLAY. Occasional rootlets were noted. (HEAD DEPOSITS)		0.50	DV	0.50	120+
	1.10-3.00 (1.90)		35.10	Stiff to very stiff brown mottled grey / blue slightly gravelly CLAY. *Gravel was predominantly* fine to medium chalk. (HEAD DEPOSITS)		1.80	D		
	3.00-3.70 (0.70)		34.40	Very stiff blue / grey CLAY. (LONDON CLAY)		3.20	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

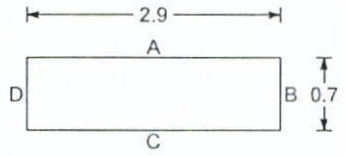
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP16
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	37.400	467100 110550	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		37.00	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Sand was fine. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.40-1.30 (0.90)		36.10	Firm brown / grey CLAY. (WEATHERED LONDON CLAY)		0.65	D	0.65	62
						1.20	D	1.20	101
	1.30-2.20 (0.90)		35.20	Stiff blue / grey mottled brown CLAY. Pockets of fine orange sand were noted. (WEATHERED LONDON CLAY)					
	2.20-3.70 (1.50)		33.70	Very stiff blue / grey CLAY. (LONDON CLAY)		2.90	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

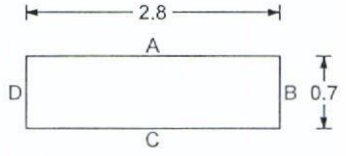
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP17
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	37.100	467150 110550	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		36.70	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine. Frequent roots and rootlets were noted.					
	0.40-0.90 (0.50)		36.20	Stiff brown / grey / blue slightly gravelly CLAY. Gravel was predominantly fine to medium chalk. (HEAD DEPOSITS)		0.65	DV	0.65	104
	0.90-1.30 (0.40)		35.80	Stiff brown / blue very gravelly CLAY. Gravel was predominantly fine to medium, occasionally coarse chalk and fine to coarse flint. (HEAD DEPOSITS)		1.00	D	1.00	105
	1.30-2.40 (1.10)		34.70	Stiff blue / grey slightly gravelly CLAY. Gravel was predominantly fine to medium flint and chalk. Pockets of orange fine sand were also noted. (HEAD DEPOSITS)					
	2.40-3.75 (1.35)		33.35	Very stiff dark grey / blue CLAY. (LONDON CLAY)		3.20	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

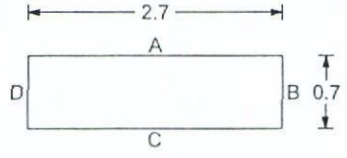
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP18
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	37.900	467100 110600	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		37.50	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.40-1.50 (1.10)		36.40	Firm to stiff brown / grey slightly gravelly CLAY. Gravel was predominantly fine chalk. (HEAD DEPOSITS)		0.70 1.20	D D	0.70 1.20	90 76
	1.50-2.50 (1.00)		35.40	Very stiff brown / blue / grey CLAY. Pockets of orange fine sand. (WEATHERED LONDON CLAY)		2.00	D		
	2.50-3.70 (1.20)		34.20	Very stiff blue / grey CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

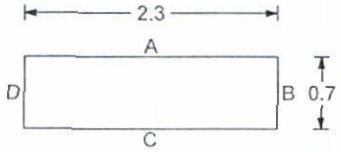
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP19
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	38.600	467050 110675	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		38.20	MADE GROUND: Grass over topsoil. Topsoil comprising dark brown sandy clay. Frequent roots and rootlets were noted.					
	0.40-0.70 (0.30)		37.90	MADE GROUND: Grey / brown silt. Pockets of stiff grey clay were also noted. 0.60 Former land drain encountered at 0.6m bgl.		0.60	DV	0.60	40
	0.70-1.50 (0.80)		37.10	Soft to firm grey / brown CLAY. Pockets of stiff grey clay were also noted. (WEATHERED LONDON CLAY)				1.10	73
	1.50-2.10 (0.60)		36.50	Stiff to very stiff blue / grey / brown CLAY. Crystals of selenite were noted within the clay. (WEATHERED LONDON CLAY)		1.80	D		
	2.10-3.80 (1.70)		34.80	Very stiff light blue / grey CLAY. Crystals of selenite were noted within the clay. (LONDON CLAY)		3.70	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

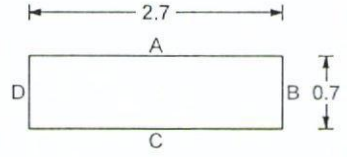
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP20
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	02-10-06	39.100	467000 110600	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.35 (0.35)		38.75	Grass over TOPSOIL. Topsoil comprises dark brown sandy clay. Frequent roots and rootlets noted.		0.10-0.20	DV		
	0.35-1.50 (1.15)		37.60	Firm becoming firm to stiff brown / light grey CLAY. (WEATHERED LONDON CLAY)		0.60	D	0.60	57
	1.50-2.00 (0.50)		37.10	Stiff blue / grey CLAY. Crystals of selenite were also noted within the clay. (WEATHERED LONDON CLAY)		1.60	D		
	2.00-3.70 (1.70)		35.40	Very stiff light blue / grey CLAY. Crystals of selenite were also noted within the clay. (WEATHERED LONDON CLAY)		2.90	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

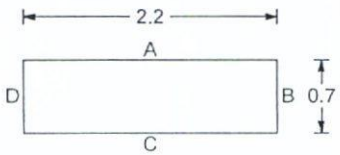
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP21
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	36.100	467330 110410	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		35.90	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand.					
	0.20-1.20 (1.00)		34.90	Grey / orange / brown, clayey, sandy GRAVEL. Gravel was predominantly angular to sub angular, fine to coarse flint and chalk. (HEAD DEPOSITS)		0.40-0.60 0.80-1.10	DV B		
	1.20-2.50 (1.30)		33.60	Firm brown , mottled orange / grey, slightly gravelly CLAY. Gravel was sub angular flint. (HEAD DEPOSITS)		1.30	D	1.30	70
	2.50-3.20 (0.70)		32.90	Stiff blue / grey CLAY. (LONDON CLAY).		2.80	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

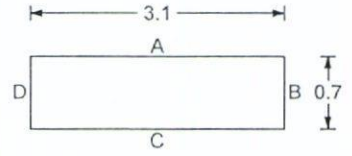
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP22
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	36.000	467292 110370	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		35.80	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly sub angular, fine to coarse flint. Frequent roots and rootlets were noted.		0.00-0.10	DV		
	0.20-0.60 (0.40)		35.40	Orange / brown slightly sandy GRAVEL. Gravel was predominantly sub angular to angular, fine to coarse flint and chalk. (HEAD DEPOSITS)					
	0.60-2.30 (1.70)		33.70	Stiff blue / grey, mottled brown CLAY. Rare rootlets noted. (WEATHERED LONDON CLAY).		0.80	D	0.80	105
	2.30-3.40 (1.10)		32.60	Very stiff dark blue / grey CLAY. (LONDON CLAY).		2.50	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

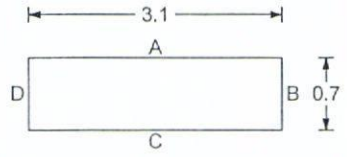
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP23
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	35.740	467300 110325	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		35.34	Grass over TOPSOIL. Topsoil comprises brown sandy, gravelly clay. Gravel was predominantly sub angular to sub rounded, fine to coarse flint.					
	0.40-0.60		35.14	Light brown slightly clayey, gravelly SAND. Sand was fine to medium and gravel was predominantly sub angular to sub rounded, fine to coarse flint. (HEAD DEPOSITS)		0.50	DV		
	0.60-0.90 (0.30)		34.84	Red / orange, slightly clayey, sandy GRAVEL. Gravel was sub angular to sub rounded, fine to coarse flint. (HEAD DEPOSITS)					
	0.90-1.30 (0.40)		34.44	Grey slightly sandy, clayey GRAVEL. Gravel was predominantly sub angular to sub rounded fine to coarse flint and chalk, gravel was wet. Sand was fine to medium. (HEAD DEPOSITS)					
▼1	1.30-1.70 (0.40)		34.04	Soft brown CLAY. (HEAD DEPOSITS)		1.50	D		
	1.70-3.30 (1.60)		32.44	Soft to firm, grey, slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY) 3.00 Becoming stiff at 3.0m bgl.		1.90	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit stable.
Groundwater encountered at 1.4m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

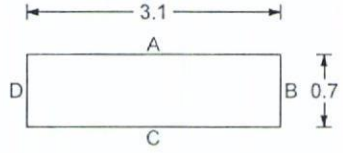
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP24
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	35.900	467313 110293	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		35.50	Grass over TOPSOIL. Topsoil comprises soft to firm, brown sandy clay. Frequent roots and rootlets noted.		0.10-0.20	DV		
	0.40-0.80 (0.40)		35.10	Soft to firm, grey very gravelly CLAY. Gravel was predominantly sub angular to sub rounded fine to coarse flint. (HEAD DEPOSITS)					
1 2	0.80-1.80 (1.00)		34.10	Red, sandy very clayey GRAVEL. Gravel was predominantly rounded to sub angular, fine to coarse flint and chalk, gravel was wet. (HEAD DEPOSITS)		1.50	D		
	1.80-2.30 (0.50)		33.60	Firm blue / grey CLAY. (WEATHERED LONDON CLAY).		2.30	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.3m and 1.5m bgl.
No visual or olfactory evidence of contamination.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

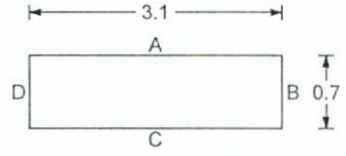
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP25
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	35.500	467272 110256	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.20	Grass over TOPSOIL. Topsoil comprises dark brown very sandy slightly gravelly CLAY. Gravel was predominantly sub angular fine flint. Frequent roots were noted.		0.00-0.10	DV		
1	0.30-0.80 (0.50)		34.70	Soft brown / blue / grey slightly gravelly CLAY. Clay was slightly organic. Gravel was predominantly sub angular, fine to medium flint. Occasional roots and rootlets were noted. (HEAD DEPOSITS)		0.60 0.70	D DV	0.60	37
	0.80-1.20 (0.40)		34.30	Red / brown, slightly sandy, clayey GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint and chalk. (HEAD DEPOSITS)					
2	1.20-2.00 (0.80)		33.50	Firm, orange / brown, slightly sandy CLAY. (WEATHERED LONDON CLAY)				1.40	54
	2.00-3.20 (1.20)		32.30	Firm grey / blue CLAY. (LONDON CLAY). 2.40 Becoming stiff at 2.4m bgl.				2.40	73

Shoring/Support:
Stability:



GENERAL REMARKS

Slight collapse within gravel layer.
Groundwater encountered at 0.7m and 1.6m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

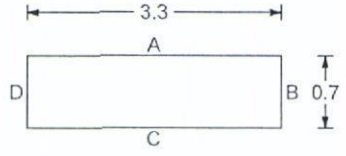
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP26
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	35.300	467253 110235	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.00	Grass over TOPSOIL. Topsoil comprises dark brown very clayey slightly gravelly sand. Gravel was predominantly sub angular, fine to medium flint.					
	0.30-0.90 (0.60)		34.40	Grey / red / brown very clayey, slightly sandy GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint and chalk, with occasional cobbles of flint noted. (HEAD DEPOSITS)		0.50	DBV		
1	0.90-2.20 (1.30)		33.10	Firm, orange / brown slightly gravelly, slightly sandy CLAY. Gravel was predominantly sub angular flint. (WEATHERED LONDON CLAY)		1.60	D	1.10	50
	2.20-2.40		32.90	Firm grey / blue CLAY. (LONDON CLAY).		2.30	D	2.30	55

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.8m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

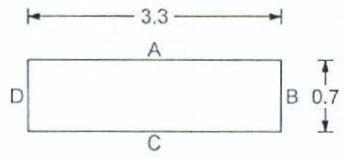
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP27
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	35.280	467241 110193	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		35.08	MADE GROUND: Grass over topsoil. Topsoil comprises brown gravelly, fine to medium sand. Gravel was predominantly fine to medium flint. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.20-0.45 (0.25)		34.83	MADE GROUND: Dark brown / black gravel. Gravel appeared to have been 'burnt'. Gravel was predominantly medium to coarse flint.		0.30	DV		
	0.45-0.80 (0.35)		34.48	Red / brown, sandy, clayey GRAVEL. Gravel was predominantly fine to medium flint and chalk and sand was medium. (HEAD DEPOSITS)		0.70	DV		
	0.80-2.30 (1.50)		32.98	Firm, brown, mottled grey, slightly gravelly, slightly sandy CLAY. Gravel was predominantly medium to coarse flint, and sand was fine. (HEAD DEPOSITS0		1.60	D	1.60	48
				Grey siltstone encountered at 2.3m bgl, recovered as a coarse gravel.					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit terminated on 'hard' obstruction at 2.3m bgl. Groundwater not encountered. Black 'burnt' material noted at 0.2m - 0.45m bgl.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

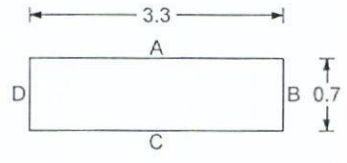
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP28
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	34.850	467230 110150	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.50 (0.50)		34.35	Grass over TOPSOIL. Topsoil comprises light brown gravelly sand. Sand was fine to medium and gravel was predominantly sub angular to sub rounded, fine to coarse flint.					
	0.50-1.40 (0.90)		33.45	Grey clayey, sandy GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint. (HEAD DEPOSITS)		0.45	DV		
▼1	1.40-1.85 (0.45)		33.00	Red / grey clayey GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint, gravel was damp. (HEAD DEPOSITS) 1.70 Becoming sandy at 1.7m bgl.					
	1.85-2.30 (0.45)		32.55	Soft brown sandy CLAY. Sand was fine. (HEAD DEPOSITS)		2.20	D	2.20	31
	2.30-3.20 (0.90)		31.65	Firm grey CLAY. (LONDON CLAY)		3.00	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater encountered at 1.85m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

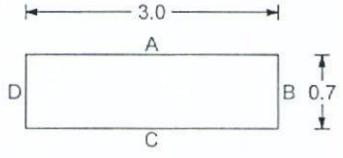
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP29
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	34.600	467188 110137	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		34.20	Grass over TOPSOIL. Topsoil comprises light brown slightly clayey, slightly gravelly sand. Gravel was predominantly sub angular to sub rounded, fine to medium flint.					
	0.40-2.10 (1.70)		32.50	Light grey, very sandy GRAVEL. Gravel was predominantly angular to sub angular, fine to coarse flint, with rare chalk gravel noted. (HEAD DEPOSITS)		0.80	DV		
	2.10-2.70 (0.60)		31.90	Firm, orange / brown slightly sandy, gravelly CLAY. Gravel was predominantly sub rounded to sub angular, fine to medium flint. (HEAD DEPOSITS)		2.30	D	2.50	43
	2.70-3.30 (0.60)		31.30	Firm grey / blue, slightly gravelly CLAY. Gravel was predominantly sub angular and fine. (WEATHERED LONDON CLAY)		2.80	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Collapse within gravel layer.
Groundwater encountered as a slight ingress within gravel layer.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

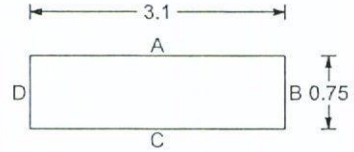
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP30
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	26-09-06	34.700	467220 110104	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		34.30	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly sub angular, fine to coarse flint.		0.00-0.10	DV		
	0.40-1.50 (1.10)		33.20	Light brown / red clayey, sandy GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint. (HEAD DEPOSITS)		0.60	B		
	1.50-2.70 (1.20)		32.00	Orange / brown, very clayey, sandy GRAVEL. Gravel was predominantly sub angular to sub rounded flint, gravel was damp. (HEAD DEPOSITS)		1.80-1.90	B		
	2.70-2.80		31.90	Soft orange / brown sandy CLAY. (HEAD DEPOSITS)		2.80	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing from 1.4m bgl.
Gravel layers were encountered as damp.
No visual or olfactory evidence of contamination.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

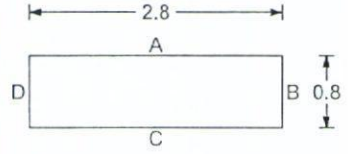
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP31
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	33.170	466900 110050	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		32.77	Grass over TOPSOIL. Topsoil comprises light brown gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint with rare chalk gravel. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.40-1.00 (0.60)		32.17	Light brown / grey, sandy GRAVEL. Gravel was predominantly fine to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)					
	1.00-1.60 (0.60)		31.57	Red / brown, slightly clayey, slightly sandy GRAVEL. Gravel was predominantly fine to coarse flint with fine gravel of chalk. (HEAD DEPOSITS)					
1	1.60-2.30 (0.70)		30.87	Light brown / red, slightly clayey, slightly sandy GRAVEL. Gravel was predominantly medium to coarse flint. (HEAD DEPOSITS)					

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.6m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

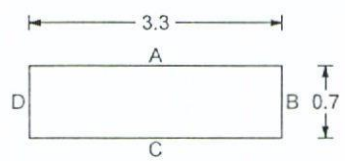
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP32
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	32.920	466900 110005	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		32.72	Grass over TOPSOIL. Topsoil comprises of brown gravelly sand.					
	0.20-0.45 (0.25)		32.47	Brown / grey, slightly sandy, clayey GRAVEL. Gravel was predominantly fine to coarse flint with occasional fine chalk. (HEAD DEPOSITS)		0.30	DV		
1	0.45-1.35 (0.90)		31.57	Red / brown, very clayey sandy GRAVEL. Gravel was predominantly fine to coarse flint and fine to medium chalk. (HEAD DEPOSITS)		0.60	B		
	1.35-2.10 (0.75)		30.82	Grey / brown, slightly clayey, slightly sandy GRAVEL. Gravel was predominantly medium to coarse flint and fine to medium chalk, gravel was wet. (HEAD DEPOSITS)					

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.3m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

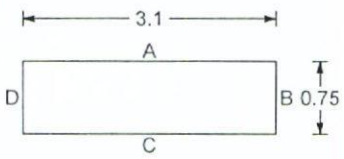
WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP33
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	32.450	466800 110000	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		32.15	Grass over TOPSOIL. Topsoil comprises brown, gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint.					
	0.30-0.80 (0.50)		31.65	Grey sandy GRAVEL. Gravel was fine to coarse flint with occasional fine to medium chalk. (HEAD DEPOSITS)		0.60	DV		
	0.80-1.20 (0.40)		31.25	Red / brown, very clayey GRAVEL. Gravel was predominantly medium to coarse flint. (HEAD DEPOSITS)					
▼1	1.20-2.30 (1.10)		30.15	Grey / light brown, slightly clayey GRAVEL. Gravel was predominantly medium to coarse with occasional cobbles of flint, gravel was wet. (HEAD DEPOSITS)					
	2.30-2.70 (0.40)		29.75	Stiff grey / brown CLAY. (WEATHERED LONDON CLAY).		2.40	D	2.40	81
	2.70-3.00 (0.30)		29.45	Stiff dark grey CLAY. (LONDON CLAY).		2.80	D	2.80	81

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.3m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

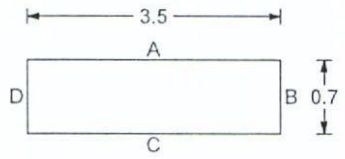
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Telephone: 01992 526000
Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP34
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	31.990	466802 109915	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		31.69	Grass over TOPSOIL. Topsoil comprises brown gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.30-0.80 (0.50)		31.19	Grey / brown sandy GRAVEL. Gravel was predominantly fine to coarse flint with occasional fine to medium chalk, sand was fine, (HEAD DEPOSITS)					
▼1	0.80-2.10 (1.30)		29.89	Grey slightly sandy, slightly clayey GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint, gravel was wet. (HEAD DEPOSITS)					
	2.10-2.15		29.84	Firm brown, very gravelly CLAY. Gravel was predominantly sub angular, medium to coarse flint and fine to medium chalk. (HEAD DEPOSITS)		2.10	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.0m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

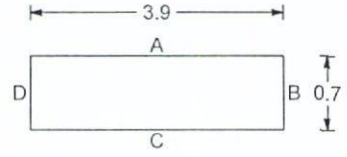
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP35
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	31.500	466700 109900	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.35 (0.35)		31.15	Grass over TOPSOIL. Topsoil comprises brown gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint.					
	0.35-0.80 (0.45)		30.70	Grey / brown sandy GRAVEL. Gravel was predominantly fine to coarse with occasional cobbles of flint and fine to medium chalk. Sand was fine to medium. (HEAD DEPOSITS)		0.70	B		
1	0.80-1.20 (0.40)		30.30	Brown / red very clayey GRAVEL. Gravel was predominantly sub angular to sub rounded fone to coarse flint and chalk. (HEAD DEPOSITS)					
	1.20-2.10 (0.90)		29.40	Light brown / orange slightly sandy slightly clayey GRAVEL. Gravel was predominantly sub angular to sub rounded medium to coarse flint. (HEAD DEPOSITS)		1.60	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.2m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

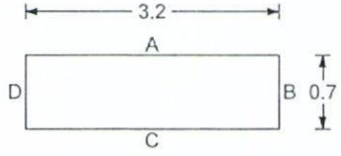
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP36
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	31.800	466700 109950	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.15		31.65	MADE GROUND: Grass over topsoil. Topsoil comprises light brown gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint.					
	0.15-0.40 (0.25)		31.40	MADE GROUND: Light brown sandy gravel. Gravel was predominantly fine to coarse flint and fine to medium chalk.		0.30	DV		
	0.40-0.70 (0.30)		31.10	MADE GROUND: Red very clayey gravel. Gravel was predominantly fine to coarse, with occasional cobbles of flint. 0.60 A former land drain was encountered at 0.6m bgl.					
	0.70-1.50 (0.80)			Grey / red, very clayey GRAVEL. Gravel was predominantly fine to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)					
▼1			30.30	1.40 Gravel was damp at 1.4m bgl.		1.30	D		
	1.50-2.40 (0.90)		29.40	Light brown, slightly clayey slightly sandy GRAVEL. Gravel was medium to coarse flint, gravel was wet. (HEAD DEPOSITS)		1.70	B		
	2.40-2.60		29.20	Firm, brown, slightly gravelly CLAY. Gravel was fine to medium flint. (HEAD DEPOSITS)		2.50	D		
	2.60-3.20 (0.60)		28.60	Stiff, blue / grey CLAY. (LONDON CLAY)		2.80	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.5m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

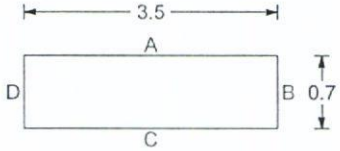
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP37
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	32.250	466740 110010	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.45 (0.45)		31.80	Grass over TOPSOIL. Topsoil comprises light brown, slightly gravelly sand. Sand was fine to medium, and gravel was predominantly fine to coarse flint. Frequent roots and rootlets were noted.					
▼1	0.45-1.40 (0.95)		30.85	Red / brown very clayey sandy GRAVEL. Gravel was predominantly fine to coarse with occasional cobbles of flint and fine to medium chalk. (HEAD DEPOSITS)		0.80	B		
	1.40-2.40 (1.00)		29.85	Grey / brown slightly clayey GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint. (HEAD DEPOSITS)					
	2.40-2.50		29.75	Firm dark grey, slightly gravelly CLAY. Gravel was predominantly fine to medium flint. (HEAD DEPOSITS)		2.40-2.50	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.4m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

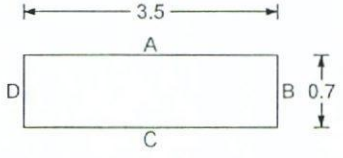
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP38
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	32.450	466750 110050	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		32.15	Grass over TOPSOIL. Topsoil comprises brown slightly gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.30-0.40		32.05	Brown sandy GRAVEL. Gravel was predominantly fine to coarse flint with occasional fine to medium chalk. Sand was fine. (HEAD DEPOSITS)					
	0.40-1.40 (1.00)		31.05	Red / brown very clayey GRAVEL. Gravel was predominantly medium to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)					
▼1	1.40-1.90 (0.50)		30.55	Brown / red clayey sandy GRAVEL. Gravel was predominantly fine to medium flint, and damp. (HEAD DEPOSITS)		1.60	B		
	1.90-2.40 (0.50)		30.05	Light brown / grey slightly clayey slightly sandy GRAVEL. Gravel was predominantly angular to sub rounded medium to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)		2.30	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.9m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

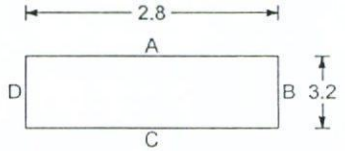
WSP Environmental
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP39
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	32.950	466760 110100	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		32.65	Grass over TOPSOIL. Topsoil comprises light brown gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint.					
	0.30-0.55 (0.25)		32.40	Stiff brown slightly gravelly CLAY. Gravel was predominantly fine flint and chalk. (HEAD DEPOSITS)		0.40	D		
	0.55-0.70		32.25	Brown / grey sandy GRAVEL. Gravel was predominantly fine to coarse flint and fine to medium chalk. (HEAD DEPOSITS)					
	0.70-1.40 (0.70)		31.55	Red / brown very clayey GRAVEL. Gravel was predominantly fine to coarse with occasional cobbles of flint, and fine to medium chalk. (HEAD DEPOSITS)		0.90	B		
▼1	1.40-2.00 (0.60)		30.95	Red very clayey sandy GRAVEL. Gravel was predominantly fine to coarse flint and chalk with occasional cobbles of flint. (HEAD DEPOSITS)		1.90	B		
	2.00-2.90 (0.90)		30.05	Light brown / grey slightly clayey GRAVEL. Gravel was predominantly fine to coarse with occasional cobbles of flint. (HEAD DEPOSITS)					
	2.90-3.20 (0.30)		29.75	Soft, grey / brown, slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		3.00	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.9m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

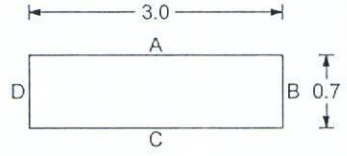
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP40
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	33.600	466795 110160	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		33.30	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Sand was fine to medium and gravel was predominantly sub angular, fine flint and chalk.					
	0.30-0.50		33.10	Light brown slightly gravelly, clayey SAND. Gravel was predominantly sub angular to angular fine to coarse flint. (HEAD DEPOSITS)		0.40	DV		
	0.50-1.00 (0.50)		32.60	Stiff to very stiff, grey / brown slightly gravelly CLAY. Gravel was predominantly sub angular to sub rounded, fine to coarse flint and chalk. (HEAD DEPOSITS)		0.70-0.80	B	0.70	120+
1	1.00-2.20 (1.20)		31.40	Red / brown slightly sandy very clayey GRAVEL. Gravel was predominantly sub angular to sub rounded, fine to coarse flint. (HEAD DEPOSITS)					
	2.20-2.80 (0.60)		30.80	Light brown clayey slightly sandy GRAVEL. Gravel was predominantly sub angular to angular, fine to coarse flint. (HEAD DEPOSITS)		2.30	B		
	2.80-3.10 (0.30)		30.50	Firm brown mottled orange CLAY. (WEATHERED LONDON CLAY)		3.00	B	3.00	48

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 2.2m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

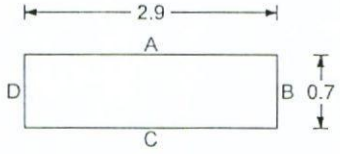
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP41
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	34.450	466800 110200	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		34.15	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly sub angular to sub rounded, fine o medium flint.					
	0.30-1.50 (1.20)		32.95	Very stiff, grey / brown CLAY. (HEAD DEPOSITS)		0.50	D	0.50	120+
						1.30	B		
1	1.50-2.20 (0.70)		32.25	Red / brown, gravelly slightly sandy very clayey SILT. Gravel was predominantly angular to sub angular, fine to coarse flint. (HEAD DEPOSITS)		1.70	B		
	2.20-2.80 (0.60)		31.65	Light brown, slightly clayey GRAVEL. Gravel was predominantly sub angular fine to coarse flint. (HEAD DEPOSITS)					
	2.80-3.10 (0.30)		31.35	Soft to firm grey CLAY. (WEATHERED LONDON CLAY)		3.00	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 1.8m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

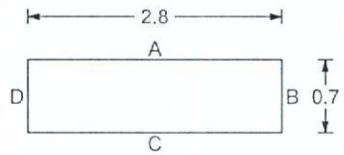
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP42
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	35.250	466820 110250	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		35.05	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly fine to medium flint.		0.10-0.20	DV		
	0.20-2.00 (1.80)		33.25	Very stiff, orange / brown mottled grey CLAY. (HEAD DEPOSITS)		1.90	B		
1	2.00-2.90 (0.90)		32.35	Red / brown very clayey GRAVEL. Gravel was predominantly sub angular to sub rounded fine to coarse flint. (HEAD DEPOSITS)					
	2.90-3.40 (0.50)		31.85	Soft brown / grey slightly sandy CLAY. (WEATHERED LONDON CLAY)		3.10	D		
				3.30 Becoming blue / grey at 3.3m bgl.		3.30	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater encountered at 2.6m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

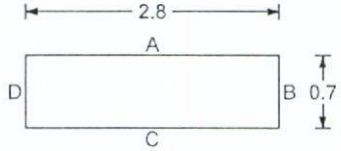
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP43
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	27-09-06	36.200	466835 110310	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.90	Grass over TOPSOIL. Topsoil comprises light brown slightly gravelly sand. Gravel was predominantly fine to medium flint.					
	0.30-2.70 (2.40)			Stiff brown mottled grey CLAY. (HEAD DEPOSITS) 1.60 - 1.65 Occasional angular to sub angular fine to coarse flint gravel was noted between 1.6m and 1.65m bgl.		0.50	B	0.70	113
						1.20	B	1.20	92
			33.50						
	2.70-3.40 (0.70)			Firm orange / brown slightly sandy CLAY. (WEATHERED LONDON CLAY)					
			32.80			3.30	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

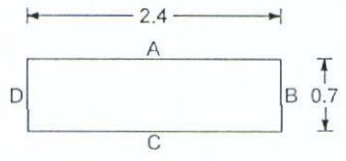
WSP Environmental
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP44
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	37.200	466850 110370	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.25 (0.25)		36.95	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Sand was fine. Frequent roots and rootlets were noted.					
	0.25-1.20 (0.95)		36.00	Stiff to very stiff brown / grey CLAY. Occasional rootlets were noted. (WEATHERED LONDON CLAY)		0.50	DVB	0.50	120+
						1.00	D	0.90	120+
	1.20-2.50 (1.30)		34.70	Firm brown mottled grey slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		1.80	B		
	2.50-3.40 (0.90)		33.80	Stiff brown CLAY. (WEATHERED LONDON CLAY)		2.80	D		
	3.40-3.70 (0.30)		33.50	Very stiff brown / blue CLAY. (WEATHERED LONDON CLAY)					
	3.70-3.80		33.40	Very stiff blue / grey CLAY. (LONDON CLAY)		3.75	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

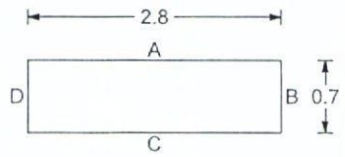
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP45
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	38.400	466875 110440	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		38.10	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Sand was fine. Frequent roots and rootlets noted.		0.10-0.20	DV		
	0.30-1.40 (1.10)		37.00	Stiff to very stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)		0.50	D	0.50	120+
						1.00	B	1.00	120+
	1.40-2.40 (1.00)		36.00	Firm to stiff brown / grey CLAY. (WEATHERED LONDON CLAY)		1.50	D		
	2.40-2.90 (0.50)		35.50	Stiff to very stiff brown / grey CLAY. (WEATHERED LONDON CLAY)		2.50	B		
▼1	2.90-3.70 (0.80)		34.70	Stiff dark brown / blue CLAY. (WEATHERED LONDON CLAY)		3.00	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered at 3.0m bgl as a slight ingress.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

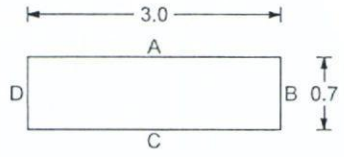
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP46
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	39.630	466892 110450	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		39.33	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Sand was fine. Frequent roots and rootlets were noted.					
	0.30-0.75 (0.45)		38.88	Stiff to very stiff brown mottled grey CLAY. Occasional rootlets noted. (WEATHERED LONDON CLAY)		0.40	DV	0.40	120+
	0.75-2.90 (2.15)			Firm to stiff brown CLAY. (WEATHERED LONDON CLAY)		1.00	B	1.00	97
				2.20 Becoming stiff to very stiff at 2.2m bgl.		2.35	B		
▼1	2.90-3.00		36.73						
			36.63	Very stiff brown / blue CLAY. (WEATHERED LONDON CLAY)		2.95	D		
	3.00-3.70 (0.70)		35.93	Stiff to very stiff blue / dark grey CLAY. (LONDON CLAY)		3.60	B		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered at 2.9m bgl as a slight ingress.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

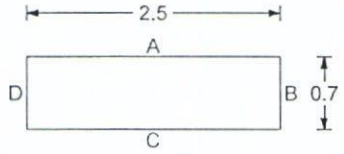
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP47
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	34.400	466900 110170	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		34.20	Grass over TOPSOIL. Topsoil comprises brown slightly sandy clay.					
	0.20-1.10 (0.90)		33.30	Very stiff brown CLAY. (HEAD DEPOSITS)		0.60	DV		
	1.10-1.95 (0.85)		32.45	Firm, red / brown very gravelly CLAY. Gravel was predominantly fine to coarse flint, and fine chalk. (HEAD DEPOSITS)		1.60	D		
	1.95-2.30 (0.35)		32.10	Brown / grey, clayey GRAVEL. Gravel was predominantly fine to coarse flint, with fine to medium chalk. (HEAD DEPOSITS)					
	2.30-2.90 (0.60)		31.50	Soft to firm, brown, slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		2.60	D	2.50	28
	2.90-3.20 (0.30)		31.20	Firm, grey slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was noted at the base of the pit.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

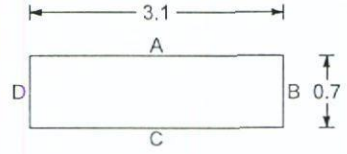
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP48
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	34.750	466930 110200	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		34.35	Grass over TOPSOIL. Topsoil comprises brown sandy clay.		0.10-0.20	DV		
	0.40-1.30 (0.90)		33.45	Stiff brown CLAY. (HEAD DEPOSITS) 1.10 Becoming slightly gravelly, comprising medium to fine flint at 1.1m bgl.				0.80	120
1	1.30-1.80 (0.50)		32.95	Firm red / brown very gravelly CLAY. Gravel was predominantly fine to coarse, with occasional cobbles of flint with fine to medium chalk. (HEAD DEPOSITS)		1.50	B		
	1.80-2.20 (0.40)		32.55	Red clayey slightly sandy GRAVEL. Gravel was fine to coarse flint, gravel was wet, and sand was fine to medium. (HEAD DEPOSITS)					
	2.20-2.90 (0.70)		31.85	Soft brown, slightly sandy CLAY. Sand was fine. (HEAD DEPOSITS)					
	2.90-3.40 (0.50)		31.35	Firm grey slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		3.00	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered at 1.8m bgl.
No visual or olfactory evidence of contamination was encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

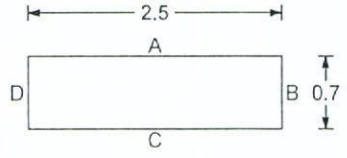
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP49
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	35.430	466900 110250	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.13	Grass over TOPSOIL. Topsoil comprises brown sandy clay. Frequent roots and rootlets were noted					
	0.30-1.40 (1.10)		34.03	Stiff to very stiff brown CLAY. (HEAD DEPOSITS)		0.45 0.50	DV D	0.50	120+
	1.40-1.75 (0.35)		33.68	Firm to stiff, brown, slightly gravelly, slightly sandy CLAY. Gravel was predominantly fine to coarse flint and sand was fine to medium. (HEAD DEPOSITS)		1.50	D	1.50	64
	1.75-2.60 (0.85)		32.83	Firm, brown mottled grey very gravelly CLAY. Gravel was predominantly fine to coarse flint, and fine to medium chalk. (HEAD DEPOSITS)					
	2.60-2.80		32.63	Soft brown CLAY. (HEAD DEPOSITS)		2.70	D		
	2.80-3.40 (0.60)		32.03	Firm to stiff grey CLAY. (WEATHERED LONDON CLAY)		3.10	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was noted at the base of the pit.
No visual or olfactory evidence of contamination was encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

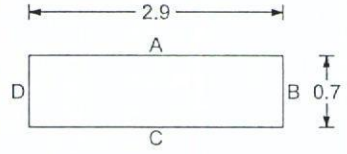
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP50
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.270	466900 110300	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		35.87	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.		0.00-0.10	DV		
	0.40-1.90 (1.50)		34.37	Stiff to very stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)		1.20	D	0.80 1.20	120+ 100
	1.90-2.90 (1.00)		33.37	Firm, brown slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		2.20	B		
	2.90-3.00		33.27	Grey siltstone, recovered as gravel.					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stables.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

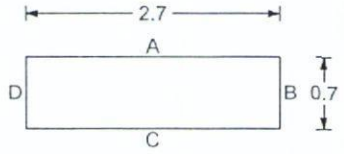
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP51
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	37.200	466950 110350	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		36.90	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.					
	0.30-2.70 (2.40)		34.50	Stiff to very stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY) 1.00 - 1.30 A band of firm to stiff sandy CLAY noted. Sand was orange and fine.		0.50 1.20 2.05	DV D D	0.55	120+
	2.70-3.10 (0.40)		34.10	Very stiff dark brown / blue CLAY. (WEATHERED LONDON CLAY)		2.80	D		
	3.10-3.70 (0.60)		33.50	Very stiff blue / grey CLAY. (LONDON CLAY)		3.30	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

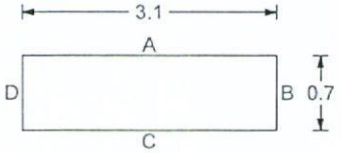
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP52
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	36.800	467000 110300	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		36.50	Grass over TOPSOIL. Topsoil comprises brown, very sandy clay. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.30-1.80 (1.50)		35.00	Stiff to very stiff brown mottled grey CLAY. (HEAD DEPOSITS) 1.20 Becoming firm to stiff at 1.2m bgl.		1.40	D	0.90	120+
	1.80-2.10 (0.30)		34.70	Firm brown mottled grey gravelly CLAY. Gravel was fine to coarse flint and siltstone. (HEAD DEPOSITS)		2.00	D		
	2.10-3.00 (0.90)		33.80	Stiff brown / blue CLAY. (WEATHERED LONDON CLAY) 2.80 Becoming very stiff at 2.8m bgl.					
	3.00-3.70 (0.70)		33.10	Very stiff blue / grey CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

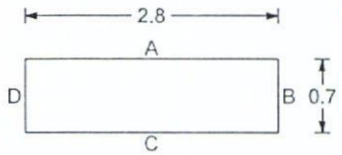
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP53
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	35.640	466950 110260	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.34	Grass over TOPSOIL. Topsoil comprises brown very sandy clay. Sand was fine to medium. Frequent roots and rootlets were noted.					
	0.30-1.10 (0.80)		34.54	Stiff to very stiff brown silty CLAY. (HEAD DEPOSITS)		0.35-0.40 0.60	DV D	0.60	120+
	1.10-1.60 (0.50)		34.04	Firm to stiff brown slightly sandy CLAY. Sand was fine. (HEAD DEPOSITS)					
	1.60-2.00 (0.40)		33.64	Firm, red very sandy gravelly CLAY. Gravel was predominantly fine to coarse flint and chalk. (HEAD DEPOSITS) 1.80 Becoming very gravelly at 1.8m bgl.		1.90	B		
	2.00-2.70 (0.70)		32.94	Light brown slightly sandy, slightly clayey GRAVEL. Gravel was predominantly fine to coarse angular to sub rounded flint. (HEAD DEPOSITS)		2.40	B		
	2.70-2.80		32.84	Soft to firm brown CLAY.					
	2.80-3.10 (0.30)		32.54	Stiff dark grey CLAY. (WEATHERED LONDON CLAY)					
				Pit terminated on rock at 3.1m bgl. Rock not seen.					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was noted at the base of the pit.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

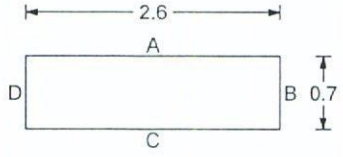
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP54
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	35.200	467000 110205	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		34.90	Grass over TOPSOIL. Topsoil comprises brown sandy clay. Sand was fine to medium. Within a portion of the site a pocket of very gravelly clay was present from ground level to 0.25m bgl.		0.00-0.10	DV		
	0.30-1.50 (1.20)		33.70	Very stiff brown CLAY. (HEAD DEPOSITS)					
	1.50-2.40 (0.90)		32.80	Red very clayey, slightly sandy GRAVEL. Gravel was predominantly angular to sub rounded fine to coarse flint and fine to medium chalk. (HEAD DEPOSITS) 2.10 Becoming very sandy at 2.1m bgl.		1.70	D		
	2.40-2.95 (0.55)		32.25	Light brown / grey sandy, clayey GRAVEL. Gravel was predominantly medium, occasionally fine to coarse flint. (HEAD DEPOSITS)					
	2.95-3.25 (0.30)		31.95	Firm brown CLAY. (WEATHERED LONDON CLAY).					
	3.25-3.75 (0.50)		31.45	Stiff blue / grey CLAY. (LONDON CLAY).		3.50	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

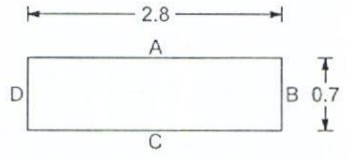
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP55
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	35.340	467030 110317	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		35.04	MADE GROUND: Grass over topsoil. Topsoil comprises brown sandy clay.					
	0.30-0.50		34.84	MADE GROUND: Very stiff brown clay.		0.40	DV		
	0.50-0.70		34.64	MADE GROUND: Stiff brown sandy clay, with fragments of brick, plastic, ceramic and glass.		0.60	DV		
	0.70-1.20 (0.50)		34.14	Stiff to very stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)				1.00	120+
	1.20-1.80 (0.60)		33.54	Firm to stiff, brown, slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		1.50	D		
	1.80-3.10 (1.30)		32.24	Stiff brown CLAY. (WEATHERED LONDON CLAY)		2.60	D		
	3.10-3.40 (0.30)		31.94	Very stiff brown / blue CLAY. (WEATHERED LONDON CLAY)					
	3.40-3.70 (0.30)		31.64	Very stiff dark grey / blue CLAY. (LONDON CLAY)		3.60	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

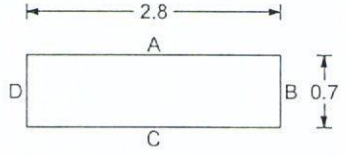
WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP56
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	37.730	467034 110357	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		37.43	Grass over TOPSOIL. Topsoil comprises slightly clayey sand. Frequent roots and rootlets noted.		0.00-0.10	DV		
	0.30-2.70 (2.40)		35.03	Stiff brown / light grey CLAY. (WEATHERED LONDON CLAY)		0.80	D	0.80	106
	2.70-3.30 (0.60)		34.43	Stiff to very stiff dark brown / blue CLAY. (WEATHERED LONDON CLAY)		3.20	D		
	3.30-3.60 (0.30)		34.13	Very stiff blue / grey CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

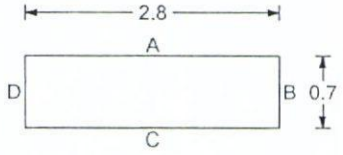
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Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP57
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	28-09-06	37.760	467068 110375	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		37.46	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets noted.		0.00-0.10	DV		
	0.30-2.90 (2.60)		34.86	Stiff brown CLAY. (WEATHERED LONDON CLAY)		0.50	D	0.50	114
						2.00	D		
	2.90-3.50 (0.60)		34.26	Very stiff blue / grey CLAY. (LONDON CLAY)		3.20	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

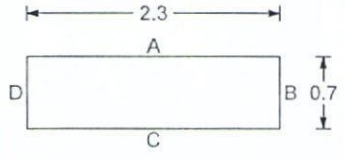
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP58
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	38.000	467050 110400	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		37.70	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.					
	0.30-2.80 (2.50)		35.20	Stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)		0.50 1.80	DV D	0.50	106
	2.80-3.50 (0.70)		34.50	Stiff to very stiff blue / grey CLAY. (LONDON CLAY)		3.20	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

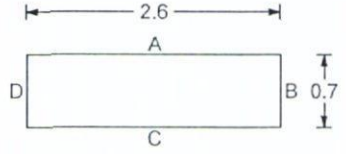
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP59
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	37.550	467000 110360	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		37.25	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.					
	0.30-2.80 (2.50)		34.75	Stiff brown mottled grey slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		0.75 2.00	DV D	0.75	120
	2.80-3.70 (0.90)		33.85	Stiff to very stiff blue / grey CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

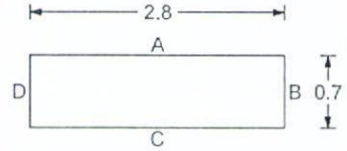
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP60
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	38.230	467000 110400	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.30 (0.30)		37.93	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Sand was fine. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.30-2.90 (2.60)		35.33	Stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)		0.70	D	0.70	111
						1.20	D	1.20	109
	2.90-3.80 (0.90)		34.43	Stiff to very stiff brown / blue CLAY. (WEATHERED LONDON CLAY)		3.00	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

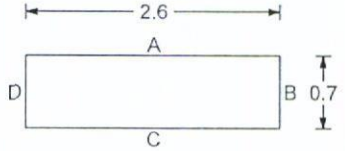
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP61
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	39.770	466950 110450	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.20		39.57	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Sand was fine to medium. Frequent roots and rootlets were noted.		0.00-0.10	DV		
	0.20-0.80 (0.60)		38.97	Stiff to very stiff brown mottled grey CLAY. Occasional rootlets were noted. (WEATHERED LONDON CLAY)		0.60	D	0.60	120+
	0.80-1.70 (0.90)		38.07	Stiff to very stiff grey slightly sandy CLAY. Sand was fine and orange. (WEATHERED LONDON CLAY)		1.20	D	1.20	120+
	1.70-2.80 (1.10)		36.97	Stiff to very stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)					
	2.80-3.40 (0.60)		36.37	Stiff to very stiff brown / blue CLAY. (WEATHERED LONDON CLAY)		2.90	D		
	3.40-3.70 (0.30)		36.07	Stiff to very stiff blue / grey CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

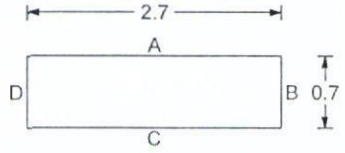
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP62
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	29-09-06	38.580	466950 110400	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.25 (0.25)		38.33	Grass over TOPSOIL. Topsoil comprises brown slightly clayey sand. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.25-1.60 (1.35)		36.98	Sitff to very stiff brown / grey CLAY. (WEATHERED LONDON CLAY)		0.60 0.90	D D	0.60 0.90	117 107
	1.60-2.70 (1.10)		35.88	Stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)					
	2.70-3.20 (0.50)		35.38	Stiff to very stiff brown / blue CLAY. (WEATHERED LONDON CLAY)					
	3.20-3.60 (0.40)		34.98	Stiff to very stiff blue / grey CLAY. (LONDON CLAY)		3.30	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

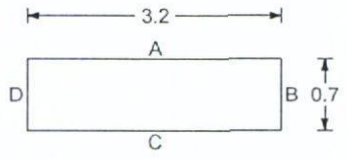
WSP Environmental
Foxholes Business Park
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Telephone: 01992 526000
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP63
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	37.350	467032 110339	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		36.95	MADE GROUND: Grass over reworked topsoil. Topsoil comprises brown gravelly clay. Gravel was predominantly fine flint. Frequent roots and rootlets were noted. Occasional fragments of ceramic were noted.		0.10-0.20	DV		
	0.40-0.80 (0.40)		36.55	MADE GROUND: Firm to stiff brown slightly sandy slightly gravelly clay. Gravel was predominantly fine to medium flint, and sand was fine. Rare fragments of glass and ceramic were noted.		0.70	DV		
	0.80-1.40 (0.60)		35.95	Brown slightly sandy slightly gravelly clayey SILT. Gravel was predominantly fine to medium flint, and sand was fine.		1.20	D		
	1.40-2.95 (1.55)		34.40	Stiff brown mottled grey, slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)					
	2.95-3.30 (0.35)		34.05	Very stiff blue / grey CLAY. (LONDON CLAY)		3.00	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

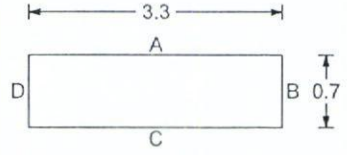
WSP Environmental
Foxholes Business Park
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP64
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	37.370	467040 110320	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		36.97	MADE GROUND: Grass over reworked topsoil. Topsoil comprises brown sandy, slightly gravelly clay. Gravel was predominantly fine to medium flint. Occasional to rare fragments of brick were noted.		0.20	DV		
	0.40-1.05 (0.65)		36.32	MADE GROUND: Stiff to very stiff brown / grey, slightly sandy clay. Sand was orange and fine.		0.60	DV		
	1.05-3.40 (2.35)		33.97	1.00 Former land drain encountered at 1.0m bgl. Stiff to very stiff brown / grey slightly sandy CLAY. Sand was orange and fine. (WEATHERED LONDON CLAY)					
	3.40-3.80 (0.40)		33.57	Very stiff blue / grey slightly sandy CLAY. Sand was fine. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

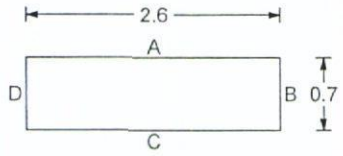
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Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP65
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	33.370	466950 110050	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		32.97	Grass over TOPSOIL. Topsoil comprises brown gravelly sandy clay. Gravel was predominantly fine to coarse flint and sand was fine to medium. Frequent roots and rootlets were noted.					
1	0.40-1.30 (0.90)		32.07	Grey / brown slightly clayey, slightly sandy GRAVEL. Gravel was predominantly angular to sub angular fine to coarse with occasional cobbles of flint and fine to medium chalk. (HEAD DEPOSITS)		0.50 1.20	DV B		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater was encountered at 1.1m bgl.
No visual or olfactory evidence encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

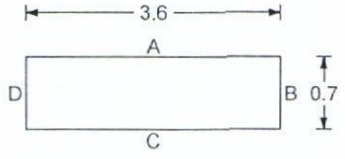
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TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP66
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	33.730	466950 110100	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		33.33	Grass over TOPSOIL. Topsoil comprises brown sandy clay. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.40-0.60		33.13	Brown clayey, very sandy GRAVEL. Gravel was predominantly fine to coarse flint. (HEAD DEPOSITS)					
	0.60-1.40 (0.80)		32.33	Red brown clayey GRAVEL. Gravel was predominantly angular to sub angular fine to coarse, with occasional cobbles of flint with fine to medium chalk. Sand was fine to medium. (HEAD DEPOSITS)					
1	1.40-1.80 (0.40)		31.93	Firm grey / brown very gravelly CLAY. Gravel was fine to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)					
	1.80-2.30 (0.50)		31.43	Brown, sandy clayey GRAVEL. Gravel was predominantly fine to coarse, with rare cobbles of flint and fine to medium chalk. (HEAD DEPOSITS) 2.20 Pockets of medium red sand were noted within gravel.					
	2.30-3.20 (0.90)		30.53	Firm to stiff brown / grey slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		2.50	D		
	3.20-3.50 (0.30)		30.23	Stiff blue / grey slightly sandy CLAY. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater was encountered at 1.8m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

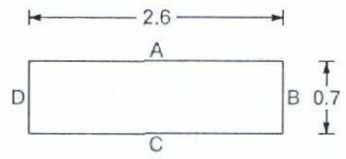
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Foxholes Business Park
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Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP67
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	34.080	467050 110105	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		33.68	Grass over TOPSOIL. Topsoil comprises a brown slightly clayey slightly gravelly sand. Sand was fine to medium and gravel was predominantly fine to coarse flint. Frequent roots and rootlets were noted.					
▼1	0.40-1.00 (0.60)		33.08	Red / brown very clayey sandy GRAVEL. Gravel was predominantly angular to sub angular fine to coarse, sand was damp. (HEAD DEPOSITS)		0.70	DVB		
	1.00-2.20 (1.20)		31.88	Light brown / grey clayey sandy GRAVEL. Gravel was predominantly angular to sub angular fine to coarse, with occasional cobbles of flint. Gravel was wet. (HEAD DEPOSITS)					
	2.20-2.40		31.68	Firm to stiff brown slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		2.30	D		
	2.40-2.90 (0.50)		31.18	Stiff blue / grey slightly sandy CLAY. Sand was fine. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater was encountered at 1.0m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

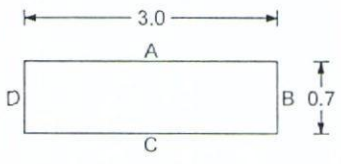
WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP68
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	35.130	467050 110180	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		34.73	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.40-0.80 (0.40)		34.33	Stiff brown slightly gravelly CLAY. Gravel was predominantly fine to medium flint. (HEAD DEPOSITS)		0.60	D		
▼1	0.80-1.50 (0.70)		33.63	Red / brown very clayey sandy GRAVEL. Gravel was predominantly angular to sub angular fine to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)		1.00-1.20	B		
	1.50-2.40 (0.90)		32.73	Stiff brown slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		1.70	D		
	2.40-3.70 (1.30)		31.43	Stiff to very stiff blue / grey slightly sandy CLAY. Sand was fine. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was encountered at 1.5m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor	Method/ Plant Used	Logged By
	Cosham Plant	JCB	AJR

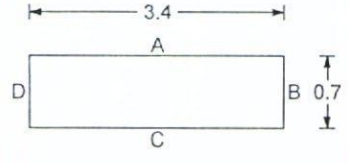
WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP69
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	34.640	467000 110150	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		34.24	Grass over TOPSOIL. Topsoil comprises brown very clayey, gravelly sand. Sand was fine to medium and gravel was predominantly angular to sub rounded, fine to coarse flint. Frequent roots and rootlets were noted.					
	0.40-0.80 (0.40)		33.84	Firm red / brown very gravelly slightly sandy CLAY. Gravel was predominantly angular to sub angular fine to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)		0.60	DV		
	0.80-1.60 (0.80)		33.04	Red / brown clayey GRAVEL. Gravel was predominantly fine to coarse flint. (HEAD DEPOSITS)					
	1.60-2.60 (1.00)		32.04	Stiff brown mottled grey CLAY. (WEATHERED LONDON CLAY)		1.90 2.30	D D		
	2.60-3.50 (0.90)		31.14	Very stiff blue / grey slightly sandy CLAY. Sand was fine. (LONDON CLAY)		2.90	D		

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

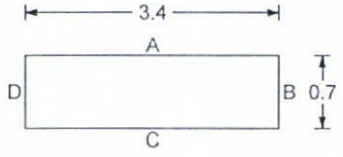
WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP70
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	34.270	466950 110160	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.50 (0.50)		33.77	Grass over TOPSOIL. Topsoil comprises brown clayey slightly gravelly sand. Sand was fine to medium and gravel was predominantly fine to medium flint. Frequent roots and rootlets were noted.		0.10-0.20	DV		
	0.50-0.70		33.57	Very stiff brown slightly gravelly CLAY. Gravel was predominantly medium to coarse flint. Rare rootlets were noted. (HEAD DEPOSITS)		0.60	D		
	0.70-1.65 (0.95)		32.62	Red / brown very clayey GRAVEL. Gravel was predominantly angular to sub angular fine to coarse, with occasional cobbles of flint. (HEAD DEPOSITS)					
	1.65-1.85		32.42	Firm red / brown very gravelly slightly sandy CLAY. Gravel was predominantly fine to medium, occasionally coarse flint. Sand was fine to medium. (HEAD DEPOSITS)		1.70	D		
	1.85-2.80 (0.95)		31.47	Firm brown mottled grey slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)		2.70	D		
	2.80-3.80 (1.00)		30.47	Stiff to very stiff grey / blue slightly sandy CLAY. Sand was fine. (LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Pit was stable.
Groundwater was not encountered.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

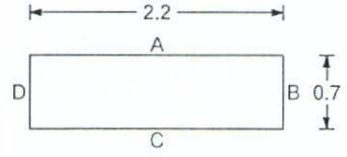
WSP Environmental
Foxholes Business Park
Hertford, SG13 7NN
Telephone: 01992 526000
Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP71
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	34.350	467110 110100	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		33.95	Grass over TOPSOIL. Topsoil comprises brown clayey sand. Frequent roots and rootlets were noted.					
▼1	0.40-1.10 (0.70)		33.25	Grey clayey slightly sandy GRAVEL. Gravel was predominantly fine to coarse with occasional cobbles of flint and rare fine to medium chalk. Gravel was wet. (HEAD DEPOSITS)		0.60 1.00	DV DV		

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit collapsing.
Groundwater was encountered at 1.0m bgl.
No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR

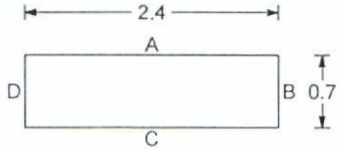
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Foxholes Business Park
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Fax: 01992 526001

TRIAL PIT LOG

Project				TRIAL PIT No
Waterlooville				TP72
Job No	Date	Ground Level (m)	Co-Ordinates ()	
12220124	04-10-06	34.510	467130 110115	
Supervising Engineer		Client		Sheet
Abi Reeder		George Wimpey		1 of 1

Water	Depth (thickness)	No	Red'cd Level	STRATA DESCRIPTION	Legend	SAMPLES Depth	SAMPLES No	HSV Depth	HSV Result kN/m2
	0.00-0.40 (0.40)		34.11	Grass over TOPSOIL. Topsoil comprises brown slightly gravelly clayey sand. Sand was fine to medium and gravel was predominantly fine to coarse flint.					
	0.40-1.00 (0.60)		33.51	Firm to stiff brown very gravelly CLAY. Gravel was predominantly fine to coarse with occasional cobbles of flint. (HEAD DEPOSITS)		0.50	DV		
	1.00-1.60 (0.60)		32.91	Red / brown very clayey GRAVEL. Gravel was predominantly angular to sub angular fine to coarse flint. (HEAD DEPOSITS)		1.30	DV		
	1.60-1.80		32.71	Light grey slightly clayey, slightly sandy GRAVEL. Gravel was predominantly fine to coarse flint. (HEAD DEPOSITS)					
	1.80-2.10 (0.30)		32.41	Firm to stiff brown mottled grey slightly sandy CLAY. Sand was fine. (WEATHERED LONDON CLAY)					

Shoring/Support:
Stability:



GENERAL REMARKS

Sides of pit starting to collapse. Groundwater not encountered. No visual or olfactory evidence of contamination encountered.

All dimensions in metres Scale 1:30.3	Contractor Cosham Plant	Method/ Plant Used JCB	Logged By AJR