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Site Investigation Report

Shoreham Filling Station, Upper Shoreham Road, Shoreham-by-Sea, BN43 6TD

8 March 2006

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LIMITATION

URS Corporation Limited (URS) has prepared this Report for the sole use of BP Oil UK Ltd in accordance with the Agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This Report may not be relied upon by any other party without the prior and express written agreement of URS. Unless otherwise stated in this Report, the assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from third parties has not been independently verified by URS, unless otherwise stated in the Report.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the services. The results of any measurements taken may vary spatially or with time and further confirmatory measurements should be made after any significant delay in using this Report. URS notes that, due to the presence of active fuel systems at this site, investigation activities could not be conducted in the areas immediately surrounding the underground storage tanks, dispenser islands, and fuel lines.

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1. INTRODUCTION

URS Corporation Ltd. (URS) was retained by BP Oil UK Ltd. (BP) to conduct a site investigation at the Shoreham Filling Station, located on Upper Shoreham Road, Shoreham-by-Sea, West Sussex (hereafter referred to as 'the site'). The programs of works was undertaken in accordance with URS project scope and cost dated 26th January 2006, authorised by Mr. Clive Wood of BP.

1.1. Objectives

URS understands the main objectives of the environmental investigation are as follows:

- Investigate the presence and extent of petroleum hydrocarbons in the soil and groundwater beneath the site; and
- Assess the potential risk to human health and/or environmental receptors posed by petroleum hydrocarbons, if present.

1.2. Scope of Work

The following scope of work was undertaken to meet the objectives outlined above:

Task 1 – Desk-top study;

Task 2 – Intrusive environmental investigation;

Task 3 – Laboratory analysis; and

Task 4 – Tier 1 risk assessment and reporting.

2. SITE SETTING

2.1. Site Location

The site is located on Upper Shoreham Road in Shoreham-by-Sea, West Sussex at National Grid Reference TQ 23200 06160. The site is situated in a predominantly residential district bounded to the north, east and west by residential property. The site is accessed via Upper Shorham Road, which runs east to west along the southern site boundary. A hospital is situated approximately 200 metres (m) southwest and a supermarket is located 500m northeast of the site. A site location map is presented in **Figure 1.**

2.2. Current Site Layout

The existing site comprises an operating service station covering a total area of approximately 0.25 hectares (ha). The shop is situated in the southeast corner of the site, four operational pump islands (covered by a canopy) are located on the forecourt west of the shop, and an additional, uncovered pump island is located south of the car wash. The automatic car wash is located adjacent to the northern site boundary, north of the forecourt. Information regarding the fuel storage tanks and interceptors was collated from the May 1996 Geraghty & Miller International Inc Environmental Assessment Report (ref. 90371), and the January 2006 GRL utilities survey. There are five underground storage tanks (USTs) located north of the forecourt. The current UST inventory is summarised in the following table:

Tank Number	Contents	Volume
One	Ultimate Unleaded Petrol	17,000 litres
Two	Unleaded Petrol	43,200 litres
Three	Diesel	43,200 litres
Four	Ultimate Diesel	25,800 litres
Five	Diesel	25,800 litres

The forecourt and area in front of the carwash are surfaced with concrete. Surface run-off from the forecourt and carwash is collected via drains and box gullies before being directed into an interceptor located towards the south western corner of the site, adjacent to Upper Shoreham Road. The interceptor is likely to discharge to sewers beneath Upper Shoreham Road. A site map is included as **Figure 2**. Site photographs are included in **Appendix A**.

2.3. Site HIstory

Historical land use was determined by reviewing available Ordnance Survey (OS) Maps. The OS Maps are included as **Appendix B**.

- 1874-1890: The site is undeveloped farmland, bounded to the north, east and west by fields, and to the south by a roadway. There are few developments within 1km of the site, with the nearest residence lying 600m northwest of the site. The grounds of Buckingham House lie 850m east of the site, and the centre of the small seaside village of Kingston-by-Sea lies 800m to the southeast;

- 1899: The site remains unchanged. The surrounding land remains largely unchanged although the Holmbush Buildings have been constructed 200m northeast of the site. Chalk pits are shown to be located 400m northeast and 650m west northwest of the site. The road running east to west along the southern site boundary is labelled as Upper Brighton Road;

- 1912: The site remains unchanged. Two small buildings have been constructed just beyond the northeastern corner of the site. Some residential development has occurred in the area south of the site. Gravel pits are located 100m east and 200m southeast of the site, and an infirmary lies 250m west of the site;

- 1947: The centre of the site is occupied by two buildings. The surrounding area has undergone extensive development. Wayside Bungalow has been built on the land adjacent to the eastern site boundary, and a nursery lies approximately 75m northeast of the site. The Southlands Hospital now lies 300m west of the site. Residential estates have expanded across the area to the southeast, and less extensively south of the site. A gravel pit is located 350m south of the site;

- 1959: There have been no significant changes to the site or the surrounding land, although the site is now labelled as a garage;

- 1963: The site is now occupied by one central building. The area to the west, south and east of the site has undergone extensive development and is occupied by residential estates, schools and playing fields. The area north of the site remains largely undeveloped;

- 1968: There have been no significant changes to the site or the surrounding land;

- 1972: The site is labelled as a garage and is occupied by two large and two smaller buildings. A large roundabout has been constructed 125m beyond the eastern site boundary, and the Shoreham by-pass (A27) runs east-west 200m north of the site;

- 1974 to 1984: There have been no significant changes to the site or the surrounding land;

- 1993: The site layout resembles that of the present day. No significant changes have occurred to the surrounding land other than the construction of a superstore 300m to the northeast of the site. A filling station is shown 100m northeast of the site; and

- 2000 to date: The site layout is that of the present day.

2.4. Previous Site Investigation Activities

In May 1996, Geraghty & Miller International Inc (G&M) completed an Environmental Assessment of the Southlands Filling Station (now known as the Shoreham Filling Station) to assess the condition of the shallow soil beneath the site. The assessment included a desk study, site reconnaissance, soil vapour survey and drainage chamber inspection. The soil vapour survey comprised the drilling of 50 soil vapour monitoring holes to a maximum depth of 1.0m below ground level (bgl), on a 10m square grid across the site and the monitoring of soil vapours using a photo-ionisation detector (PID). Generally, PID readings remained below 0.1 part per million (ppm). A maximum PID reading of 11.5ppm was detected in the southwest corner of the site west of the pump islands. PID readings detected during the drainage chamber inspection comprised 3.1ppm (manhole for Tank 1), 161ppm (manhole for Tank 2), 822ppm (manhole for Tank 3), 421ppm (manhole for Tank 4) and 9ppm (manhole for Tank 5). Based on the findings of the site investigation, it was concluded that there had been little or no impact to the top 2m of soil from site derived contamination.

2.5. Site Environmental Setting

The following subsections summarise the general environmental setting of the site and its surroundings utilising observations made during site work, available geological, hydrogeological and topographic maps, and the May 1996 G&M report.

2.5.1. Topography & Hydrology

The site is located at approximately 20m Above Ordnance Datum (AOD). The surrounding land slopes gently towards the coast, 1 kilometre (km) south of the site.

Surface water features were not identified within 1km of the site. The Landmark database search did not identify a licensed surface water abstraction within 1km of the site.

2.5.2. Geology & Hydrogeology

The regional geology surrounding the site is shown in **Figure 3**. Based on the regional geological map (British Geological Survey [BGS] Map 1:50,000 Sheet 318 Brighton Solid and Drift Edition), and the geology encountered during the intrusive investigations, the site appears to be underlain by the following strata:

- Made Ground: Consisting of gravely sand with occasional brick, concrete and flint fragments. The depth of Made Ground encountered during the drilling of MW1 to MW4 was found to range between 0.3m bgl (MW3) and 0.9m bgl (MW2);
- Drift deposits: comprising sandy clay was identified in MW3 and MW4 to a depth of 6.0m bgl and 7.5m bgl, respectively. This unit is indicated on the geological map to extend for up to 10m bgl; however, during the site investigation, this unit was found to be absent in MW1;

- Cretaceous Upper Chalk: This unit was proven to a depth of 8.0m bgl in borehole MW1, but was not encountered in the remaining three boreholes. The Environment Agency classifies this unit as a Major Aquifer.

The Made Ground at this site is fairly consistent in composition and extent; however, materials may have been imported from a variety of sources or maybe reworked local soils. The origin of these materials may be a potential source of contamination at the site.

Review of published geological, groundwater vulnerability and hydrogeological maps for the site suggest that the site is located on a major aquifer (Upper Chalk).

The Landmark database search did not identify a licensed groundwater abstraction within 1km of the site, however, several major groundwater abstractions from the chalk aquifer were identified within 2 km of the site in the May 1996 G&M report.

2.5.3. Environmental Sensitivity

The Upper Chalk is classified by the Environment Agency as a Major Aquifer with low primary permeability and high secondary permeability through fracture flow. The clay underlying the site is likely to provide a degree of protection from the vertical migration of site-derived contamination; however, the intrusive investigation identified that the clay is absent across part of the site. Therefore, a direct pathway for the migration of contamination from the Made Ground into the underlying major aquifer may exist. The groundwater within the Major Aquifer is considered to be of high environmental sensitivity with respect to site-derived contamination.

Surface water bodies were not identified within 1km of the site; therefore, no potential risks to surface waters have been identified.

The Landmark database search identified that the site, located in the Sussex Downs, lies in a designated area of Outstanding Natural Beauty and in a nitrate vulnerable zone. The Sussex Downs National Park (designated as an environmentally sensitive area) lies 385m north of the site.

2.5.4. Potential Off-Site Sources

The Landmark database search identified one additional filling station within 1km of the site. The details are presented in the table below.

Name	Location	Brand	Status	Distance (m) & Bearing from Site
Tesco Shoreham	Upper Shoreham Road, Shoreham-by-Sea, West Sussex, BN43 6TD	TESCO	Open	38 East

The Landmark database search identified two registered landfill sites within a 1km radius of the site. The details are presented in the table below.

License Holder	Location	Waste source and Max Input	Licence status	Distance (m) & Bearing from Site
Local Authority	Kingston To Hangleton Section Of A27 By-Pass, Southwick	Not Supplied	Unknown	783 northeast
C A Blackwell (Contracts) Ltd	Southwick Hill, A27 Brighton Bypass, Southwick, Brighton, East Sussex	Waste produced/controlled by licence holder; Large*	Licence lapsed/ cancelled/ defunct/ not applicable/ surrendered	894 northeast

* Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year)

The Landmark database search did not identify a registered waste transfer site within 1km of the site.

2.5.5. Preliminary Conceptual Site Model

Following review of the available data regarding site history, current environmental setting, and proposed development, a preliminary Conceptual Site Model (CSM) was developed, as in the table below. The CSM illustrates the potential contaminant sources, pathways and receptors for the evaluation of potential risk at the site.

Source	Pathway	Receptor
On-site storage and dispensing of petrol and diesel.	-Exposure to contaminants in soil or groundwater, if present, via ingestion, dermal contact and inhalation. - Vertical and/or lateral migration of surface contaminants (free phase or dissolved phase, if present) through the Upper Chalk Aquifer underlying the site. - Lateral migration via shallow groundwater towards the coast.	- On-site workers. - Off-site residents. - Groundwater within the major Upper Chalk Aquifer underlying the site

3. ENVIRONMENTAL ACTIVITIES

3.1. Scope of Work

Based on a review on available data, it appears that the concentration of chemicals of concern in soil and groundwater beneath the site had not been assessed since the G&M May 1996 Environmental Assessment. Therefore, the objective of this scope of work was to establish current soil and groundwater conditions and to provide a baseline for any future assessments.

On 24th January 2005, prior to the intrusive investigation, Ground Restoration Ltd (underground survey contractors) visited the site to carry out a utility survey of the site.

Between the 25th and 27th January 2006, URS supervised the excavation of four soil borings (MW1 to MW4) to a depth of up to 8.0 m bgl using hollow stem auger drilling techniques. Following excavation, MW1, MW3 and MW4 were completed as groundwater monitoring wells; however, MW2 was terminated at a shallow depth (0.9m bgl) due to the presence of an underground utility. During excavation, soil samples were collected and submitted for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX); methyl tertiary butyl ether (MTBE); and polycyclic aromatic hydrocarbons (PAH) by gas chromatography/mass spectroscopy (GC/MS), and for total petroleum hydrocarbons (TPH) by gas chromatography with flame ionization detection (GC-FID). Selected soil samples were also analysed for total organic carbon (TOC), particle size distribution (PSD), and heavy metals (arsenic, cadmium, chromium, lead, mercury, nickel, selenium, and zinc) by inductively coupled plasma/optical emission spectrometry (ICP/OES).

The boreholes were positioned to provide the most adequate site coverage possible based on the viable drilling locations at the site, which were limited by the presence of USTs and utilities. The borehole placement was as follows:

Borehole/Well	Location Rationale
MW1	Located towards the northwestern corner of the site, to the west of the carwash, up assumed hydraulic gradient.
MW2	Located to the west of the forecourt and pump islands, across assumed hydraulic gradient of the pump islands.
MW3	Located to the south of the forecourt and pump islands, adjacent to the southern site boundary, down assumed hydraulic gradient of the pump islands.
MW4	Located to the south of the shop, adjacent to the southern site boundary, down and across assumed hydraulic gradient of the site.

On 31st January 2006, liquid level data was collected from the three newly installed monitoring wells (MW1, MW3 and MW4). Although MW1 and MW3 were found to be dry, a groundwater sample was collected from MW4. The groundwater sample was submitted for analysis of BTEX, MTBE, and PAHs by GC/MS, and for TPH by GC-FID.

3.2. Soil Sampling

Between the 25th and 27th January 2006 URS directed the excavation of boreholes MW1 to MW4 to a maximum depth of 8.0m bgl using hollow stem auger drilling techniques. The drill rig augers and other down-hole equipment was thoroughly cleaned using pressurized steam before each borehole was drilled. Prior to drilling, each borehole was cleared using hand tools to a depth of 1.5m bgl. Soil samples shallower than 1.5m bgl were collected from the sidewalls of the excavation, and window samples were collected continuously from 1.5m bgl to the bottom of each boring. A representative portion of each soil sample was split for chemical analysis, headspace screening, and lithological classification.

Samples collected for chemical analysis were immediately placed in pre-cleaned, glass bottles supplied by the analysing laboratory, labelled, and placed on ice. Samples collected for headspace screening were placed in a re-sealable plastic bag and allowed to equilibrate for 15 to 20 minutes, permitting volatile organic compounds in the samples to volatilize into the headspace of the bag. The bag was then sampled with a field-calibrated PID, and a headspace reading was obtained. PID readings were documented and are outlined in the environmental bore logs in **Appendix C**. PID readings exceeding 0.1 ppm were not detected in the samples collected from three of the four boreholes (MW1, MW3 and MW4). Samples were not collected for headspace screening from MW2. A strong hydrocarbon odour was noted within the Made Ground in MW2 between 0.6m and 0.9m bgl. Visible or olfactory evidence of contamination was not observed in the remaining three boreholes.

A standard protocol was used for selecting up to three samples from each boring for laboratory analysis: one sample from less than 1m bgl; the subsurface soil sample exhibiting the highest PID reading; and/or the sample collected from immediately above the soil/water interface. Nine soil samples were submitted to Severn Trent Laboratories Ltd (STL) in Coventry, under proper chain-of-custody procedures for laboratory analysis for BTEX, MTBE, and PAHs by GC/MS and for TPH-CWG by GC-FID. Two soil samples were analysed for PSD, and four for TOC. Four soil samples were analysed for heavy metals by ICP/OES.

Laboratory soil analytical reports are included as **Appendix D**. Soil analytical results are summarised in **Table 1**, **2**, **3**, and **4**. Soil BTEX, MTBE and TPH concentrations for the sampling event are illustrated on **Figure 4**. Due to the number of PAH and metals parameters, only those concentrations exceeding the screening criteria are illustrated on **Figure 4**.

3.3. Monitoring Well Installation

Following completion of soil sampling activities, URS supervised the installation of monitoring well MW1, MW3 and MW4. The wells were installed to a maximum depth of 8.0m bgl using 50-millimetre (mm) diameter, 1mm-slotted, flush-threaded poly-vinyl chloride (PVC) well screen and finished with a sufficient length of compatible PVC riser. The annulus surrounding each well was filled with clean, washed gravel to a minimum of 0.2m above the top of the screened interval, and topped with a layer of activated bentonite to act as a seal. Each well was finished in a protective well vault placed flush to surface and set in a concrete pad.

The approximate location of each monitoring well is shown in **Figure 2**. Borehole logs and well installation details are presented in **Appendix C**.

3.4. Liquid Level Monitoring

On 31st January 2006, URS field personnel measured liquid levels in all monitoring wells associated with the site using an interface probe (IP), which is capable of distinguishing non-aqueous phase liquid (NAPL) from water. The IP was thoroughly cleaned by washing it with a non-phosphate soap solution and rinsing it with deionised water before each measuring event. Liquid levels were measured to the nearest 0.001m from the top of each well casing, so that they could be directly compared to a common datum. Measurements made in the field included depth to water, depth to NAPL (if present), and depth to the bottom of each well. If NAPL was detected by the IP, a clear disposable bailer was used to obtain a sample from the well for visual confirmation.

During the 31st January 2006 liquid level measurements, groundwater was only detected within one monitoring well (MW4) at a depth of 6.60m bgl; therefore, the groundwater flow direction at the site could not be determined. Groundwater is anticipated to flow towards the coastline to the south of the site.

Liquid level data collected during this period are summarised in **Table 5.**

3.5. NAPL Monitoring

During the liquid level monitoring activities, NAPL was not observed in any monitoring well associated with the site.

3.6. Groundwater Sampling

Upon completion of the liquid level measuring event, monitoring well MW4 was developed to improve hydraulic connection with the formation using a disposable Teflon bailer. The well was developed by purging of at least five well volumes of water, or until dry. During well purging activities, water was monitored for temperature, pH, and conductivity to determine when representative formation waters were being encountered.

Following sufficient recharge, a groundwater sample was collected from monitoring well MW4 using a dedicated disposable bailer. The groundwater was collected into laboratory supplied, glass containers; labelled; placed on ice; and submitted under chain-of-custody

documentation to STL in Coventry. The groundwater was analysed for BTEX, MTBE, and PAHs by GC/MS and for TPH-CWG by GC-FID.

Laboratory groundwater analytical reports are included as **Appendix D**. Groundwater analytical results are summarised in **Table 6, 7** and **8**. Dissolved-phase BTEX, MTBE and TPH concentrations for the sampling event are illustrated on **Figure 5**. Due to the number of PAH parameters, only concentrations exceeding the screening criteria are illustrated on **Figure 5**.

4. LEGISLATION AND ENVIRONMENTAL SCREENING CRITERIA

4.1. Legislative Drivers

Remediation and redevelopment of 'Brown Field' land must take into account the regulatory and planning context of the work, ultimately providing adequate validation information, in accordance with United Kingdom (UK) good practice. In addition to the regulatory and planning controls on remediation and redevelopment, BP themselves may have their own corporate requirements and drivers that must be considered, associated with public perception, with respect to minimisation of long-term liabilities and acceptability of alternative strategies.

There are two key legislative drivers for dealing with risks to human health from historical land contamination in the UK, namely Part IIA of the Environment Protection Act 1990 (the "Contaminated Land" regime) and the Town and Country Planning Acts.

Part IIA is a risk-based regime that applies to the current use of the land and was introduced to address the historical legacy of land contamination. Part IIA includes a statutory definition of "Contaminated Land" and confers responsibility and powers to Local Authorities and the Environment Agency to identify contaminated land and ensure that is addressed. The definition of Contaminated Land includes the concept of significance with regards to likelihood and magnitude of impact or harm. It is also (with relation to the Water Act 2003) relates to the impact to Controlled Waters or potential for pollution of these bodies defined as any surface or groundwaters (including offshore territorial waters).

Land contamination and its risk to health is a material consideration under planning and development control and applies to the intended use of the site. Existing guidance on assessing risks to health under the Town and Country Planning Acts has recently been revised (Planning Policy Statement 23, ODPM November 2004) with the intention of ensuring that land contamination issues are addressed consistently with the arrangements under Part IIA.

The Government's objectives for contaminated land are to identify and remediate unacceptable risks to human health and to bring back to beneficial use impacted land in a sustainable manner (Department of the Environment, Food and Rural Affairs (DETR) Circular 02/2000 Contaminated Land).

The impact of the recent "Van de Walle / Texaco" ruling of the European Court of Justice (7 September 2004) on the UK legislative framework has yet to be clarified, but it may have significant ramifications on the way in which historic contamination releases are addressed. The impact to the UK is as a European precedent whereby criminal liability may be assigned to original producers/possessors of the "waste" (contaminated soils and groundwater) and subsequent management under Hazardous Waste Regulations and EU Environmental Liability Directive (2004/35/EC).

Remediation of contaminated land may require licensing under appropriate permits from the Environment Agency, at present these would include the provision of "Mobile Treatment Licences", and abstraction and discharge consents, but in the future may be superseded with a "Remediation Site Licence" (or similar). The retention of any soils deemed to be a waste (under Waste Management Legislation) may require the procurement of a waste management licence for the site and associated management of those "wastes" in accordance with the licence. Alternatively, the processing of contaminated soils on site may also require an exemption from such waste management licences. Given the time period of the proposed remediation works it is imperative that any solution is mindful of the currently dynamic legislative regime, particularly associated with the definition and management of wastes.

4.2. Environmental Screening Criteria

The significance of site assessment analytical results is determined in the UK by undertaking a risk assessment, in line with guidance produced in relation to Part IIA and the Town & Country Planning Act. If significant levels of risk are identified then the site could require remediation under the provisions of this legislation.

A large body of technical guidance has been produced in the UK on this matter and the following documents are considered to be central:

- Contaminated Land, DETR Circular 02/2000;
- Planning Policy Statement 23: Planning and Pollution Control (2004);
- EA R&D Publication 20, Methodology for the derivation of remedial targets for soil and groundwater to protect water resources; and
- Contaminated Land Research (CLR) Reports 7-10, published in March 2002.

In summary, the above referenced guidance provides for staged and risk-based data interpretation. This commences with an assessment against generic risk assessment criteria (which are conservative in nature) and may proceed to the development (i.e. calculation) of site-specific risk based criteria. The former are set to ensure that, if they are not exceeded, it is extremely unlikely that relevant receptors will be exposed to significant levels of risk. In cases where they are exceeded, it is appropriate to undertake further assessment; which may include additional data collection and site-specific risk assessment to determine the need for further action.

The generic risk assessment (also widely referred to as a Tier 1 assessment) will identify those contaminants that are of potential concern on the basis that they are present at concentrations that could cause adverse effects to one or more relevant receptors. The methodology comprises the comparison of measured contaminant concentrations on-site with published criteria that are protective of the relevant receptors, focusing on the potential for both soil and groundwater contamination to pose risks to human health and controlled waters.

Soil data has been compared against generic screening criteria (based on a commercial land use) taken from the following sources in order of preference:

- UK Soil Guideline Values (SGVs) – published by DEFRA and the EA and developed using the Contaminated Land Exposure Assessment (CLEA) model
- URS Generic Assessment Criteria (GACs) – developed by URS in accordance with the methodology outlined by CLEA in EA/DEFRA R&D Publications CLR7-10.
- Adjusted Dutch Intervention Values (aDIVs) – designed to protect the multifunctionality of soils based on human toxicological and ecotoxicological considerations.
- US Environmental Protection Agency Region 9 Preliminary Remediation Goals (EPA R9 PRGs).

The aDIVs and PRGs have no legal status in the UK. However, as they have been derived using risk assessment techniques, they are considered to be acceptable as an initial screen at sites such as this in the absence of published UK SGVs (and the use of these is considered consistent with current guidance).

As the risks from TPH are considered additive on a sample by sample basis (in accordance with the Environment Agency's framework for evaluating TPH risks in soil: *The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils.* Science Report P5-080/TR3. Environment Agency 2005), the Hazard Quotient for each sample has been calculated using the following methodology:

1. calculate* a Hazard Quotient (HQ) for each reported TPH fraction in relation to its screening criteria.
2. sum the calculated HQs for each sample to derive a Hazard Index (HI)
3. where a HI is greater than unity (1.0), the risks from TPH for that sample are potentially not tolerable (the screening criteria is "exceeded")

*HQ = reported concentration / URS GAC (assuming units are identical)

Existing water guidelines were adjusted to provide a Tier 1 soil concentration that would be protective of controlled waters in a standard site scenario. The adjustment comprises the theoretical calculation of the pore water concentration that would be expected from contact with the soil based on measured soil contaminant concentration and equations describing the partitioning of contaminants between the water and soil phase[1] Such guidelines incorporate adjustments based on values for organic matter and clay content to assess the potential for leachate migration into deeper groundwater. For this assessment UK Drinking Waters Standards (UK DWS) have been employed, where available.

For contaminants present within the groundwater, the measured concentrations are compared directly to the Water Target Values (WTVs). The most sensitive receptor was identified to be the major aquifer (Upper Chalk) underlying the site, therefore UK Drinking

[1] 'Methodology for the derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources' Environment Agency R&D Publication 20

Water Standards (UK DWSs) have been used in the first instance, providing a more accurate assessment of the likely impacts on groundwater. In accordance with EA R&D Publication 20, the following WTVs have been used (in order or priority):

- UK drinking water standards taken from the Water Supply (Water Quality) Regulations 2000 and, as necessary, the Water Supply (Water Quality) Regulations 1989;
- World Health Organisation (WHO) Guidelines for Drinking Water Quality;
- US EPA Region 9 tap water preliminary remediation goals; and
- Total Petrol Hydrocarbon Criteria Working Group (TPHCWG) for fractionated TPH groups.

The results of these comparisons are presented in the following sections and aim to provide a clearer representation of the trends in contaminant distribution across the site. The chemical test results have been compared to the screening criteria which are based on a commercial land use.

If the Tier 1 criteria are not exceeded then it will be concluded that the observed contaminant concentrations do not pose a significant risk and further risk assessment will not be required.

If, however, one or more criteria are exceeded then it may be necessary to assess the significance of the detected contamination in greater detail. This is generally achieved by undertaking a site-specific QRA, also known as a Tier 2 assessment. The current investigation results are compared to Tier 1 criteria only, based on risks to human health and controlled waters. Risks to flora and fauna are not considered to be part of the scope of work.

5. LABORATORY ANALYTICAL RESULTS & TIER 1 ASSESSMENT

In accordance with the accepted generic risk assessment (Tier 1) process, the analyte concentrations detected in soil and groundwater sampled were compared against relevant generic screening criteria identified for the subject site (see the tables below).

Generic Screening Criteria for BTEX, MTBE, and TPH (Residential)

Determinand	Shallow (≤1m) Soil Screening Criteria (mg/kg)	Deep (>1m) Soil Screening Criteria (mg/kg)	Shallow (≤1m) Soil Screening Criteria (mg/kg)	Deep Soil Screening Criteria (mg/kg)	Groundwater Screening Criteria (µg/l)	
	Human Health	Human Health	Controlled Waters	Controlled Waters	Human Health	Controlled Waters
Benzene	0.0179	0.0349	0.011	0.0057	76	1
Toluene	3.0	3.1	7.843	4.181	5,260	700
Ethylbenzene	9.0	20.6	10.325	5.427	15,900	300
Xylenes	4.27	7.29	16.887	8.879	5,400	500
MTBE	2.14	39.2	0.007	0.005	511,000	11
TPH (>EC6-7) aromatic	9.85	14.4	0.796	0.417	4,740	10
TPH (>EC7-8) aromatic	9.94	14.5	1.002	0.524	3,680	10
TPH (>EC8-10) aromatic	2.83	5.13	1.261	0.659	1,040	10
TPH (>EC10-12) aromatic	8.0	27.5	1.998	1.044	3,540	10
TPH (>EC12-16) aromatic	12.1	144	3.985	2.082	N/A	10
TPH (>EC16-21) aromatic	13.4	N/A	12.6	6.579	N/A	10
TPH (>EC21-35) aromatic	1660	N/A	100	52.25	N/A	10
TPH (>EC6-8) aliphatic	11.5	15.9	3.226	1.67	918	10
TPH (>EC8-10) aliphatic	2.23	3.28	25.2	13.15	31.2	10
TPH (>EC10-12) aliphatic	11.7	16.2	199.8	104.3	20.8	10
TPH (>EC12-16) aliphatic	3140	N/A	3,985	2,080	N/A	10
TPH (>EC16-21) aliphatic	111000	N/A	501,617	261,849	N/A	10
TPH (EC21-35) aliphatic	N/A	N/A	6,034,074	3,149,855	-	10

N/A – Not applicable

Generic Screening Criteria for PAHs (Residential)

Determinand	Shallow (≤1m) Soil Screening Criteria (mg/kg)	Deep (>1m) Soil Screening Criteria (mg/kg)	Shallow (≤1m) Soil Screening Criteria (mg/kg)	Deep (>1m) Soil Screening Criteria (mg/kg)	Groundwater Screening Criteria (µg/l)	
	Human Health	Human Health	Controlled Waters	Controlled Waters	Human Health	Controlled Waters
Naphthalene	4.16	6.4	0.64	0.333	1,590	6.2
Acenaphthylene	1.05	139	4.47	2.335	7,510	10
Acenaphthene	15.1	N/A	205	107	N/A	365
Fluorene	38.1	N/A	267	139	N/A	243
Phenanthrene	16.3	N/A	18.21	9.509	N/A	10
Anthracene	15,500	N/A	4,282	2,235	N/A	1,830
Fluoranthene	2.45	N/A	1.70	0.889	N/A	0.2
Pyrene	25.6	N/A	1,519	793	N/A	183
Benzo (a) anthracene	1.94	N/A	0.272	0.142	N/A	0.0921
Chrysene	105	N/A	3.347	1.748	N/A	9.21
Benzo (b) fluoranthene	9.38	N/A	N/A	N/A	N/A	0.1
Benzo (k) fluoranthene	9.72	N/A	N/A	N/A	N/A	0.1
Benzo (a) pyrene	0.880	992	0.814	0.425	164	0.01
Indeno (1,2,3-d) pyrene	10.5	N/A	N/A	N/A	N/A	0.1
Dibenz (a,h) anthracene	0.899	N/A	2.784	1.453	N/A	0.00921
Benzo (g,h,i) perylene	1590	N/A	N/A	N/A	N/A	0.1

N/A – Not applicable

Generic Screening Criteria for Metals

Determinand	Shallow Soil Screening Criteria (mg/kg)	
	Human Health	Controlled Waters
Arsenic	20	0.29
Cadmium	1	0.55
Chromium	130	65
Lead	450	2.49
Mercury	8	0.01
Nickel	50	0.76
Selenium	35	0.05
Zinc	580	108

The potential of both soil and groundwater contamination to pose risks to human health and controlled waters has been assessed. The future land use of the site is unknown; therefore, for the purpose of the Tier 1 risk assessment the land use has been conservatively assumed to be residential.

5.1. Soil

A summary of the analytical results for the soil samples collected between the 25th and 27th January 2006 is as follows:

- Benzene was not detected above the laboratory reporting limit in the nine samples submitted for the analysis of this constituent;
- Toluene was not detected above the laboratory reporting limit in the nine samples submitted for the analysis of this constituent;
- Ethylbenzene was not detected above the laboratory reporting limit in the nine samples submitted for the analysis of this constituent;
- Xylenes were not detected above laboratory reporting limits in the nine samples submitted for the analysis of these constituents;
- MTBE was not detected above the laboratory reporting limit in the nine samples submitted for the analysis of this constituent;
- TPH was detected above the laboratory reporting limit in six of the nine samples analysed for these constituents. The detected hydrocarbons generally comprised heavier chain C16 to C40 aliphatic and aromatic carbon fractions. The concentration within the soil sample taken from MW4 (0.5m, 1.5m and 4.5m bgl) exceeded controlled waters screening criteria for individual carbon fractions, but remained below human health screening criteria. The concentrations detected within the shallow soil sample from MW1 (0.5m bgl) and MW2 (0.9m bgl) exceeded both the human health and controlled waters screening criteria. Hazard Indices were calculated to assess the additive effect of the TPH concentrations on human health (for methodology see Section 4.2). Hazard indices exceeding unity (1.0) were calculated for all of the shallow and deep samples, even where TPH had not been detected above laboratory reporting limits, indicting potential risks to human health at all locations;
- PAH compounds were detected above the laboratory reporting limits in two of the nine samples submitted for the analysis of these constituents. Fluoranthene, benzo(a)anthracene and benzo(a)pyrene were detected in the sample from MW1 (0.5m bgl) and MW3 (0.7m bgl) at concentrations exceeding both human health and controlled waters screening criteria. Chrysene was also detected in the sample taken from MW3 at a concentration of 4.5 mg/kg, exceeding the controlled waters screening criteria, but remaining below the human health screening criteria; and
- Arsenic, cadmium, chromium, lead, mercury, nickel, selenium and zinc were detected at concentrations above laboratory reporting limits in all four soil samples submitted for analysis of these constituents. Arsenic and lead were detected in the soil sample from MW4 (0.6m bgl), at concentrations exceeding human health screening criteria. Arsenic, cadmium, lead, mercury, nickel, selenium and zinc were also detected in up to four samples at concentrations exceeding controlled waters

screening criteria. It should be noted, however, that these screening values are considered to be overly conservative as they are based on the direct ingestion of groundwater, which is considered unlikely to occur.

5.2. Groundwater

A summary of the analytical results for the 31st January 2006 sampling event is as follows:

- Benzene was not detected above the laboratory reporting limit in the one sample submitted for the analysis of this constituent;
- Toluene was not detected above the laboratory reporting limit in the one sample submitted for the analysis of this constituent;
- Ethylbenzene was not detected above the laboratory reporting limit in the one sample submitted for the analysis of this constituent;
- Xylenes were not detected above the laboratory reporting limit in the one sample submitted for the analysis of these constituents;
- MTBE was not detected above the laboratory reporting limit in the one sample submitted for the analysis of this constituent;
- TPH was not detected above laboratory reporting limits in the one sample analysed for these constituents. Hazard Indices were calculated to assess the additive effect of the TPH concentrations on human health (for methodology see Section 4.2). The hazard index calculated for the sample did not exceeded unity (1.0) and therefore is not believed to pose a risk to human health; and
- PAH compounds were not detected above the laboratory reporting limits in the one sample submitted for the analysis of these constituents.

6. CONCLUSIONS AND RECOMMENDATIONS

Review of **Table 1** reveals that BTEX and MTBE were not detected above laboratory reporting limits in the nine soil samples submitted for analysis. Review of **Table 2** reveals that total TPH concentrations were detected above laboratory reporting limits in six of the nine soil samples submitted for the analysis of these constituents. Concentrations detected within the shallow soil in MW1 and MW2 exceeded human health and controlled waters screening criteria. Controlled waters screening criteria were also exceeded in the shallow and deep soil samples from MW4 (0.6m, 1.5m and 4.5m bgl). Hazard indices exceeding unity (1.0) were calculated for all of the shallow and deep samples, even where TPH had not been detected above laboratory reporting limits, indicting potential risks to human health at all locations. Review of **Tables 3A and 3B** reveals that PAH was detected above the laboratory reporting limits in two of the nine samples submitted for analysis. Fluoranthene, benzo(a)anthracene and benzo(a)pyrene exceeded both human health and controlled waters screening criteria in MW1 and MW3, and chrysene exceeded its controlled waters screening criterion in the sample taken from MW3. Review of **Table 4** reveals that arsenic, cadmium, lead, mercury, nickel, selenium and zinc were detected in one or more samples at concentrations exceeding controlled waters screening criteria. In addition, arsenic, cadmium and lead exceeded human health screening criteria in the sample from MW4 (0.6m bgl). The screening values, however, are considered to be overly conservative with respect to controlled waters as they are based on the direct ingestion of groundwater, which is unlikely to occur.

Review of **Table 5** reveals that NAPL was not encountered on site. Review of **Table 6** reveals that BTEX and MTBE were not detected above laboratory reporting limits in the groundwater sample submitted for analysis. Review of **Tables 7A** and **7B** reveal that TPH concentrations were not detected above laboratory reporting limits in the groundwater sample submitted for analysis. The hazard index for this sample did not exceed unity (1.0), and therefore, is not considered to pose a risk to human health. Review of **Table 8** reveals that PAHs were not detected above laboratory reporting limits in the sample submitted for analysis.

Based on the data presented in this report, the Tier I screening criteria for the protection of human health and controlled waters has been exceeded; therefore, it is recommended a combined human health and controlled waters QRA be conducted for this site. This conclusion relates to the chronic or long-term exposure risk identified in this report, not to acute or short-term risk. Providing suitable remediation works are completed in a timely manner the site may continue to operate as a retail petrol station.

Tables

TABLE 1

Summary of Soil Analytical Results for BTEX & MTBE with Generic Assessment Criteria

(All results expressed as milligrams per kilogram [mg/kg])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Shallow Soil (≤1m)							
Sample ID	**Sample Depth (m bgl)**	**Date**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**	**MTBE**
HH GAC Shallow Soil (mg/kg)			*0.0179*	*2.03*	*7.69*	*4.27*	*2.14*
Controlled Waters Screening Criteria (mg/kg)			*0.011*	*7.843*	*10.325*	*16.887*	*0.007*
MW1	0.5	25/01/06	<0.005	<0.005	<0.005	<0.01	<0.005
MW2	0.9	25/01/06	<0.005	<0.005	<0.005	<0.01	<0.005
MW3	0.7	27/01/06	<0.005	<0.005	<0.005	<0.01	<0.005
MW4	0.6	27/01/06	<0.005	<0.005	<0.005	<0.01	<0.005

Deep Soil (>1m)							
Sample ID	**Sample Depth (m bgl)**	**Date**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**	**MTBE**
HH GAC Deep Soil (mg/kg)			*0.0349*	*3.10*	*20.6*	*7.29*	*39.2*
Controlled Waters Screening Criteria (mg/kg)			*0.0057*	*4.181*	*5.427*	*8.879*	*0.005*
MW1	1.8	25/01/06	<0.005	<0.005	<0.005	<0.01	<0.005
MW3	2.7	27/01/06	<0.005	<0.005	<0.005	<0.01	<0.005
MW3	3.4	27/01/06	<0.005	<0.005	<0.005	<0.01	<0.005
MW4	1.5	27/01/06	<0.005	<0.005	<0.005	<0.01	<0.005
MW4	4.5	27/01/06	<0.005	<0.005	<0.005	<0.01	<0.005

25/01/06 - 27/01/06 data reported by URS (utilising GC/MS)

BTEX = benzene, toulene, ethylbenzene & xylenes

MTBE = methyl tertiary butyl ether

m bgl = metres below ground level

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)

CW = controlled waters

GAC = generic assessment criteria

The screening criteria presented are for residential end use.

TABLE 2A

Summary of Soil Analytical Results for Total Petroleum Hydrocarbons (TPH) Aliphatic aromatic split

(All results expressed as milligrams per kilogram [mg/kg])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Shallow Soil (≤1m)

Sample ID	Sample Depth (m bgl)	Date	TPH >C6-C8 Aliphatic	TPH >C8-C10 Aliphatic	TPH >C10-C12 Aliphatic	TPH >C12-C16 Aliphatic	TPH >C16-C21 Aliphatic	TPH >C21-C40 Aliphatic	TPH >C6-C40 Aliphatic	TPH >C6-C7 Aromatic	TPH >C7-C8 Aromatic	TPH >C8-C10 Aromatic	TPH >C10-C12 Aromatic	TPH >C12-C16 Aromatic	TPH >C16-C21 Aromatic	TPH >C21-C40 Aromatic	TPH >C6-C40 Aromatic	Total TPH >C6-C40
Screening Criteria HH (mg/kg)			*11.5*	*2.23*	*11.7*	*3,140*	*111,000*	*111,000*	*NE*	*9.85*	*9.94*	*2.83*	*8.0*	*12.1*	*13.4*	*1,660*	*NE*	*NE*
Screening Criteria CW (mg/kg)			*3.226*	*25.238*	*199.8*	*3,985*	*501,617*	*6,034,074*	*NE*	*0.796*	*1.002*	*1.261*	*1.998*	*3.985*	*12.6*	*100.08*	*NE*	*NE*
MW1	0.5	25/01/06	<5.0	<5.0	<5.0	<10	<10	51	61	<5.0	<5.0	<5.0	<5.0	<10	29	145	169	230
MW2	0.9	25/01/06	<5.0	<5.0	<5.0	<10	<10	<25	34	<5.0	<5.0	<5.0	<5.0	<10	14	46	71	105
MW3	0.7	27/01/06	<5.0	<5.0	<5.0	<10	<10	<25	<25	<5.0	<5.0	<5.0	<5.0	<10	<10	<25	<25	<25
MW4	0.6	27/01/06	<5.0	<5.0	<5.0	<10	<10	<25	<25	<5.0	<5.0	<5.0	<5.0	<10	20	125	152	152

Deep Soil (>1m)

Sample ID	Sample Depth (m bgl)	Date	TPH >C6-C8 Aliphatic	TPH >C8-C10 Aliphatic	TPH >C10-C12 Aliphatic	TPH >C12-C16 Aliphatic	TPH >C16-C21 Aliphatic	TPH >C21-C40 Aliphatic	TPH >C6-C40 Aliphatic	TPH >C6-C7 Aromatic	TPH >C7-C8 Aromatic	TPH >C8-C10 Aromatic	TPH >C10-C12 Aromatic	TPH >C12-C16 Aromatic	TPH >C16-C21 Aromatic	TPH >C21-C40 Aromatic	TPH >C6-C40 Aromatic	Total TPH >C6-C40
Screening Criteria HH (mg/kg)			*15.9*	*3.28*	*16.2*	*N/A*	*N/A*	*N/A*	*NE*	*14.4*	*14.5*	*5.13*	*27.5*	*144*	*N/A*	*N/A*	*NE*	*NE*
Screening Criteria CW (mg/kg)			*1.67*	*13.15*	*104.28*	*2,080.1*	*261,849*	*3,149,855*	*NE*	*0.417*	*0.524*	*0.659*	*1.044*	*2.082*	*6.579*	*52.247*	*NE*	*NE*
MW1	1.8	25/01/06	<5.0	<5.0	<5.0	<10	<10	<25	<25	<5.0	<5.0	<5.0	<5.0	<10	<10	<25	35	35
MW3	2.7	27/01/06	<5.0	<5.0	<5.0	<10	<10	<25	<25	<5.0	<5.0	<5.0	<5.0	<10	<10	<25	<25	<25
MW3	3.4	27/01/06	<5.0	<5.0	<5.0	<10	<10	<25	<25	<5.0	<5.0	<5.0	<5.0	<10	<10	<25	<25	<25
MW4	1.5	27/01/06	<5.0	<5.0	<5.0	<10	<10	<25	<25	<5.0	<5.0	<5.0	<5.0	<10	<10	76	86	86
MW4	4.5	27/01/06	<5.0	<5.0	<5.0	<10	<10	108	133	<5.0	<5.0	<5.0	<5.0	<10	<10	84	93	226

Notes:

25/01/06 - 27/01/06 data reported by URS (utilising GC FID)

N/A = not applicable (fractions do not volatilise easily therefore do not pose a risk to human health at depth)

NE = not established

m bgl = metres below ground level

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)

CW = controlled waters

The screening criteria presented are for residential end use.

Highlighted values exceed human health screening criteria

Highlighted values exceed controlled waters screening criteria

TABLE 2B
Assessment of TPH Additivity Using Hazard Indices

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, West Sussex, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Hazard Quotients Shallow Soil (≤1m)

Sample ID	Sample Depth (m bgl)	Date	TPH >C6-C8 Aliphatic	TPH >C8-C10 Aliphatic	TPH >C10-C12 Aliphatic	TPH >C12-C16 Aliphatic	TPH >C16-C21 Aliphatic	TPH >C21-C40 Aliphatic	TPH >C6-C40 Aliphatic	TPH >C6-C7 Aromatic	TPH >C7-C8 Aromatic	TPH >C8-C10 Aromatic	TPH >C10-C12 Aromatic	TPH >C12-C16 Aromatic	TPH >C16-C21 Aromatic	TPH >C21-C40 Aromatic	TPH >C6-C40 Aromatic	Hazard Index
MW1	0.5	25/01/06	0.43	2.24	0.43	0.00	0.00	0.00	n/a	0.51	0.50	1.77	0.63	0.83	2.16	0.09	n/a	9.59
MW2	0.9	25/01/06	0.43	2.24	0.43	0.00	0.00	0.00	n/a	0.51	0.50	1.77	0.63	0.83	1.04	0.03	n/a	8.41
MW3	0.7	27/01/06	0.43	2.24	0.43	0.00	0.00	0.00	n/a	0.51	0.50	1.77	0.63	0.83	0.75	0.02	n/a	8.10
MW4	0.6	27/01/06	0.43	2.24	0.43	0.00	0.00	0.00	n/a	0.51	0.50	1.77	0.63	0.83	0.75	0.08	n/a	8.16

Hazard Quotients Deep Soil (>1m)

Sample ID	Sample Depth (m bgl)	Date	TPH >C6-C8 Aliphatic	TPH >C8-C10 Aliphatic	TPH >C10-C12 Aliphatic	TPH >C12-C16 Aliphatic	TPH >C16-C21 Aliphatic	TPH >C21-C40 Aliphatic	TPH >C6-C40 Aliphatic	TPH >C6-C7 Aromatic	TPH >C7-C8 Aromatic	TPH >C8-C10 Aromatic	TPH >C10-C12 Aromatic	TPH >C12-C16 Aromatic	TPH >C16-C21 Aromatic	TPH >C21-C40 Aromatic	TPH >C6-C40 Aromatic	Hazard Index
MW1	1.8	25/01/06	0.31	1.52	0.31	n/a	n/a	n/a	n/a	0.35	0.34	0.97	0.18	0.07	n/a	n/a	n/a	4.07
MW3	2.7	27/01/06	0.31	1.52	0.31	n/a	n/a	n/a	n/a	0.35	0.34	0.97	0.18	0.07	n/a	n/a	n/a	4.07
MW3	3.4	27/01/06	0.31	1.52	0.31	n/a	n/a	n/a	n/a	0.35	0.34	0.97	0.18	0.07	n/a	n/a	n/a	4.07
MW4	1.5	27/01/06	0.31	1.52	0.31	n/a	n/a	n/a	n/a	0.35	0.34	0.97	0.18	0.07	n/a	n/a	n/a	4.07
MW4	4.5	27/01/06	0.31	1.52	0.31	n/a	n/a	n/a	n/a	0.35	0.34	0.97	0.18	0.07	n/a	n/a	n/a	4.07

Hazard Indices

As the risks from TPH are considered additive on a sample by sample basis (in accordance with the Environment Agency's framework for evaluating TPH risks in soil: *The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils*. Science Report P5-080/TR3. Environment Agency 2005), the Hazard Quotient for each sample has been calculated using the following methodology:

1. calculate* a Hazard Quotient (HQ) for each reported TPH fraction in relation to its screening criteria.
2. sum the calculated HQs for each sample to derive a Hazard Index (HI)
3. where a HI is greater than unity (1.0), the risks from TPH for that sample are potentially not tolerable (the screening criteria is "exceeded")

*HQ = reported concentration / URS GAC (assuming units are identical)

n/a = not applicable (fractions do not volatilise easily therefore do not pose a risk to human health at depth)

NE = not established

HQ = hazard quotient

HI = hazard index

TABLE 3A

Summary of Soil Analytical Results for Polycyclic Aromatic Hydrocarbons (PAHs)

(All results expressed as milligrams per kilogram [mg/kg])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Shallow Soil (≤1m)										
Sample ID	**Sample Depth (m bgl)**	**Date**	**Naphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Anthracene**	**Fluoranthene**	**Pyrene**
Screening Criteria HH (mg/kg)			*4.16*	*1.05*	*15.1*	*38.1*	*16.3*	*15,500*	*2.45*	*25.6*
Screening Criteria CW (mg/kg)			*0.64*	*4.47*	*205*	*267*	*18.2*	*4,282*	*1.70*	*1,519*
MW1	0.5	25/01/06	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	3.7	3.7
MW2	0.9	25/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW3	0.7	27/01/06	<1.0	<1.0	<1.0	<1.0	3.0	1.4	9.3	9.0
MW4	0.6	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Shallow Soil (≤1m)										
Sample ID	**Sample Depth (m bgl)**	**Date**	**Benzo (a) anthracene**	**Chrysene**	**Benzo (b) fluoranthene**	**Benzo (k) fluoranthene**	**Benzo (a) pyrene**	**Indeno (1,2,3-cd) pyrene**	**Dibenz (a,h) anthracene**	**Benzo (ghi) perylene**
Screening Criteria HH (mg/kg)			*1.94*	*105*	*9.38*	*9.72*	*0.880*	*10.5*	*0.899*	*1590*
Screening Criteria CW (mg/kg)			*0.272*	*3.35*	*NE*	*NE*	*0.814*	*NE*	*2.78*	*NE*
MW1	0.5	25/01/06	2.2	2.8	2.9	1.8	3.0	2.0	<1.0	3.1
MW2	0.9	25/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW3	0.7	27/01/06	3.5	4.5	4.0	2.7	4.0	2.7	<1.0	2.7
MW4	0.6	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

25/01/06 -27/01/06 data reported by URS (utilising GC/MS)

Values in BOLD represent the most recent investigation results

NE = not established

m bgl = metres below ground level

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)

CW = controlled waters

The screening criteria presented are for residential end use.

Highlighted values exceed human health screening criteria

Highlighted values exceed controlled waters screening criteria

TABLE 3B

Summary of Soil Analytical Results for Polycyclic Aromatic Hydrocarbons (PAHs)

(All results expressed as milligrams per kilogram [mg/kg])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Deep Soil (>1m)										
Sample ID	Sample Depth (m bgl)	Date	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene
Screening Criteria HH (mg/kg)			*6.4*	*139*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Screening Criteria CW (mg/kg)			*0.333*	*2.335*	*107*	*139*	*9.509*	*2,235*	*0.889*	*793*
MW1	1.8	25/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW3	2.7	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW3	3.4	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW4	1.5	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW4	4.5	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Deep Soil (>1m)										
Sample ID	Sample Depth (m bgl)	Date	Benzo(a) anthracene	Chrysene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Benzo(a) pyrene	Indeno(1,2,3-cd) pyrene	Dibenz(a,h) anthracene	Benzo(ghi) perylene
Screening Criteria HH (mg/kg)			*N/A*	*N/A*	*N/A*	*N/A*	*992*	*N/A*	*N/A*	*N/A*
Screening Criteria CW (mg/kg)			*0.142*	*1.748*	*NE*	*NE*	*0.425*	*NE*	*1.453*	*NE*
MW1	1.8	25/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW3	2.7	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW3	3.4	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW4	1.5	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW4	4.5	27/01/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

25/01/06 -27/01/06 data reported by URS (utilising GC/MS)

NE = not established

m bgl = metres below ground level

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)

CW = controlled waters

The screening criteria presented are for residential end use.

TABLE 4

Summary of Soil Analytical Results for Metals and Risk Parameters

(All results expressed as milligrams per kilogram [mg/kg])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Shallow Soil (≤1m)

Sample ID	Sample Depth (m bgl)	Date	Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	Selenium	Zinc	TOC (%)	PSD (Clay%)	pH
Screening Criteria HH (mg/kg)			*20*	*2.0*	*130*	*450*	*8*	*50*	*35*	*580*	*N/A*	*N/A*	*N/A*
Screening Criteria CW (mg/kg)			*0.29*	*0.55*	*65*	*2.49*	*0.01*	*0.76*	*0.05*	*108*	*N/A*	*N/A*	*N/A*
MW1	0.5	25/01/06	10	0.84	18	79	<0.20	14	<0.30	76	5.9	na	9.4
MW2	0.5	25/01/06	6.5	<0.5	15	360	<0.20	9.2	<0.30	280	na	na	11.7
MW2	0.6	25/01/06	na	na	na	na	na	na	na	na	na	4	na
MW2	0.9	25/01/06	na	na	na	na	na	na	na	na	na	na	na
MW3	0.7	27/01/06	7.9	0.62	11	66	0.68	18	<0.30	63	10	na	9.5
MW4	0.6	27/01/06	21	1.1	24	1000	1.1	27	0.32	270	na	na	8.4

Deep Soil (>1m)

Sample ID	Sample Depth (m bgl)	Date	Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	Selenium	Zinc	TOC (%)	PSD (Clay%)	pH
Screening Criteria HH (mg/kg)			*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
MW1	1.8	25/01/06	na	na	na	na	na	na	na	na	na	na	na
MW3	2.7	27/01/06	na	na	na	na	na	na	na	na	na	na	na
MW3	3.4	27/01/06	na	na	na	na	na	na	na	na	0.7	na	na
MW4	1.5	27/01/06	na	na	na	na	na	na	na	na	na	na	na
MW4	4.5	27/01/06	na	na	na	na	na	na	na	na	7.6	53	na

Notes:

25/01/06 -27/01/06 data reported by URS (utilising ICP/OES)

na not analysed

N/A not applicable

m bgl = metres below ground level

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)

CW = controlled waters

The screening criteria presented are for residential end use.

Highlighted values exceed human health screening criteria

Highlighted values exceed controlled waters screening criteria

TABLE 5
Liquid Level Summary
(All results expressed in metres)

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Well ID	Date	Depth of Screened Interval (m)	A Top of Casing Elevation	B Depth to NAPL	C Depth to Water	A-B NAPL Surface Elevation	A-C Water Surface Elevation	C-B NAPL Thickness	(A-C)+SGx(C-B) Potentiometric Surface Elevation
MW1	31/01/06	1.5-8.0	100.00	DRY					
MW3	31/01/06	1.0-6.0	99.701	DRY					
MW4	31/01/06	1.0-7.5	99.504	-	6.601	-	92.903	-	92.903

Notes
Depths relative to top of casing elevation
All measurements in metres
- = not applicable/not present
SG = specific gravity of NAPL, assumed to be 0.74
NAPL = non-aqueous phase liquid
All top of casing elevations relative to a common datum with an assumed elevation of 100 metres above mean sea level surveyed by URS on 4/11/05

TABLE 6

Summary of Groundwater Analytical Results for BTEX & MTBE

(All results expressed as micrograms per litre [ug/l])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Sample ID	Date	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
Screening Criteria HH (ug/l)		*76*	*5,260*	*15,900*	*5,400*	*511,000*
Screening Criteria CW (ug/l)		*1*	*700*	*300*	*500*	*11*
MW4	31/01/06	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

31/01/06 data reported by URS (utilising GC/MS)

BTEX = benzene, toulene, ethylbenzene & xylenes

MTBE = methyl tertiary butyl ether

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)

CW = controlled waters screening criteria comprises UK Drinking Water Standards (UK DWS) World Health Organisation (WHO) values, and US Environmental Protection Agency (USEPA) values

The screening criteria presented are for residential end use.

TABLE 7A

Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons (TPH)

(All results expressed as micrograms per litre [µg/l])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Sample ID	Date	TPH >C6-C8	TPH >C8-C10	TPH >C10-C12	TPH >C12-C16	TPH >C16-C21	TPH >C21-C40	Total TPH >C6-C40
Screening Criteria HH (ug/l)		*918*	*31.2*	*20.8*	*N/A*	*N/A*	*N/A*	*NE*
Screening Criteria CW (ug/l)		*10*	*10*	*10*	*10*	*10*	*10*	*10*
MW4	31/01/06	<10	<10	<10	<20	<20	<50	<50

Notes:

31/01/06 data reported by URS (utilising GC-FID)

NE = not established

N/A =not applicable (fractions do not volatilise easily therfore do not pose a risk to human health in groundwater)

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)
As the aliphatic/aromatic split is unknown, the most conservative GAC for each carbon band has been used

CW = controlled waters screening criteria comprises UK Drinking Water Standards (UK DWS) World Health Organisation (WHO) values, and US Environmental Protection Agency (USEPA) values

The screening criteria presented are for residential end use.

TABLE 7B

Assessment of TPH Additivity Using Hazard Indices

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Sample ID	Date	TPH >C6-C8	TPH >C8-C10	TPH >C10-C12	TPH >C12-C16	TPH >C16-C21	TPH >C21-C40	Hazard Index
MW4	31/01/06	0.011	0.321	0.481	n/a	n/a	n/a	0.812

Hazard Indices

As the risks from TPH are considered additive on a sample by sample basis (in accordance with the Environment Agency's framework for evaluating TPH risks in soil: *The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils.* Science Report P5-080/TR3. Environment Agency 2005), the Hazard Quotient for each sample has been calculated using the following methodology:

1. calculate* a Hazard Quotient (HQ) for each reported TPH fraction in relation to its screening criteria.
2. sum the calculated HQs for each sample to derive a Hazard Index (HI)
3. where a HI is greater than unity (1.0), the risks from TPH for that sample are potentially not tolerable (the screening criteria is "exceeded")

*HQ = reported concentration / URS GAC (assuming units are identical)

n/a = not applicable (fractions do not volatilise easily therefore do not pose a risk to human health at depth)

NE = not established

HQ = hazard quotient

HI = hazard index

TABLE 8

Summary of Groundwater Analytical Results for PAH

(All results expressed as micrograms per litre [ug/l])

Shoreham Filling Station
Upper Shoreham Road
Shoreham-by Sea, BN43 6TD
URS Project No. 44407131
URS Parent No. 44406489

Sample ID	Date	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene
Screening Criteria HH (ug/l)		*1590*	*7510*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Screening Criteria CW (ug/l)		*6.2*	*10*	*365*	*243*	*10*	*1,830*	*0.2*	*183*
MW4	31/01/06	<30	<30	<30	<30	<30	<30	<30	<30

Sample ID	Date	Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-cd) pyrene	Dibenz (a,h) anthracene	Benzo (ghi) perylene
Screening Criteria HH (ug/l)		*N/A*	*N/A*	*N/A*	*N/A*	*164*	*N/A*	*N/A*	*N/A*
Screening Criteria CW (ug/l)		*0.0921*	*9.21*	*0.1*	*0.1*	*0.01*	*0.1*	*0.00921*	*0.1*
MW4	31/01/06	<30	<30	<30	<30	<30	<30	<30	<30

Notes:

31/01/06 data reported by URS (utilising ICP/OES)

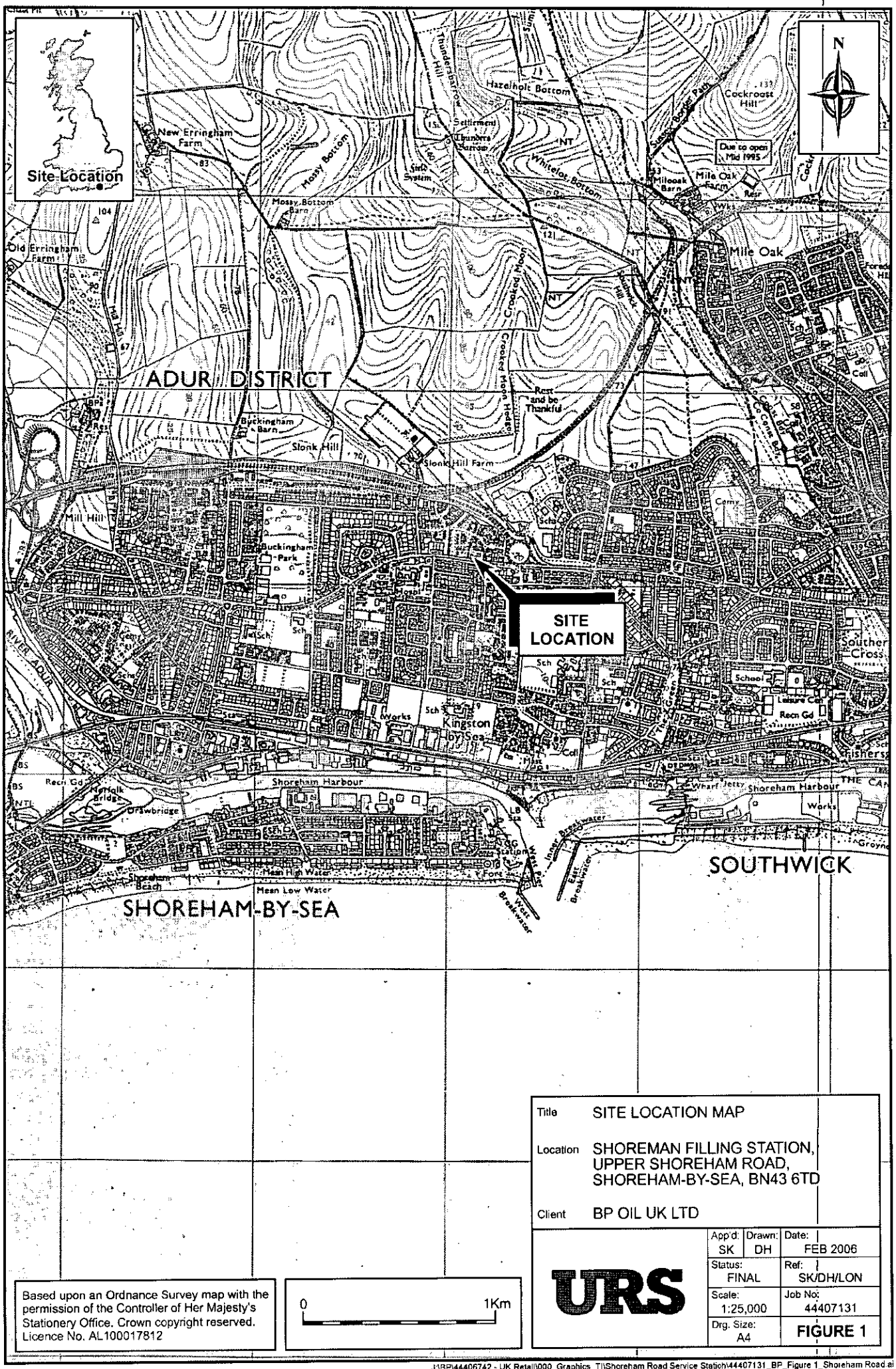
PAH = polycyclic aromatic hydrocarbons

HH = human health screening criteria comprises Soil Guidance Values (SGVs) and Generic Assessment criteria (GACs)

CW = controlled waters screening criteria comprises UK Drinking Water Standards (UK DWS) World Health Organisation (WHO) values, and US Environmental Protection Agency (USEPA) values

The screening criteria presented are for residential end use.

Figures



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0 1Km

Title	SITE LOCATION MAP
Location	SHOREMAN FILLING STATION, UPPER SHOREHAM ROAD, SHOREHAM-BY-SEA, BN43 6TD
Client	BP OIL UK LTD

URS

App'd:	Drawn:	Date:
SK	DH	FEB 2006
Status: FINAL		Ref: SK/DH/LON
Scale: 1:25,000		Job No: 44407131
Drg. Size: A4		FIGURE 1

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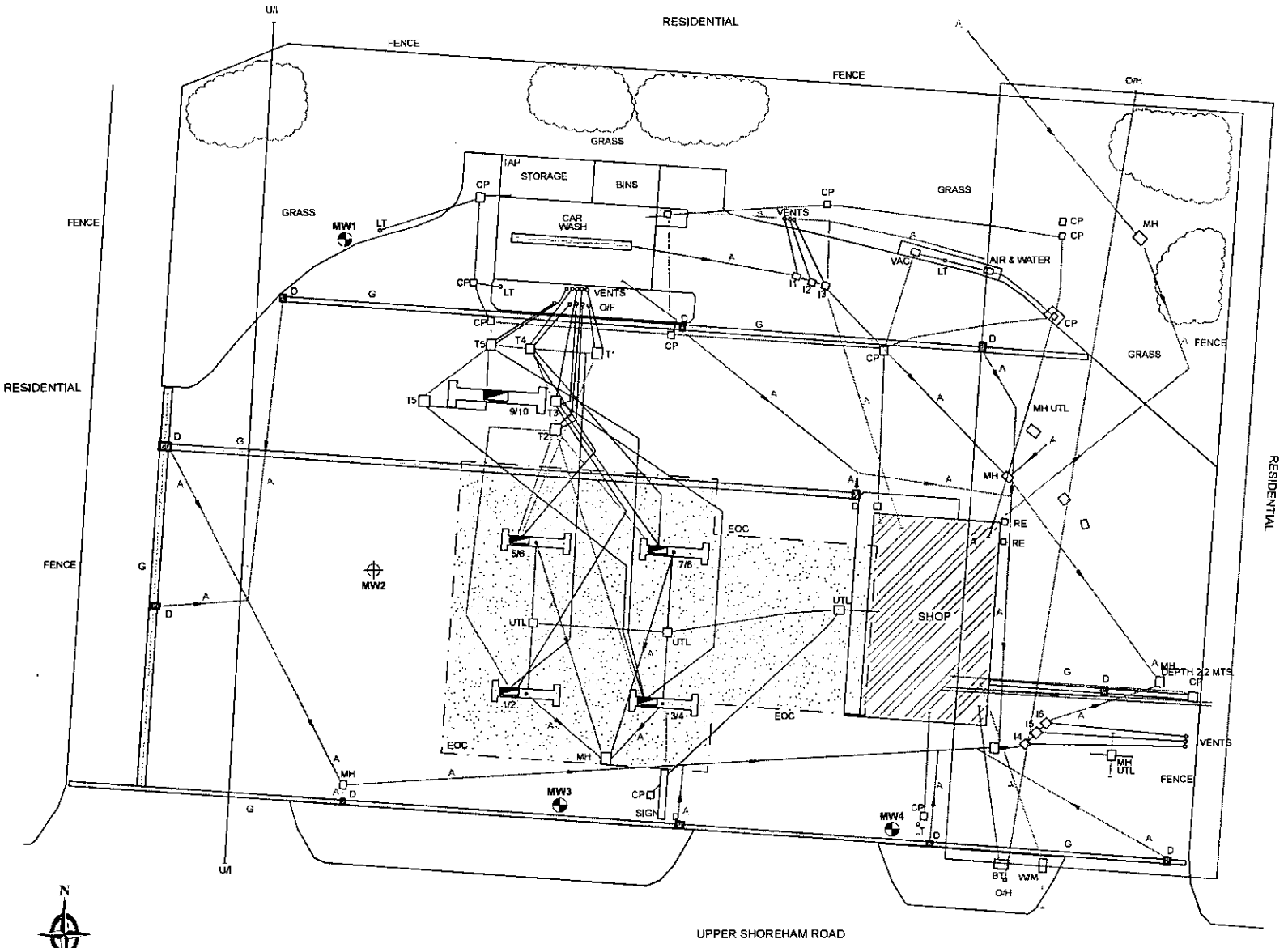

NOTES

LEGEND

- PUMP ISLAND
- UNDERGROUND STORAGE TANK MANHOLE
- BUILDING
- CANOPY EXTENT
- MW1 WELL LOCATION WITH WELL ID
- MW2 BOREHOLE LOCATION WITH BOREHOLE ID
- MANHOLE
- CANOPY STANCHION
- FUEL LINE - LRP
- FUEL LINE - UNLEADED
- FUEL LINE - SUPERGREEN
- FUEL LINE - DIESEL
- TANK GAUGE LINE
- ELECTRICITY CABLE
- TELECOM CABLE
- WATER SUPPLY PIPE
- FOUL WATER DRAIN
- SURFACE WATER DRAIN
- UNIDENTIFIED
- END OF TRACE

WELL LOCATIONS ARE APPROXIMATE

MAP SOURCE: GROUND RESTORATION LIMITED

A	ASSUMED	MH	MANHOLE
BT	BRITISH TELECOM	O/F	OFFSET FILL
CP	CABLE OR CMS PIT	RE	RODDING EYE
D	DRAIN	SC	SECURITY CAMERA
DWP	DRAINWATER PIPE	TP	TELEGRAPH POLE
EP	ELECTRICITY POLE OR PYLON	U/I	UNIDENTIFIED
EOC	EDGE OF CANOPY	UTL	UNABLE TO LIFT
FH	FIRE HYDRANT	VAC	VACUUM
G	GULLY	V/C	VALVE CHAMBER
GV	GAS VALVE	V/R	VAPOUR RECOVERY
LP	LAMP POST	WM	WATER METER
LT	LIGHT		

CONSULTING ENGINEERS

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CLIENT
BP OIL UK LTD
WITAN GATE HOUSE
500-600 WITAN GATE
MILTON KEYNES

PROJECT
SHOREHAM FILLING STATION,
UPPER SHOREHAM ROAD,
SHOREHAM-BY-SEA,
BN43 6TD

DRAWING TITLE
FIGURE 2 - SITE MAP

DRAWN	TRACED	CHECKED	APPROVED	DATE
DH				FEB 2006

SCALE	DRG No	REV.
AS SHOWN	44407131 / FIGURE 2	

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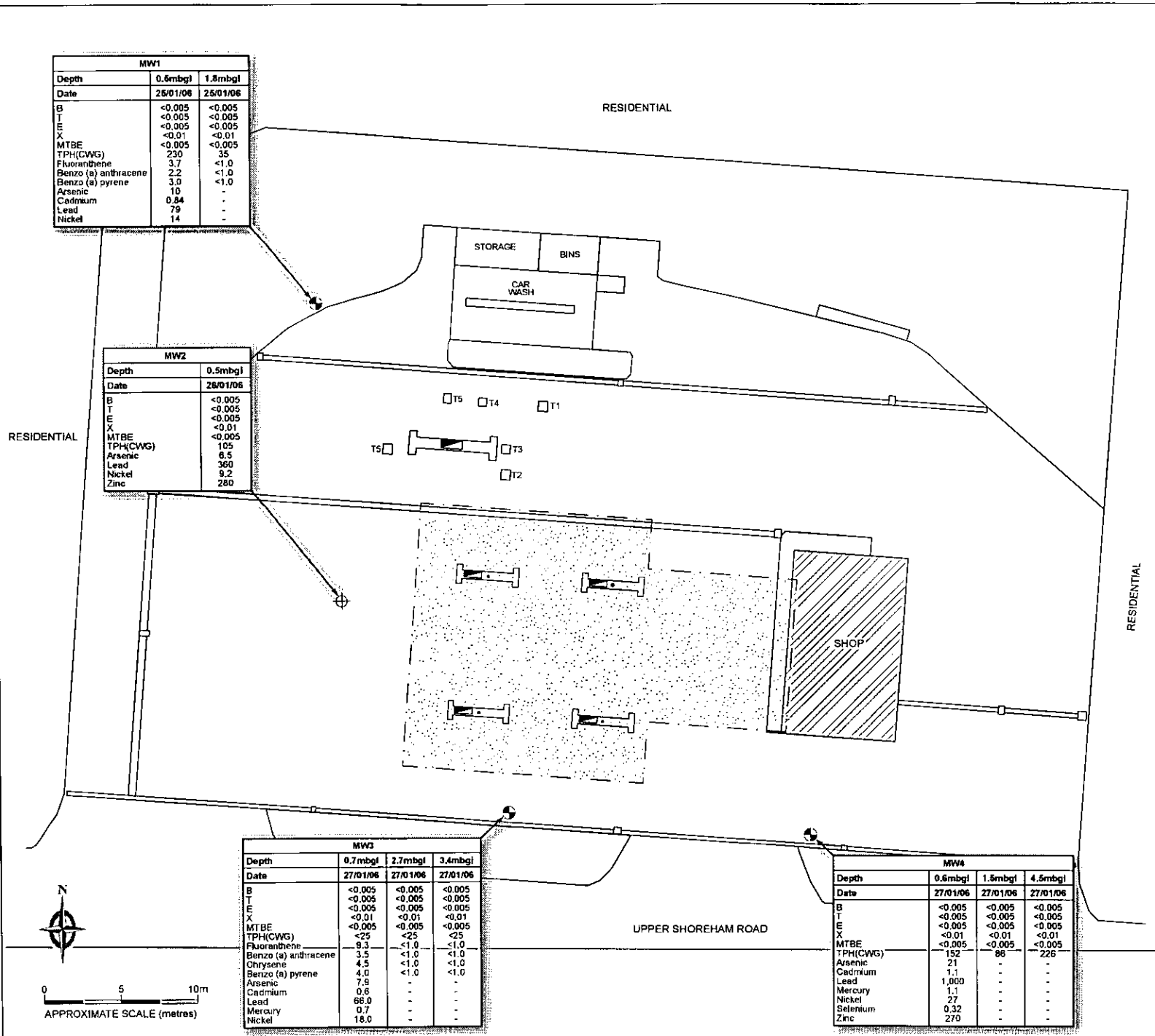

MW1		
Depth	0.6mbgl	1.8mbgl
Date	25/01/06	25/01/06
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.01	<0.01
MTBE	<0.005	<0.005
TPH(CWG)	230	35
Fluoranthene	3.7	<1.0
Benzo (a) anthracene	2.2	<1.0
Benzo (a) pyrene	3.0	<1.0
Arsenic	10	-
Cadmium	0.84	-
Lead	79	-
Nickel	14	-

MW2	
Depth	0.5mbgl
Date	26/01/06
B	<0.005
T	<0.005
E	<0.005
X	<0.01
MTBE	<0.005
TPH(CWG)	105
Arsenic	6.5
Lead	360
Nickel	9.2
Zinc	280

MW3			
Depth	0.7mbgl	2.7mbgl	3.4mbgl
Date	27/01/06	27/01/06	27/01/06
B	<0.005	<0.005	<0.005
T	<0.005	<0.005	<0.005
E	<0.005	<0.005	<0.005
X	<0.01	<0.01	<0.01
MTBE	<0.005	<0.005	<0.005
TPH(CWG)	<25	<25	<25
Fluoranthene	9.3	<1.0	<1.0
Benzo (a) anthracene	3.5	<1.0	<1.0
Chrysene	4.5	<1.0	<1.0
Benzo (a) pyrene	4.0	<1.0	<1.0
Arsenic	7.5	-	-
Cadmium	0.6	-	-
Lead	66.0	-	-
Mercury	0.7	-	-
Nickel	18.0	-	-

MW4			
Depth	0.6mbgl	1.5mbgl	4.5mbgl
Date	27/01/06	27/01/06	27/01/06
B	<0.005	<0.005	<0.005
T	<0.005	<0.005	<0.005
E	<0.005	<0.005	<0.005
X	<0.01	<0.01	<0.01
MTBE	<0.005	<0.005	<0.005
TPH(CWG)	152	86	226
Arsenic	21	-	-
Cadmium	1.1	-	-
Lead	1,000	-	-
Mercury	1.1	-	-
Nickel	27	-	-
Selenium	0.32	-	-
Zinc	270	-	-

NOTES

LEGEND

	PUMP ISLAND
T1	UNDERGROUND STORAGE TANK MANHOLE
	BUILDING
	CANOPY EXTENT
MW1	WELL LOCATION WITH WELL ID
MW2	BOREHOLE LOCATION WITH BOREHOLE ID
mbgl	METRES BELOW GROUND LEVEL
B	BENZENE BY GC/MS
T	TOLUENE BY GC/MS
E	ETHYLBENZENE BY GC/MS
X	XYLENES BY GC/MS
MTBE	METHYL TERTIARY BUTYL ETHER BY GC/MS
TPH(CWG)	TOTAL PETROLEUM HYDROCABONS (CRITERIA WORKING GROUP METHOD) BY GC-FID
PAH	POLYCYCLIC AROMATIC HYDROCARBONS BY GC/MS
-	NOT ANALYSED

1. ONLY THOSE PAH & METAL CONCENTRATIONS WHICH EXCEEDED THE APPLICABLE SCREENING CRITERA ARE ILLUSTRATED IN THIS FIGURE
2. ALL RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
3. WELL LOCATIONS ARE APPROXIMATE
4. MAP SOURCE: GROUND RESTORATION LIMITED

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SHOREHAM FILLING STATION,
UPPER SHOREHAM ROAD,
SHOREHAM-BY-SEA,
BN43 6TD

DRAWING TITLE
FIGURE 4 - SOIL CONCENTRATION MAP

DRAWN	TRACED	CHECKED	APPROVED	DATE
DH				MARCH 2006
SCALE	DRG No			REV.
AS SHOWN	44407131 / FIGURE 4			

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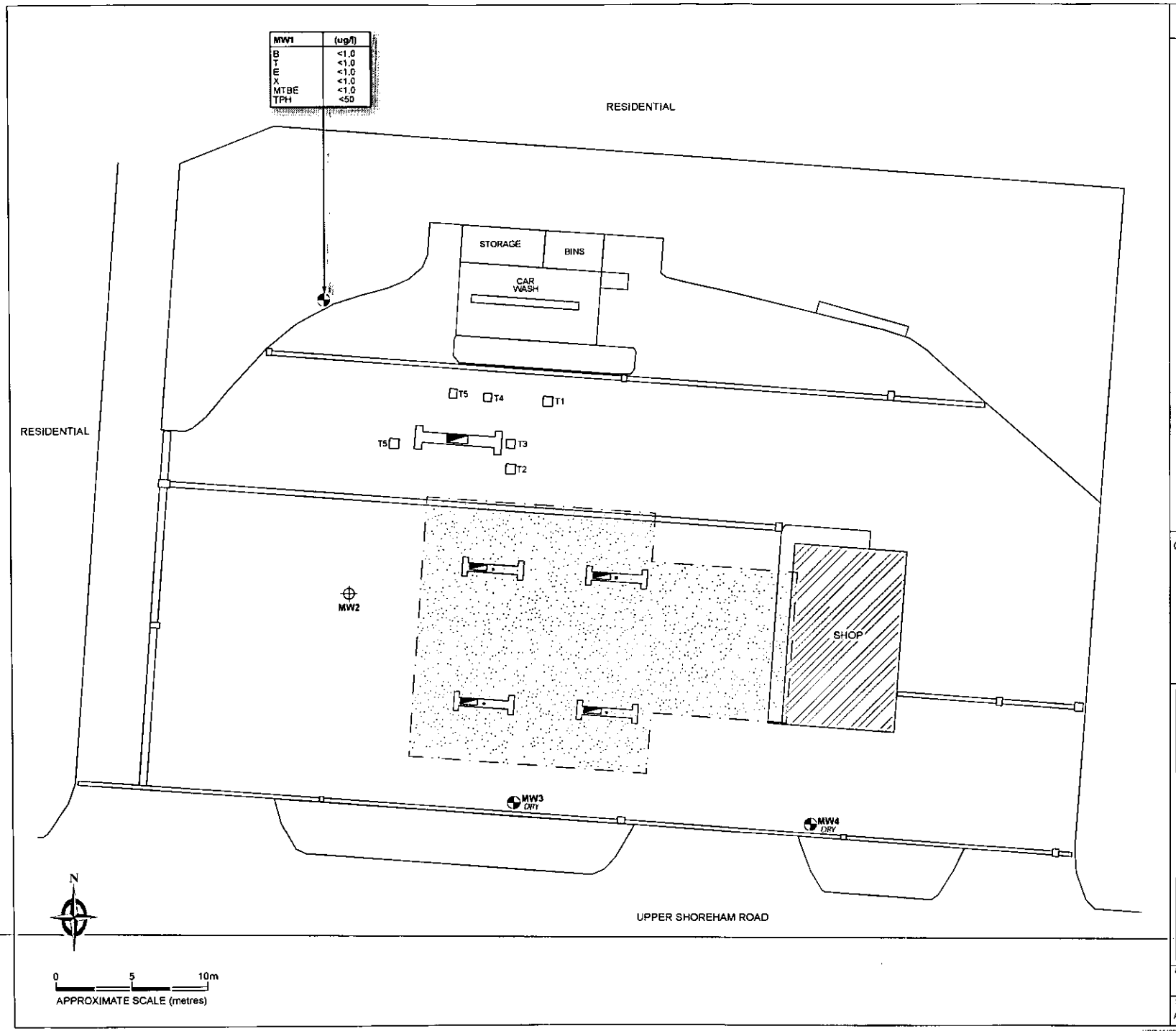

NOTES

LEGEND

	PUMP ISLAND
T1	UNDERGROUND STORAGE TANK MANHOLE
	BUILDING
	CANOPY EXTENT
MW1	WELL LOCATION WITH WELL ID
MW2	BOREHOLE LOCATION WITH BOREHOLE ID
ug/l	MICROGRAMS PER LITRE
B	BENZENE BY GC/MS
T	TOLUENE BY GC/MS
E	ETHYLBENZENE BY GC/MS
X	XYLENES BY GC/MS
MTBE	METHYL TERTIARY BUTYL ETHER BY GC/MS
TPH	TOTAL PETROLEUM HYDROCARBONS BY GC-FID
PAH	POLYCYCLIC AROMATIC HYDROCARBONS BY GC/MS
NA	NOT ANALYSED
DRY	WELL NOT SAMPLED - DRY

1. ONLY THOSE PAH CONCENTRATIONS WHICH EXCEEDED THE APPLICIBLE SCREENING CRITERIA ARE ILLUSTRATED IN THIS FIGURE
2. WELL LOCATIONS ARE APPROXIMATE
3. MAP SOURCE: GROUND RESTORATION LIMITED

CONSULTING ENGINEERS

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PROJECT
SHOREHAM FILLING STATION,
UPPER SHOREHAM ROAD,
SHOREHAM-BY-SEA,
BN43 6TD

DRAWING TITLE
FIGURE 5 - GROUNDWATER CONCENTRATION MAP

DRAWN	TRACED	CHECKED	APPROVED	DATE
DH				MARCH 2006
SCALE	DRG No			REV.
AS SHOWN	44407131 / FIGURE 5			

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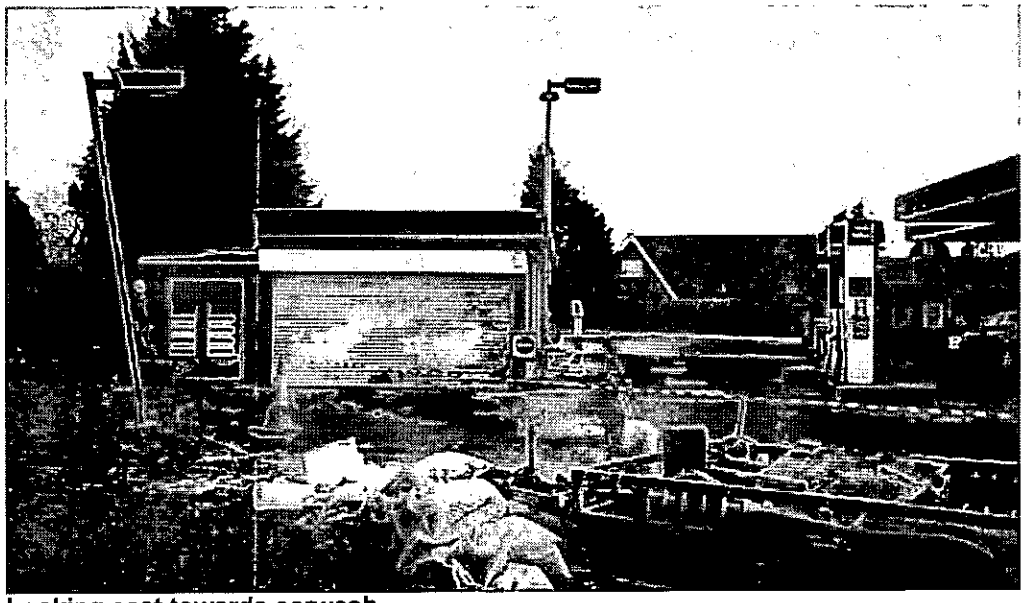
Appendix A - Site Photographs



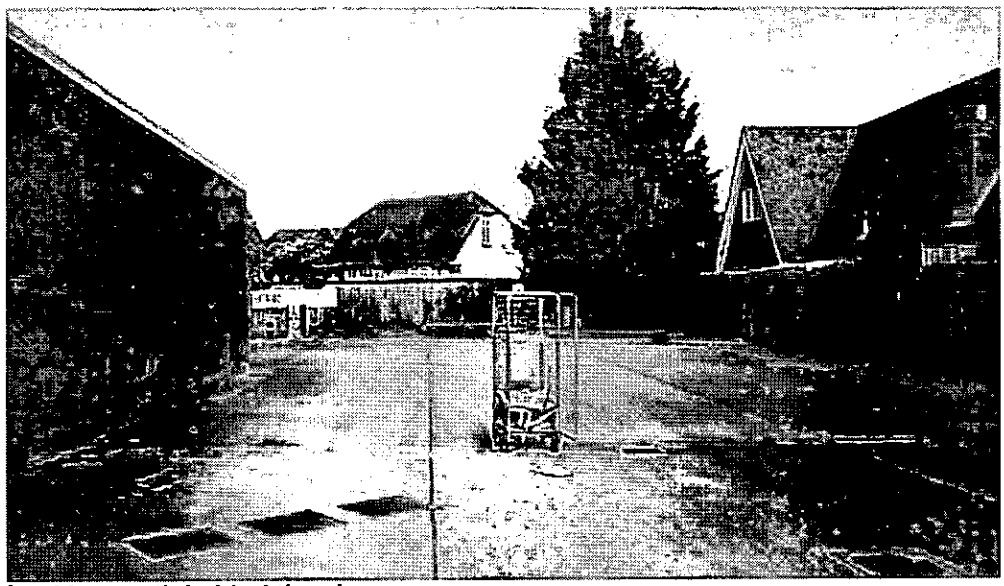
Looking west along Upper Shoreham Road.



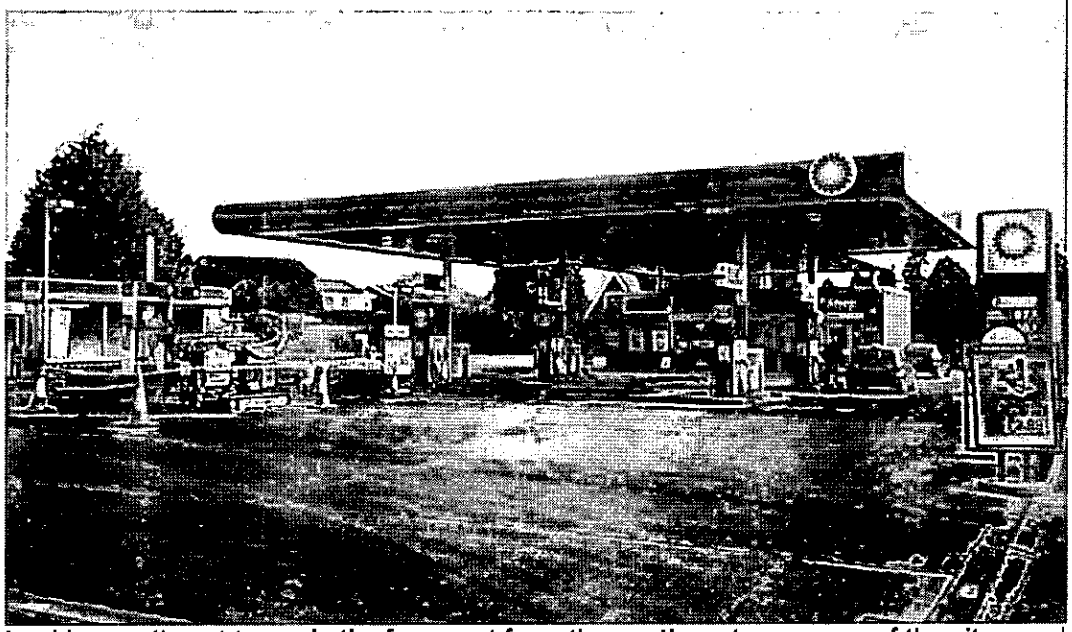
Looking east towards carwash.



Looking west towards uncovered pump island.



Looking north behind the shop.

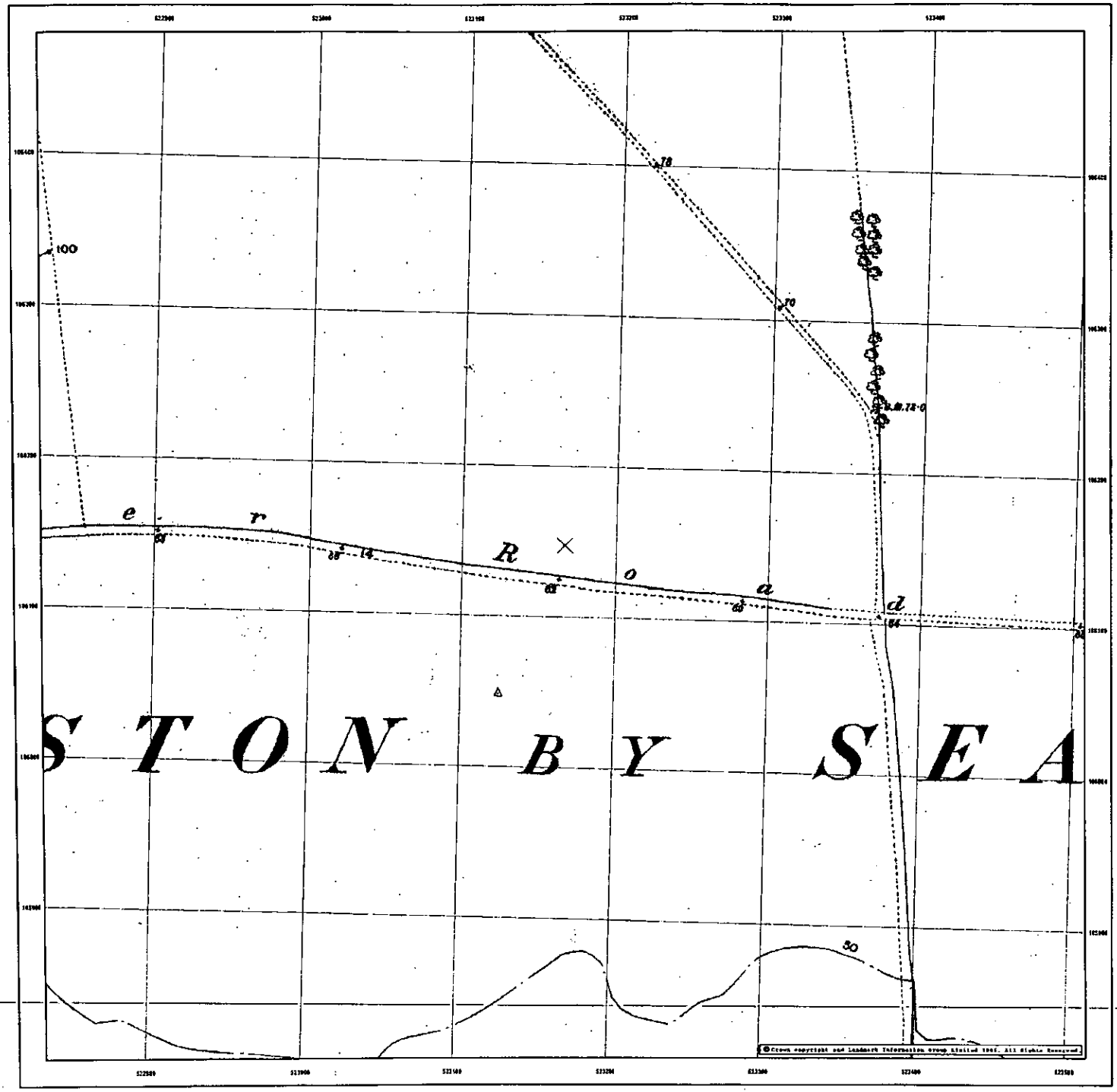


Looking northeast towards the forecourt from the southwestern corner of the site.



Looking Northwest at Shoreham Filling Station shop.

Appendix B - Historical Maps



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CLIENT DETAILS Envirocheck Order No. ECD17811561_1_1

Customer Ref: Mr M Watts,44407131
URS Corporation Limited
2nd Floor St George's House
London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

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

Ordnance Survey County Series 1

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 1876 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 many 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.

SUSSEX
Published 1874
Source map scale - 1:2,500

1874

Date(s) of Publication

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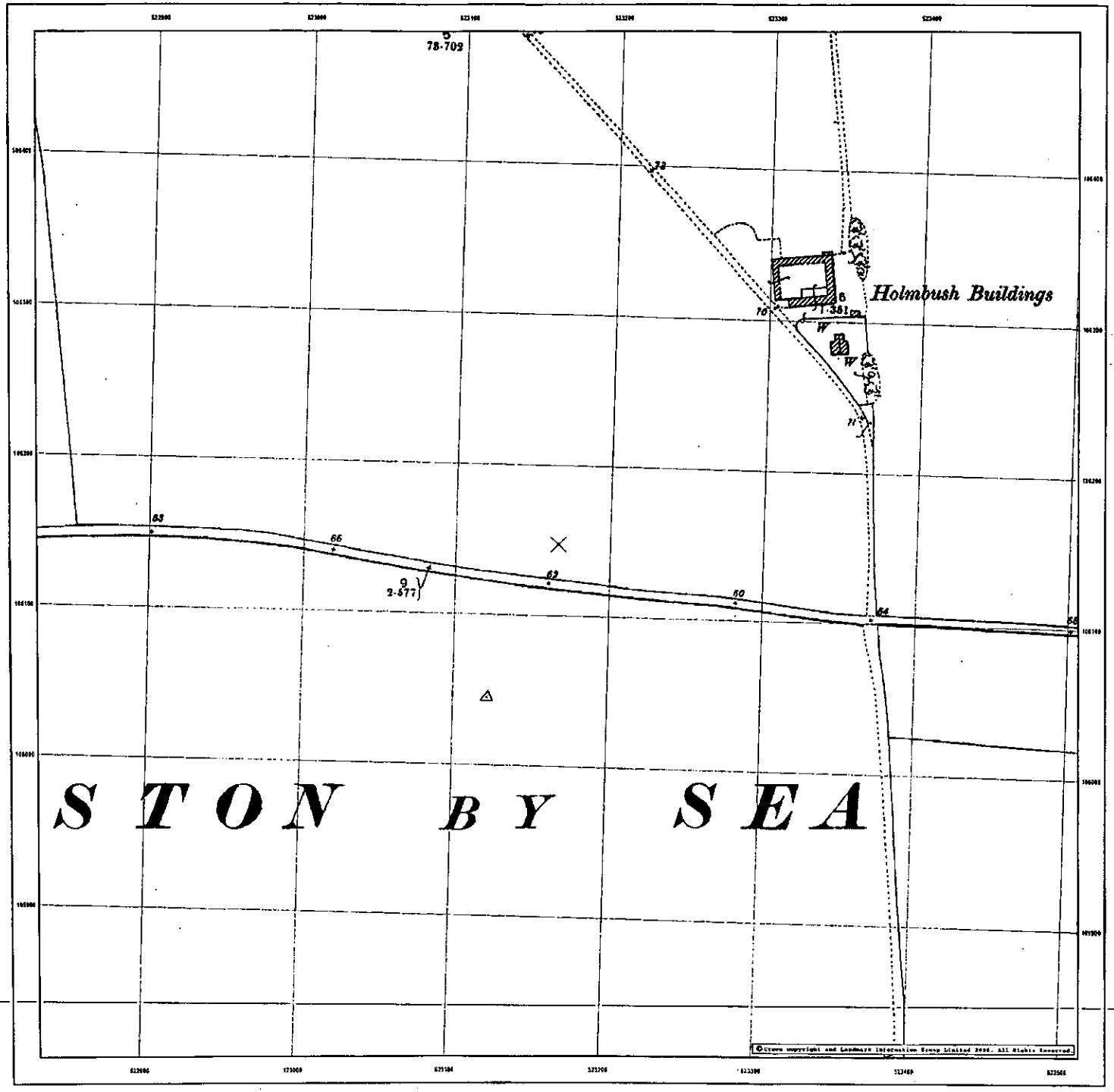

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SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
138 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

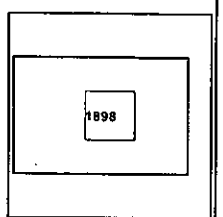
Historical Map Legend

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

Ordnance Survey County Series 2

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 1930, 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 applying grids.

SUSSEX
Published 1898
Source map scale - 1:2,500



Date(s) of Publication

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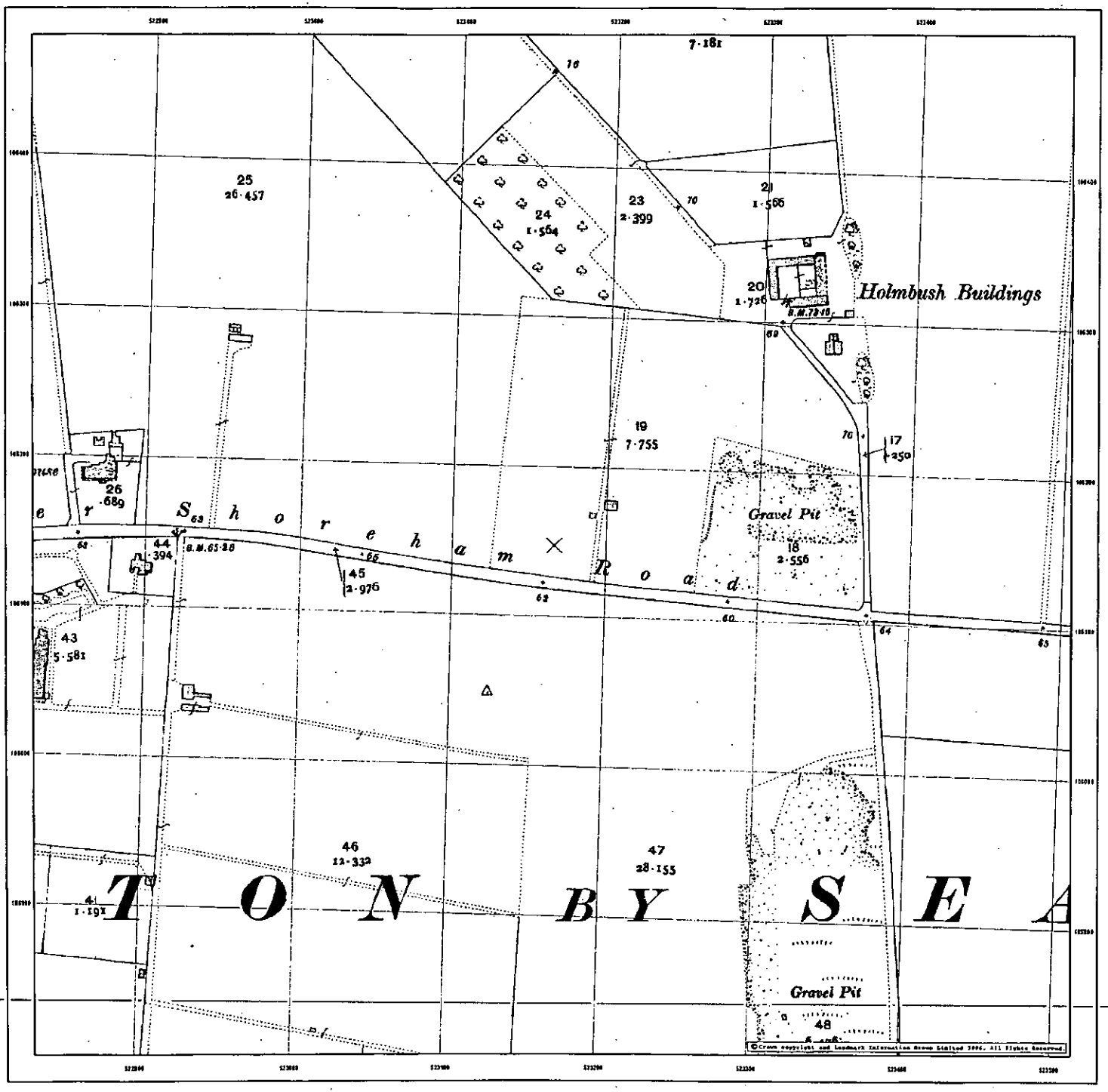

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SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
130 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

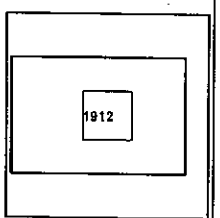
Historical Map Legend

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

Ordnance Survey County Series 3

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 was 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 1930, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant discrepancies in overlying areas.

SUSSEX
Published 1912
Source map scale - 1:2,500



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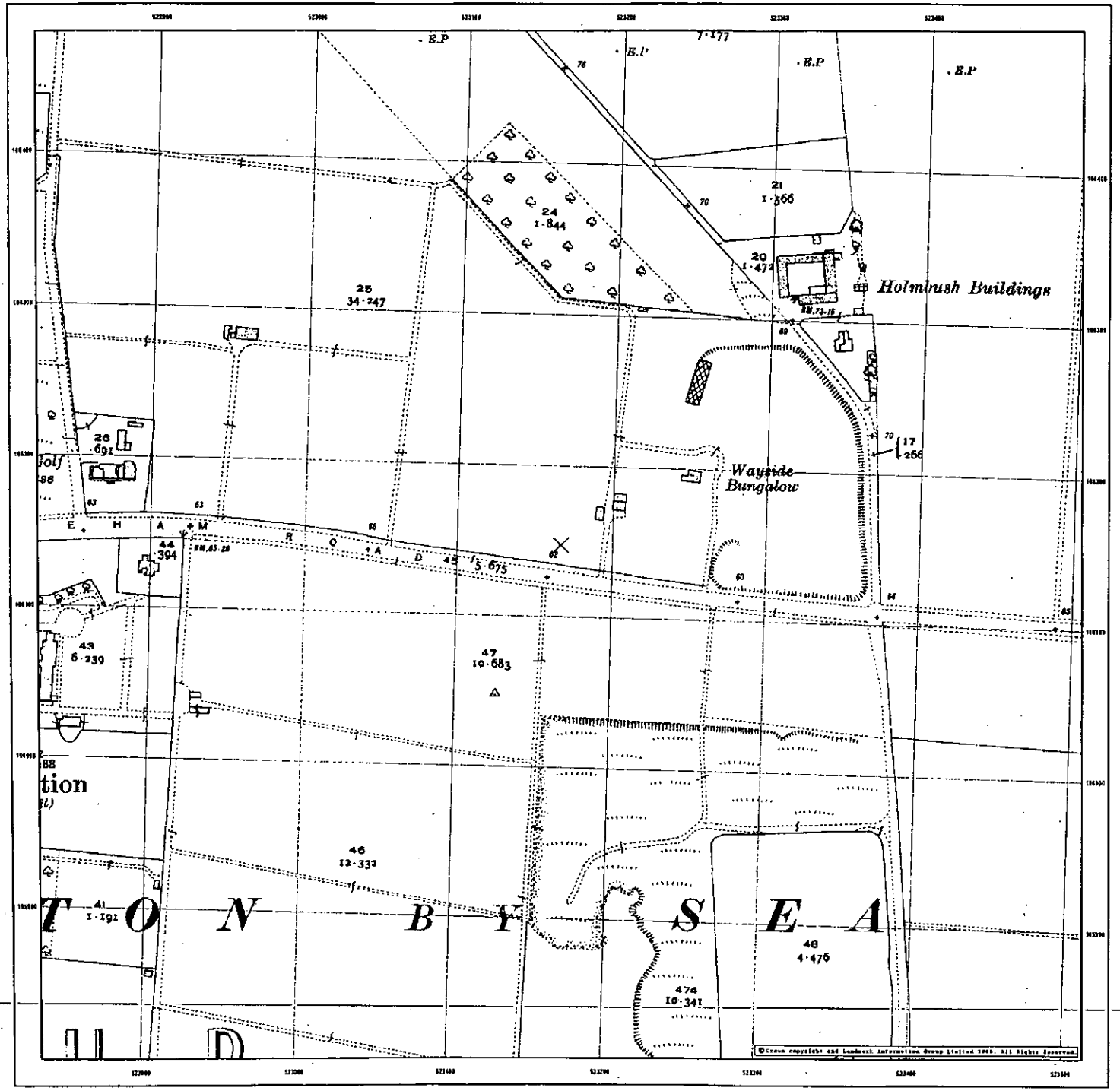

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London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

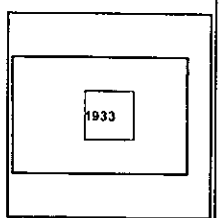
Historical Map Legend

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

Ordnance Survey County Series 4

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840 s. ie 1856 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 1910, 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.

SUSSEX
Published 1933
Source map scale - 1:2,500



Date(s) of Publication 4 of 33

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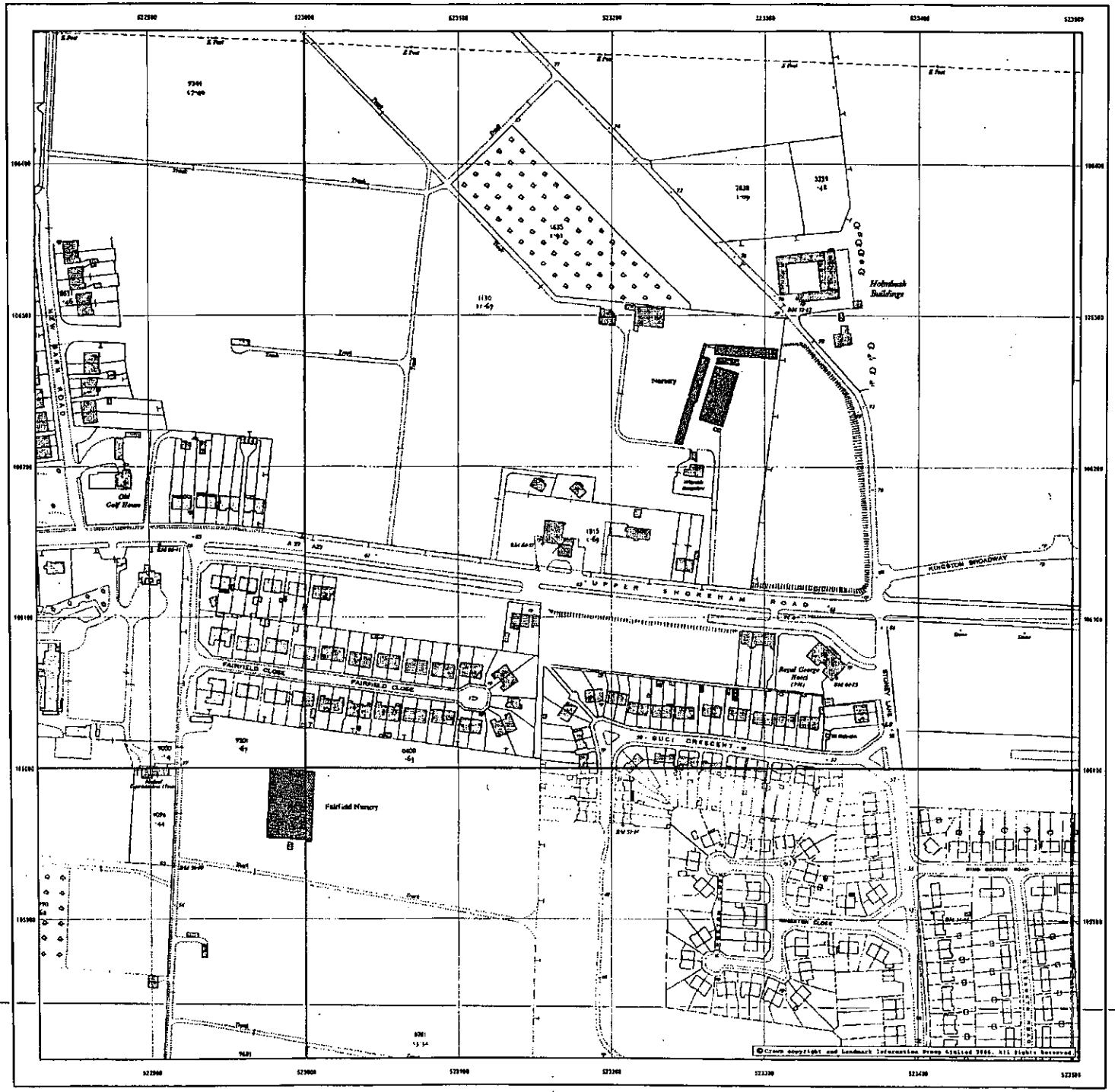

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London
SW16 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
139 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

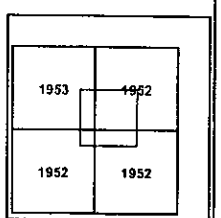
Historical Map Legend

- 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 1

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 1854, 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.

ORDNANCE SURVEY PLAN
Published 1952 to 1953
Source map scale - 1:2,500



Date(s) of Publication 1 of 1

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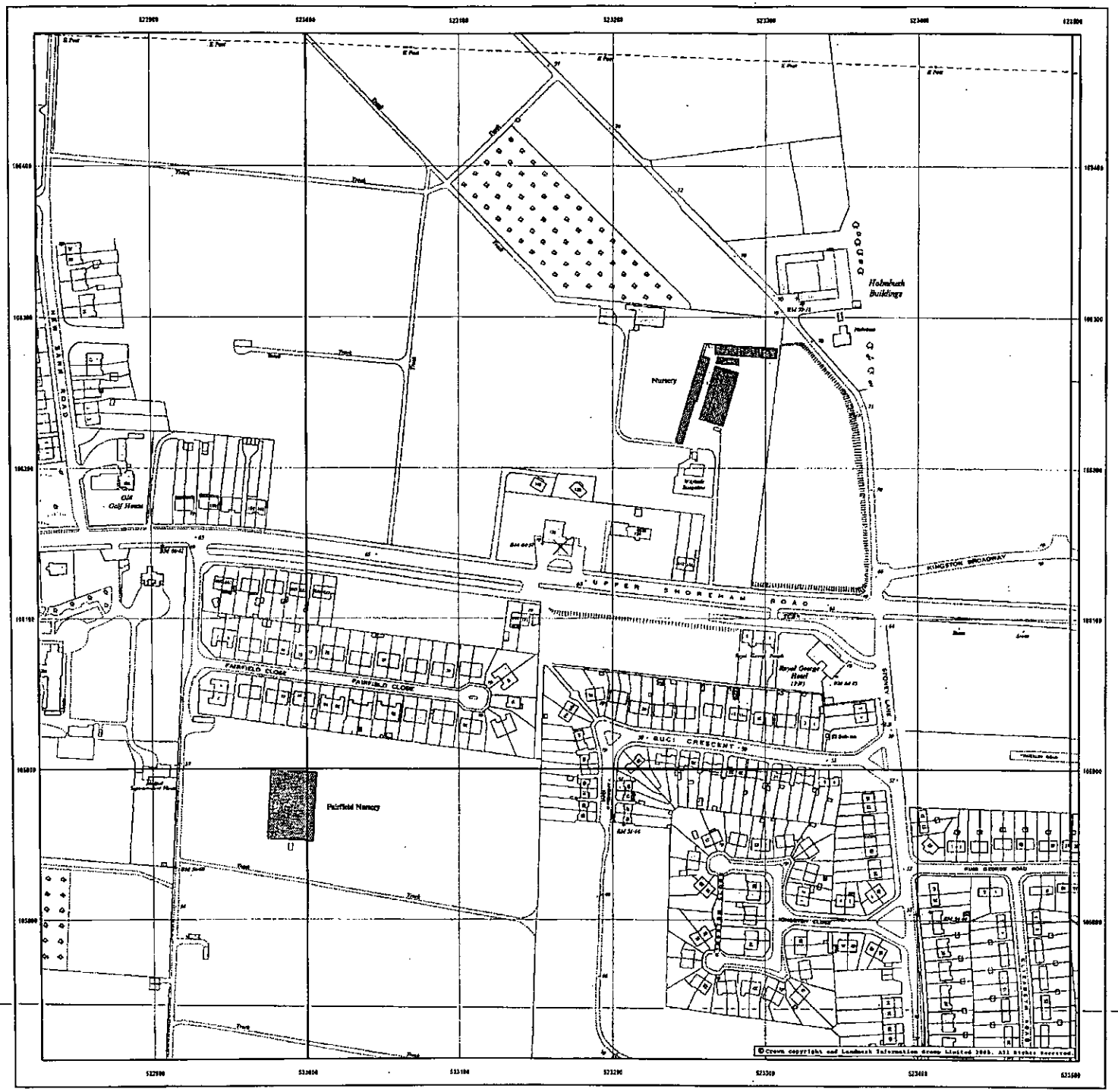

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SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
134 Upper Shoreham Road

Shoreham-By-Sea
BN43 5TD

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 1

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 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

ORDNANCE SURVEY PLAN
Published 1952
Source map scale - 1:1,250

1952	1952	1952
1952	1952	1952

Date(s) of Publication

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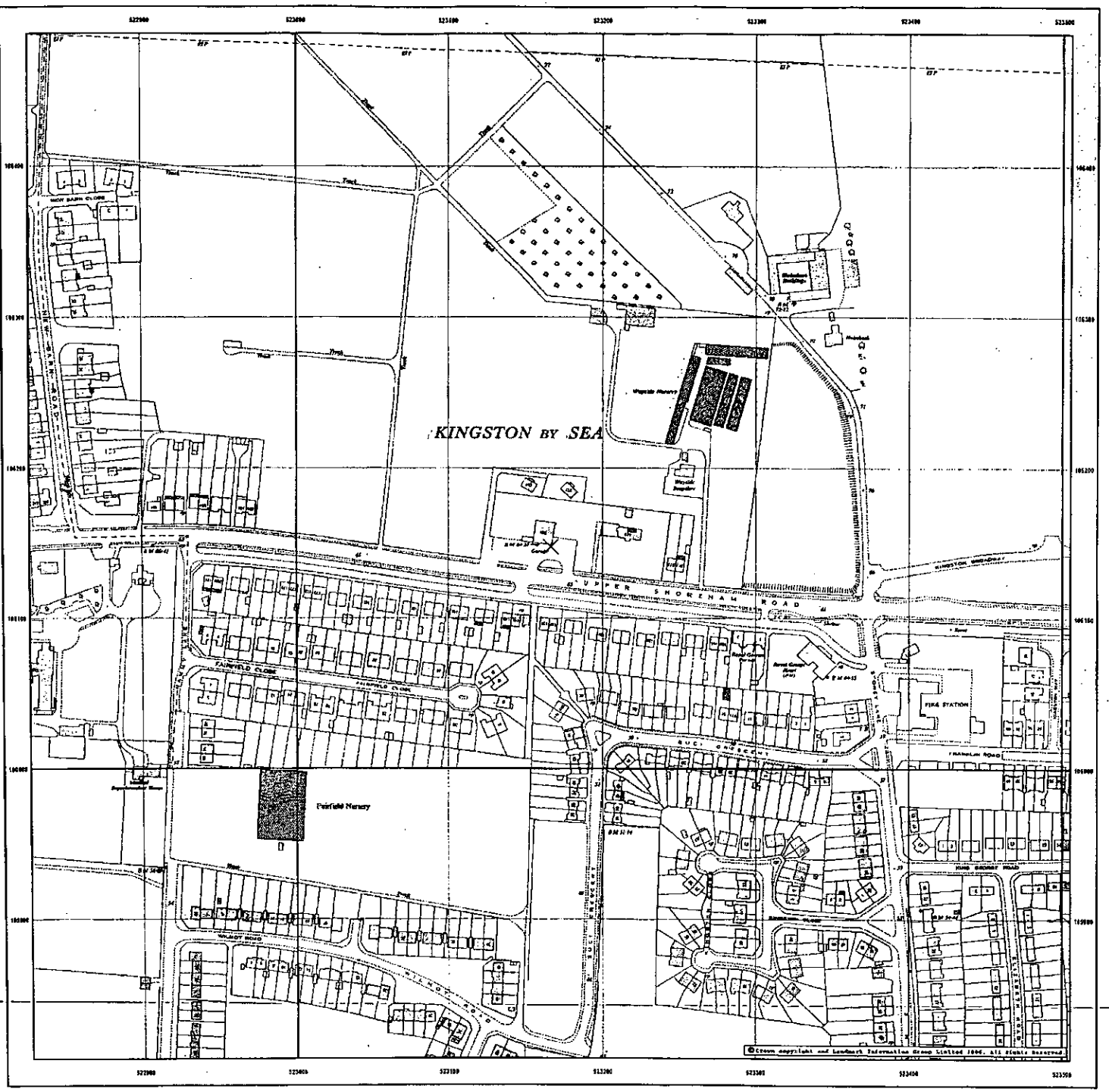

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London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
134 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

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 2

The historical maps shown were reproduced from maps predominantly sold 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 overlying areas.

ORDNANCE SURVEY PLAN
Published 1954 to 1964
Source map scale - 1:1,250

1959	1959	1959
1954	1954	1964

Date(s) of Publication

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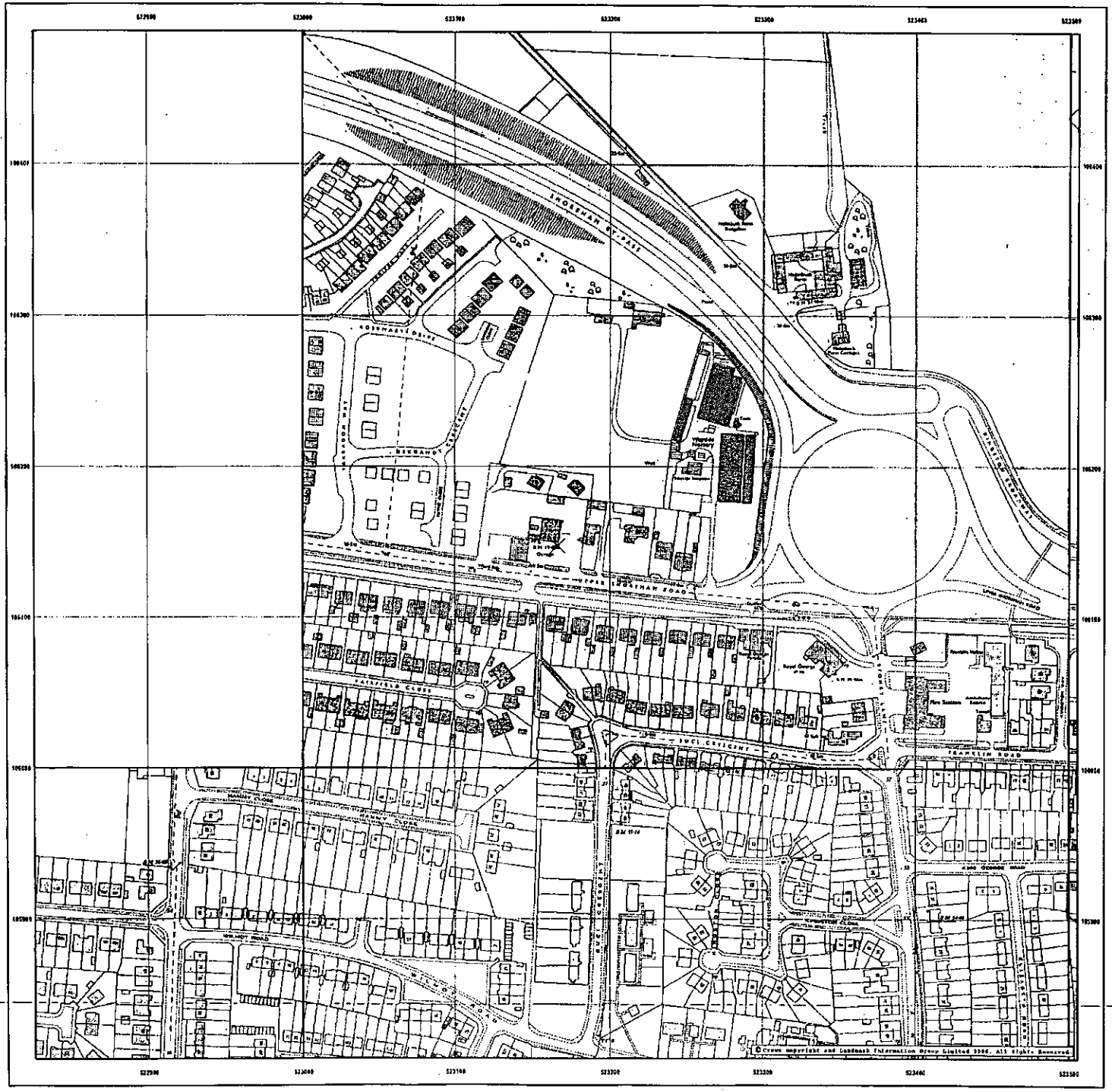

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London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 5TD

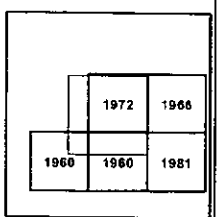
Historical Map Legend

- 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 3

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 1936, 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 outlying areas.

ORDNANCE SURVEY PLAN
Published 1960 to 1981
Source map scale - 1:1,250



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SW18 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

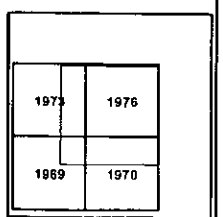
Historical Map Legend

- 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 4

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 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 data. 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.

ORDNANCE SURVEY PLAN
Published 1969 to 1976
Source map scale - 1:1,250



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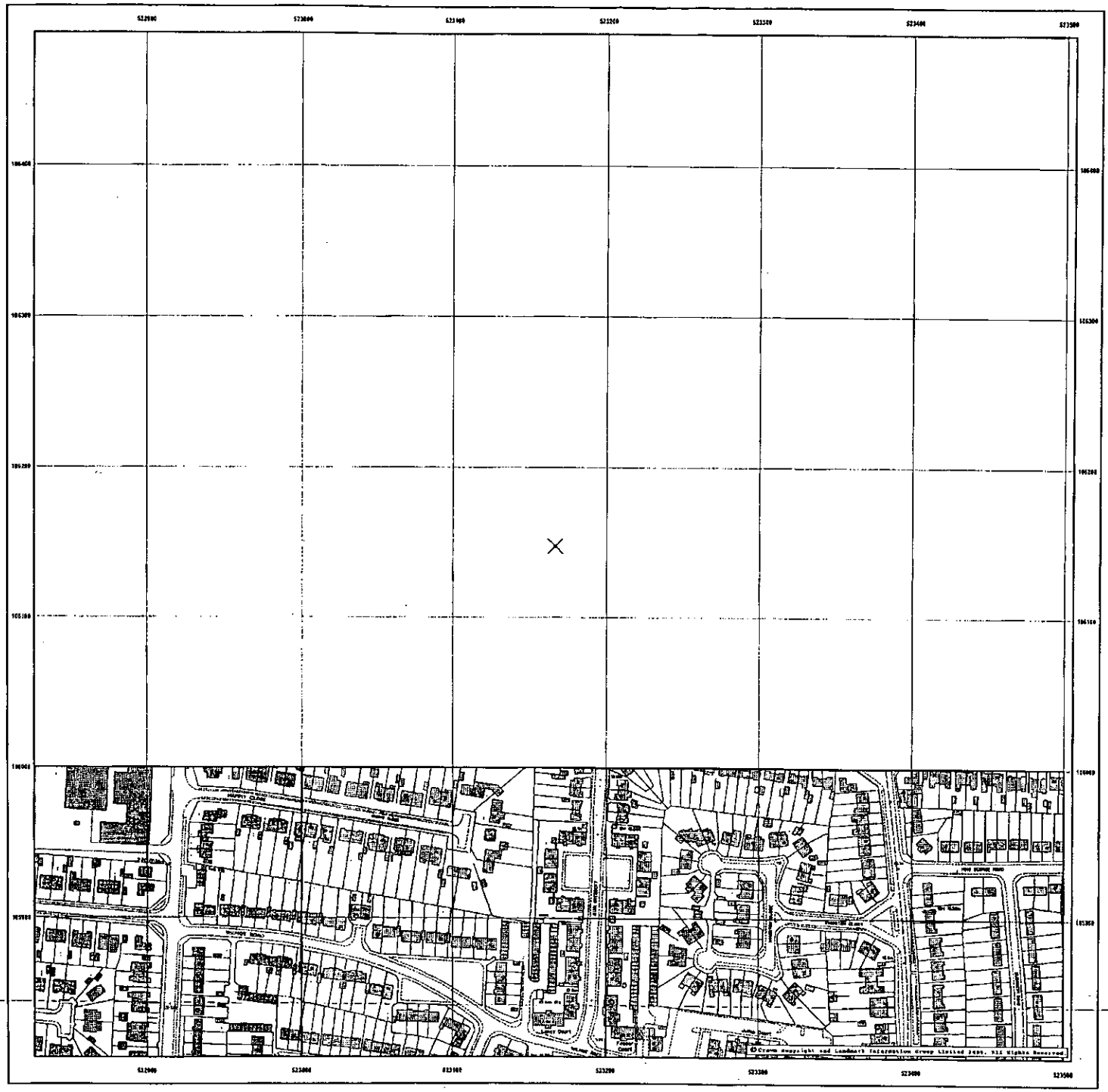

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2nd Floor St George's House
London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

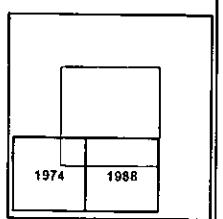
Historical Map Legend

- 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 5

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland at the 1:500 s. In 1014 the 1:2,500 scale was adopted for mapping urban areas and by 1936 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 overlying areas.

ORDNANCE SURVEY PLAN
Published 1974 to 1988
Source map scale - 1:1,250



Date(s) of Publication 10 of 26

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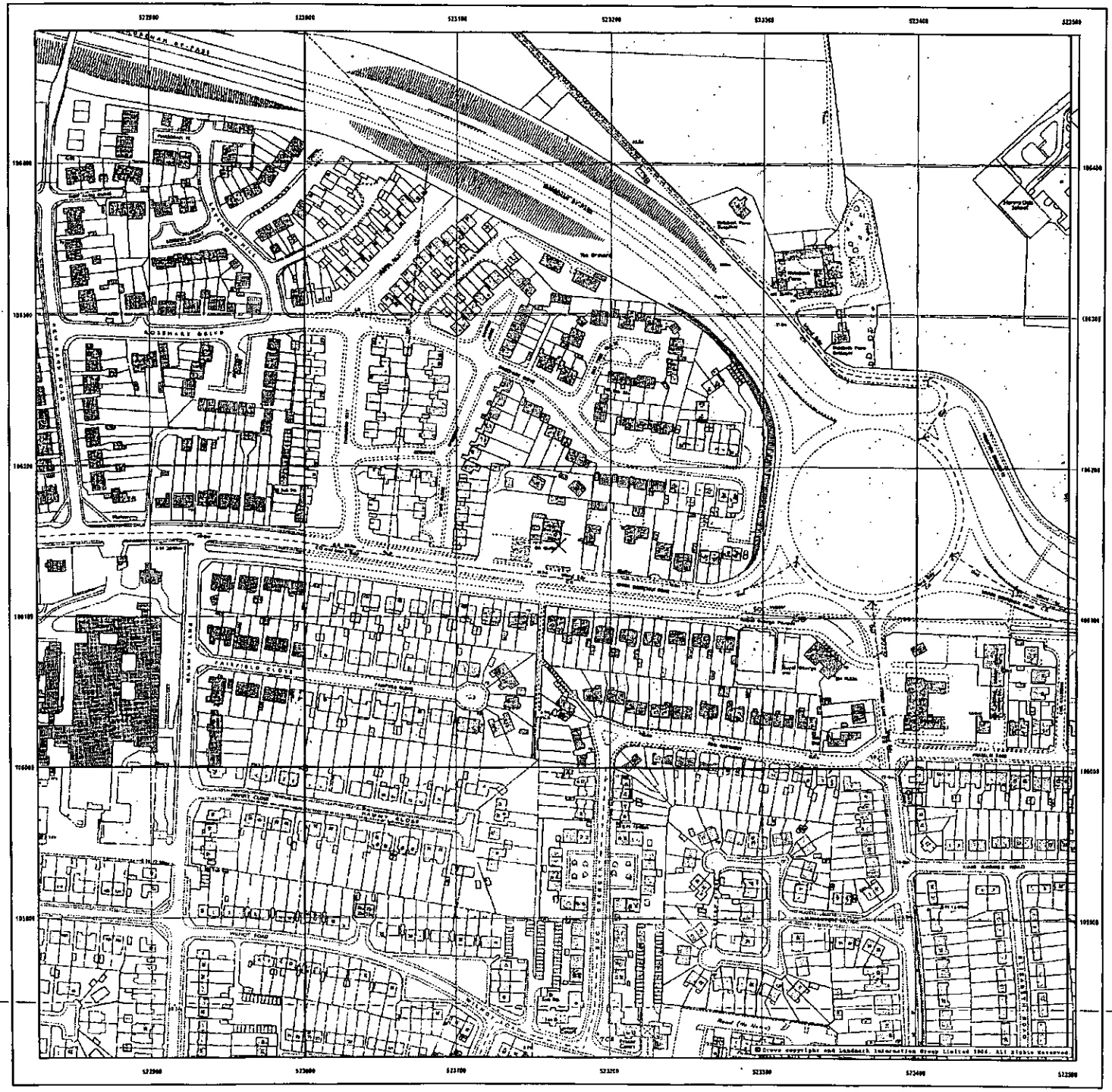

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London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
138 Upper Shoreham Road

Shoreham-By-Sea
BN43 5TD

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)

Additional SIMs 1

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, colour additions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1991, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN
Published 1973 to 1992
Source map scale - 1:1,250

1970	1984	1978
1979	1977	1992

Date(s) of Publication

Ordnance Survey Licensed Partner

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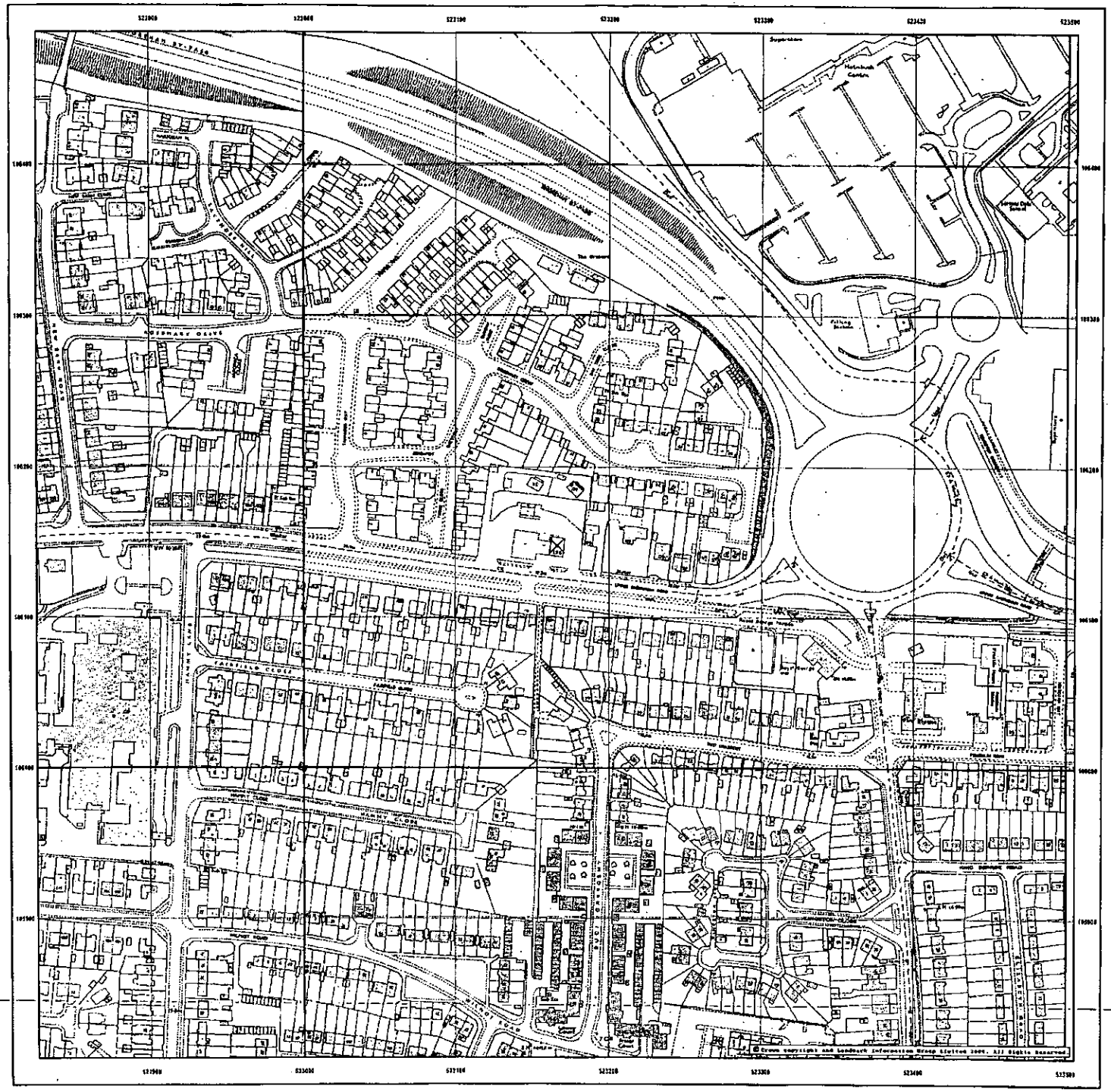

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2nd Floor St George's House
London
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SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
138 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

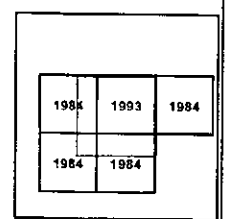
Historical Map Legend

- 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)

Additional SIMs 2

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, newer editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1991, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN
Published 1984 to 1993
Source map scale - 1:1,250



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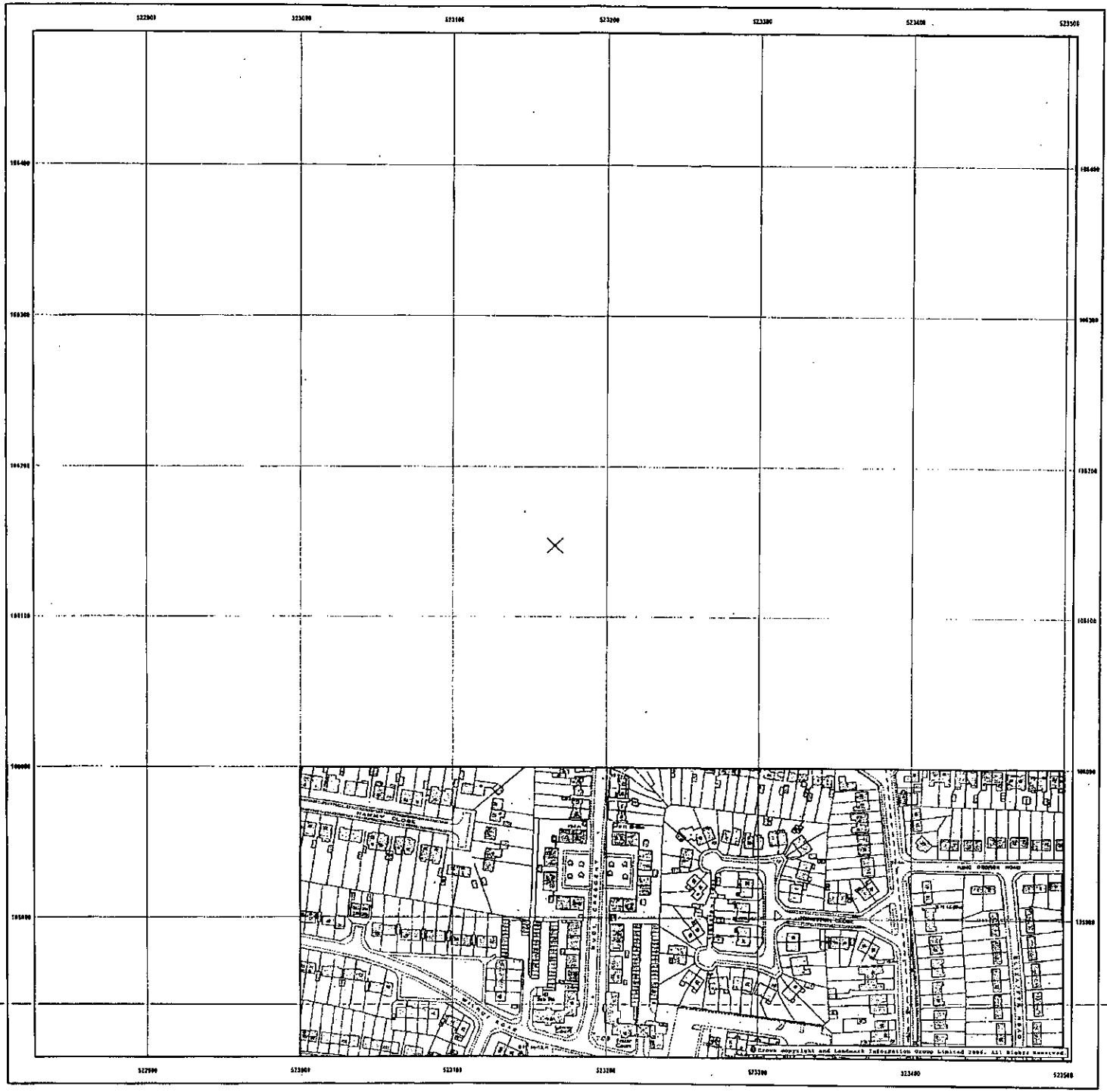

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CLIENT DETAILS Envirocheck Order No. ECD17811561_1_1

Customer Ref: Mr M Watts,44487151
URS Corporation Limited
2nd Floor St George's House
London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
138 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

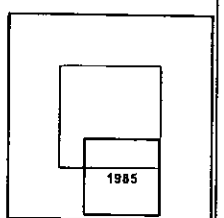
Historical Map Legend

- 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)

Additional SIMs 3

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1985, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN
Published 1985
Source map scale - 1:1,250



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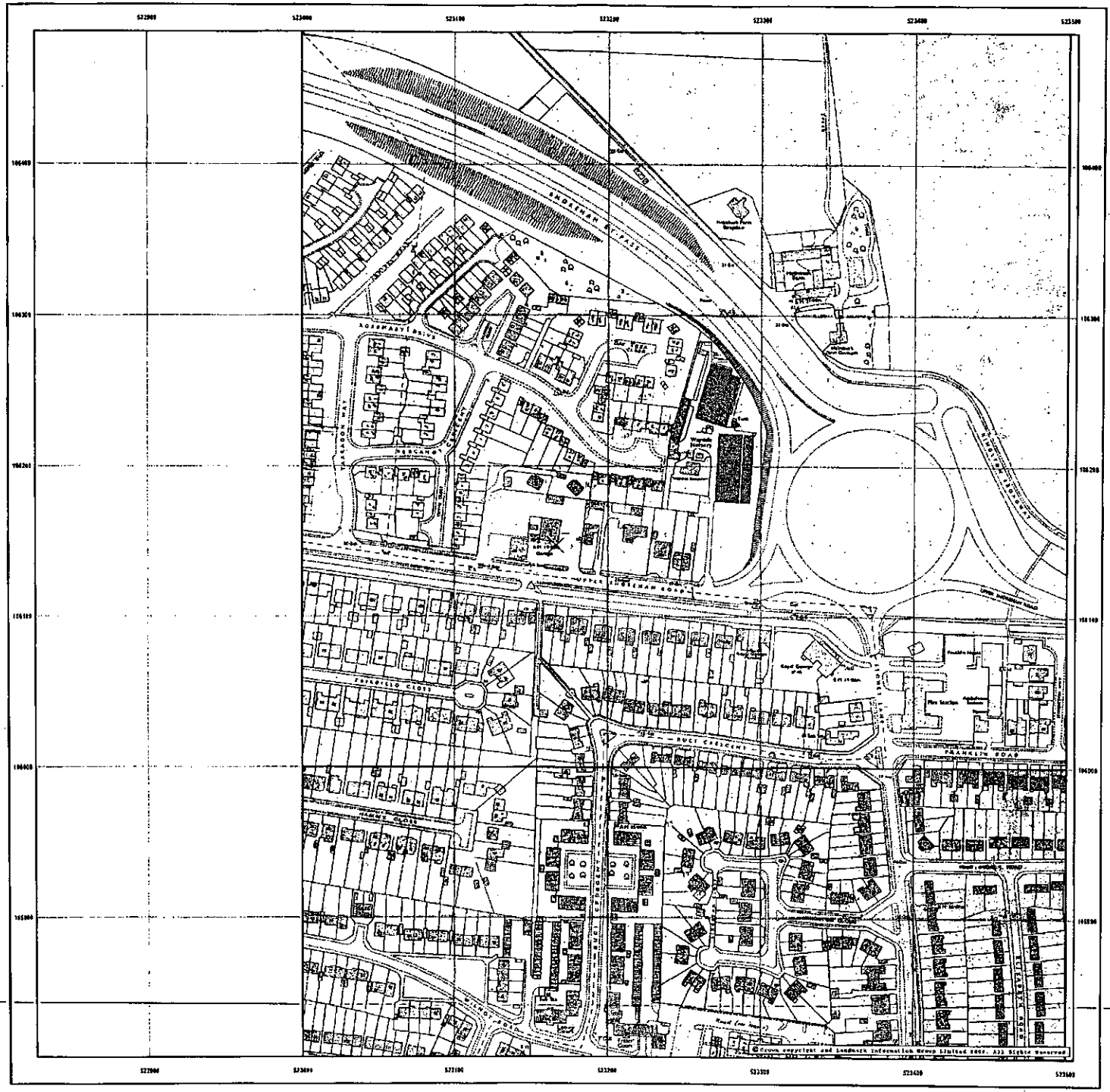

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London
SW1S 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

Historical Map Legend

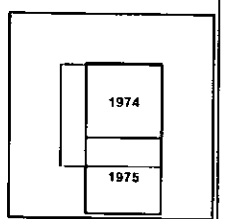
- Inactive Quarry, Chalk Pit or Clay Pit
- Active Quarry, Chalk Pit or Clay Pit
- Culvert
- Slope
- Slope
- Pylon
- Electricity Transmission Line
- Direction of Water flow
- Coppice, Osier
- Marsh
- Saltings
- Orchard Tree
- Reeds
- Rough Grassland
- Scrub
- Heath
- Bracken
- Coniferous Tree (Surveyed)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

Supply of Unpublished Survey Information

1

SUSI maps (Supply of Unpublished Survey information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were maps of a 'work-in-progress' type as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN
Published 1974 to 1975
Source map scale - 1:1,250



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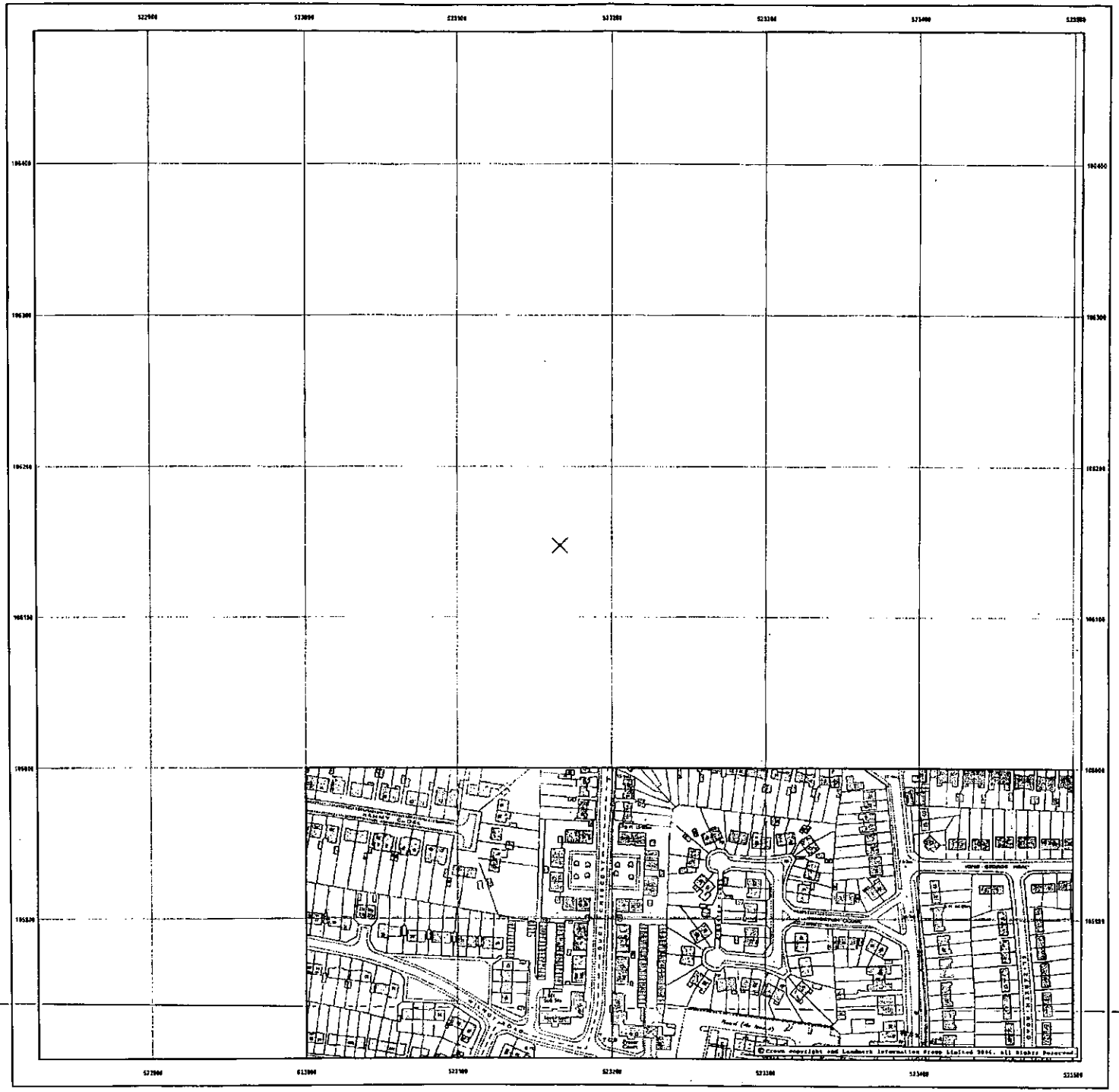

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SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

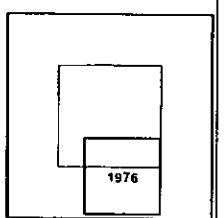
Historical Map Legend

- 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)

Supply of Unpublished Survey Information 2

SIM maps (Supply of Unpublished Survey Information) were produced between 1971 and 1977, mainly for internal use at Ordnance Survey. These were more of a "work-in-progress" plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN
Published 1976
Source map scale - 1:1,250



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SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
139 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

Historical Map Legend

Slope

Slope

Bench Mark

Wells

Buildings with Building Seed

Direction of Water flow

Pylon

Electricity Transmission Line

Administrative Boundaries

- Civil parish/community boundary
- District boundary
- County boundary
- Boundary post/stone
- Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Large-Scale National Grid Data 1

Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1995. These maps were the forerunners of digital mapping and to provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:1,250 and 1:2,500 scales.

ORDNANCE SURVEY PLAN
Published 1994
Source map scale - 1:1,250

1994	1994	1994
1994	1994	1994

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2nd Floor St George's House
London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
138 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

Historical Map Legend

Slope

Slope

Bench Mark

Wells

Buildings with Building Seed

Direction of Water flow

Pylon

Electricity Transmission Line

Administrative Boundaries

Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

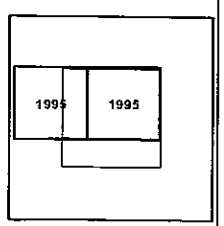
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Large-Scale National Grid Data

2

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1997, and continued to be produced until 1998. These maps were the base-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN
Published 1995
Source map scale - 1:1,250



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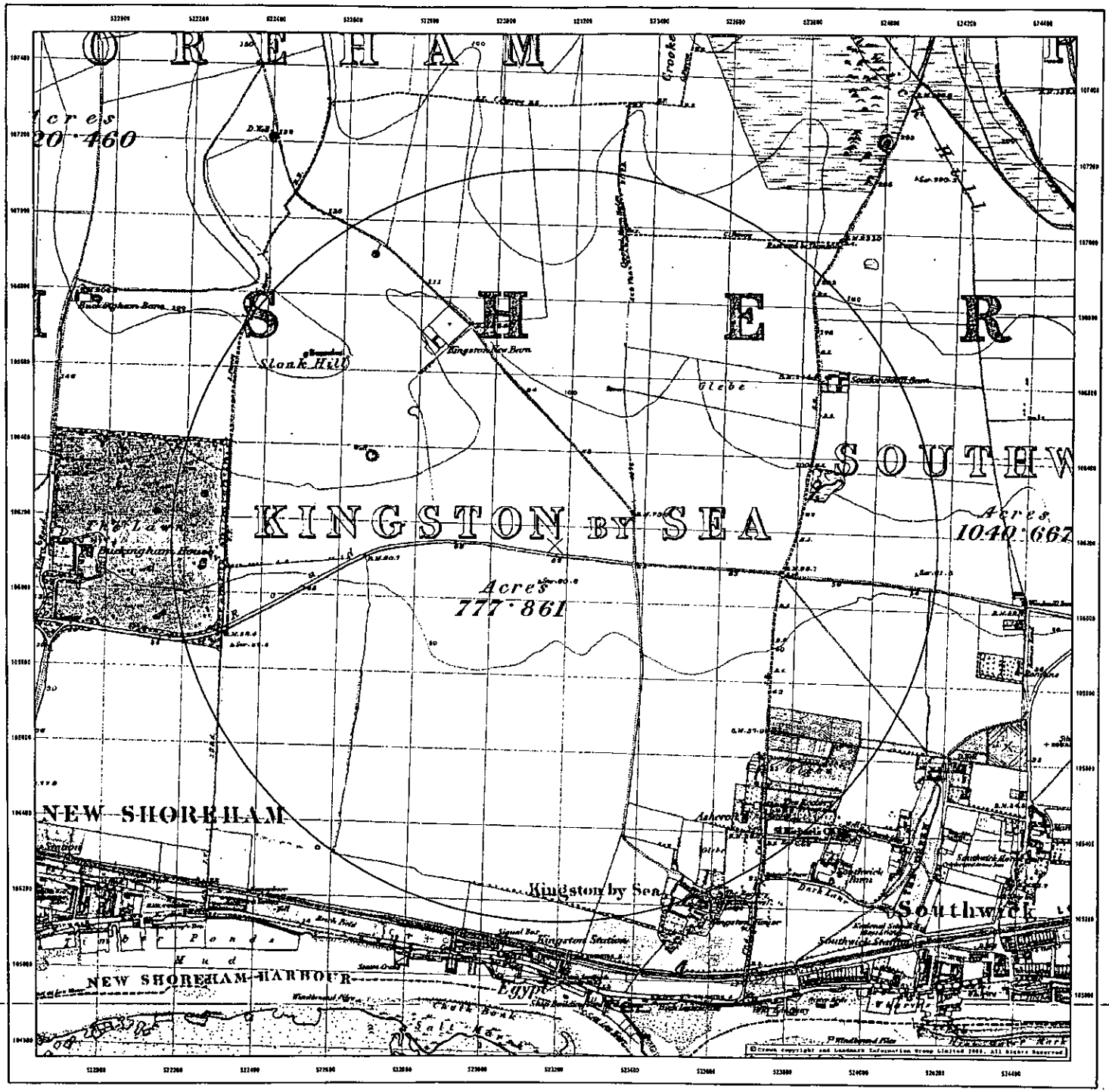

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SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
126 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

Historical Map Legend

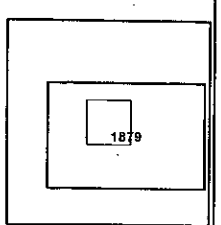
- Quarry
- Shingle
- Railway over Road
- Road over Railway
- Gravel Pit
- Sand Pit
- Level Crossing
- Railway over River
- Other Pits
- Road over Stream
- Road over Stream
- Rough Pasture
- Furze
- Road over River or Canal
- Marsh
- Reeds
- Sunken Road
- Raised Road
- Osiers
- Instrumental Contour
-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

Ordnance Survey County Series 1

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; these maps were used to update the 1:10,560 maps. The published date given on the right hand side is often many 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 appear unfinished - with all military camps and other strategic sites removed. These maps were latterly overprinted with the National Grid. In 1976, 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.

SUSSEX
Published 1879
Source map scale - 1:10,560



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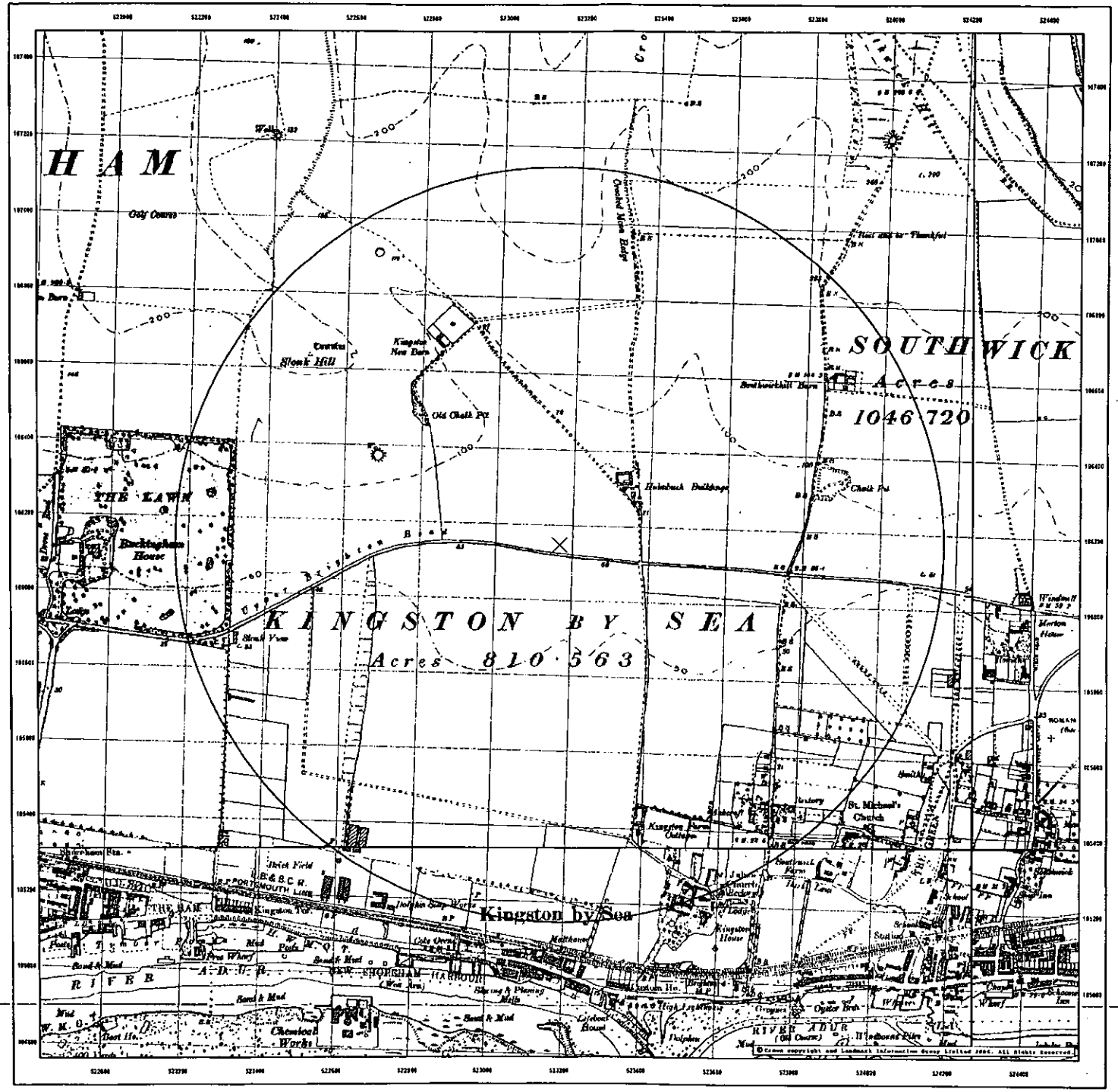

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SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
126 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

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

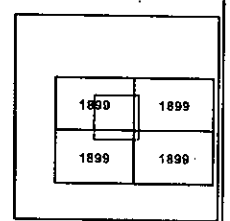
Ordnance Survey County Series

2

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 1830, 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 1840's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear published - 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.

SUSSEX
Published 1899
Source map scale - 1:10,560



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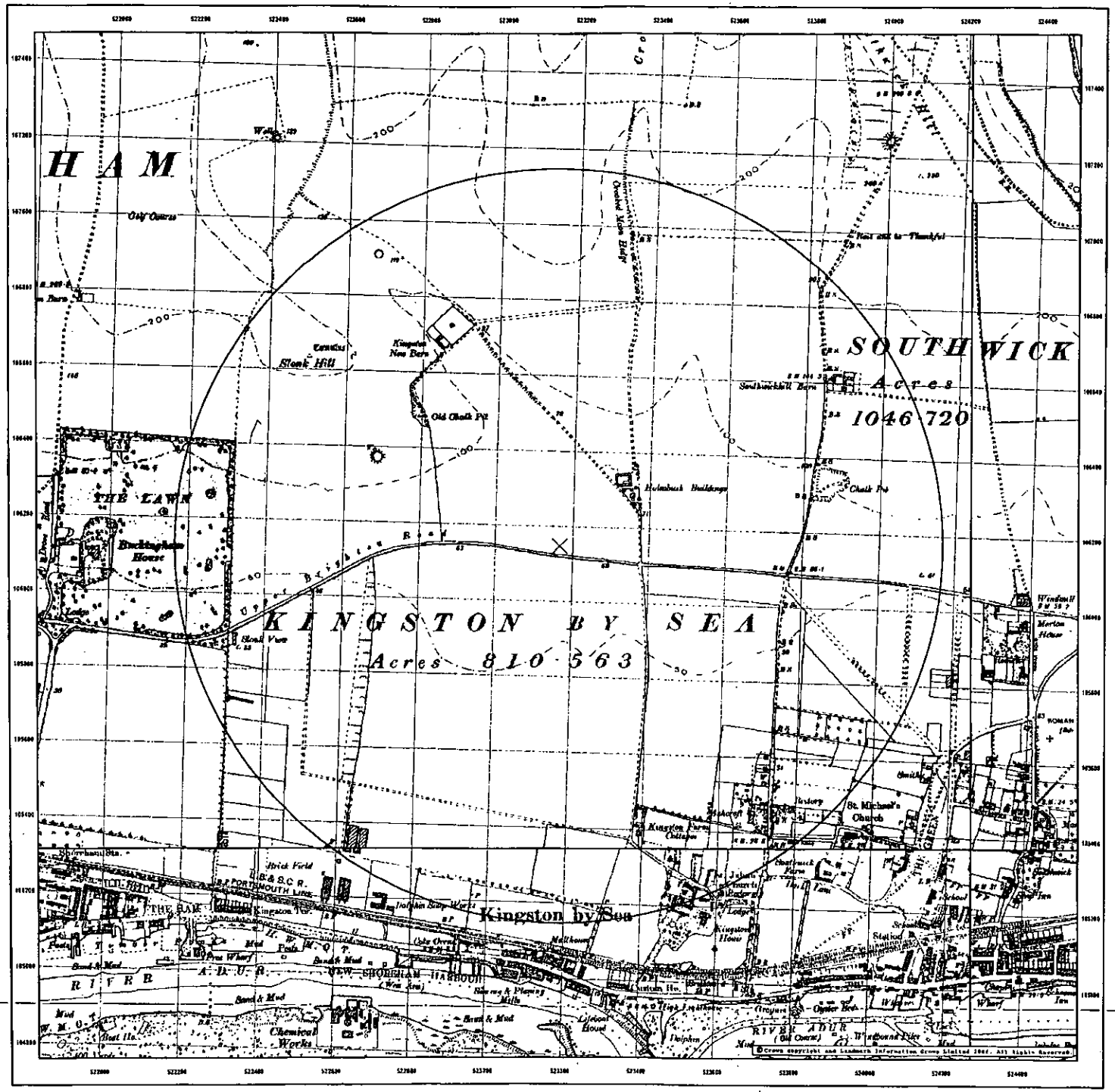

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SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 5TD

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

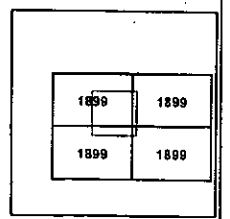
Ordnance Survey County Series

2

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 sometimes 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.

At the late 1940 s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unlabelled - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1973, 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.

SUSSEX
Published 1899
Source map scale - 1:10,560



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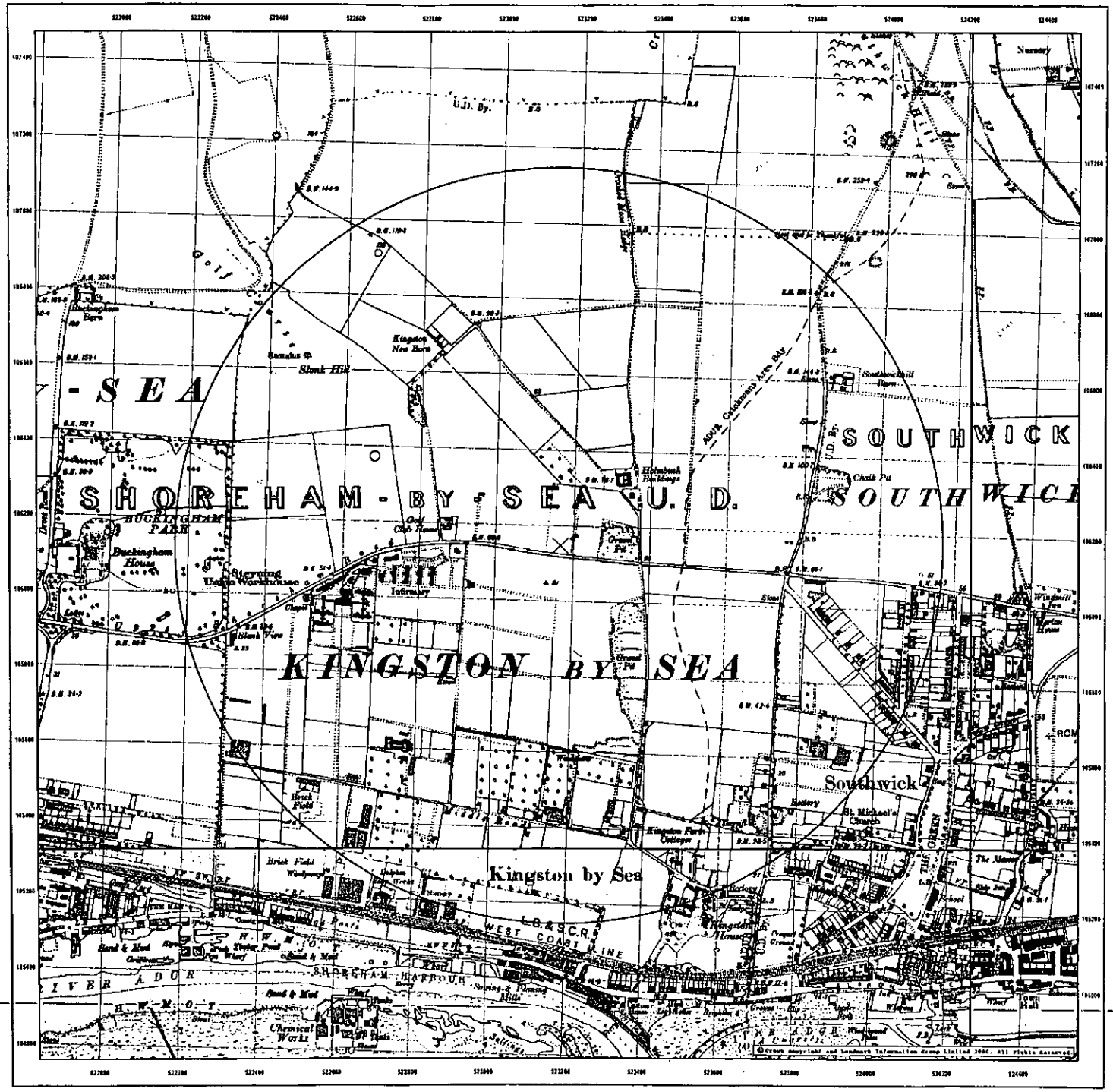

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London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
139 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TU

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

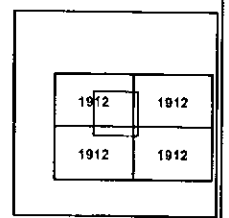
Ordnance Survey County Series

3

The historical maps shown were reproduced from maps predominantly sold at the scale adopted for England & Wales and Scotland in the 1840's, ie 1:2,500 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 hand face 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 outlying areas.

In the late 1840'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 over-printed with the National Grid. In 1976, the first 1:10,000 maps were produced using the Transverse Mercator Projection. This revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

SUSSEX
Published 1912
Source map scale - 1:10,560



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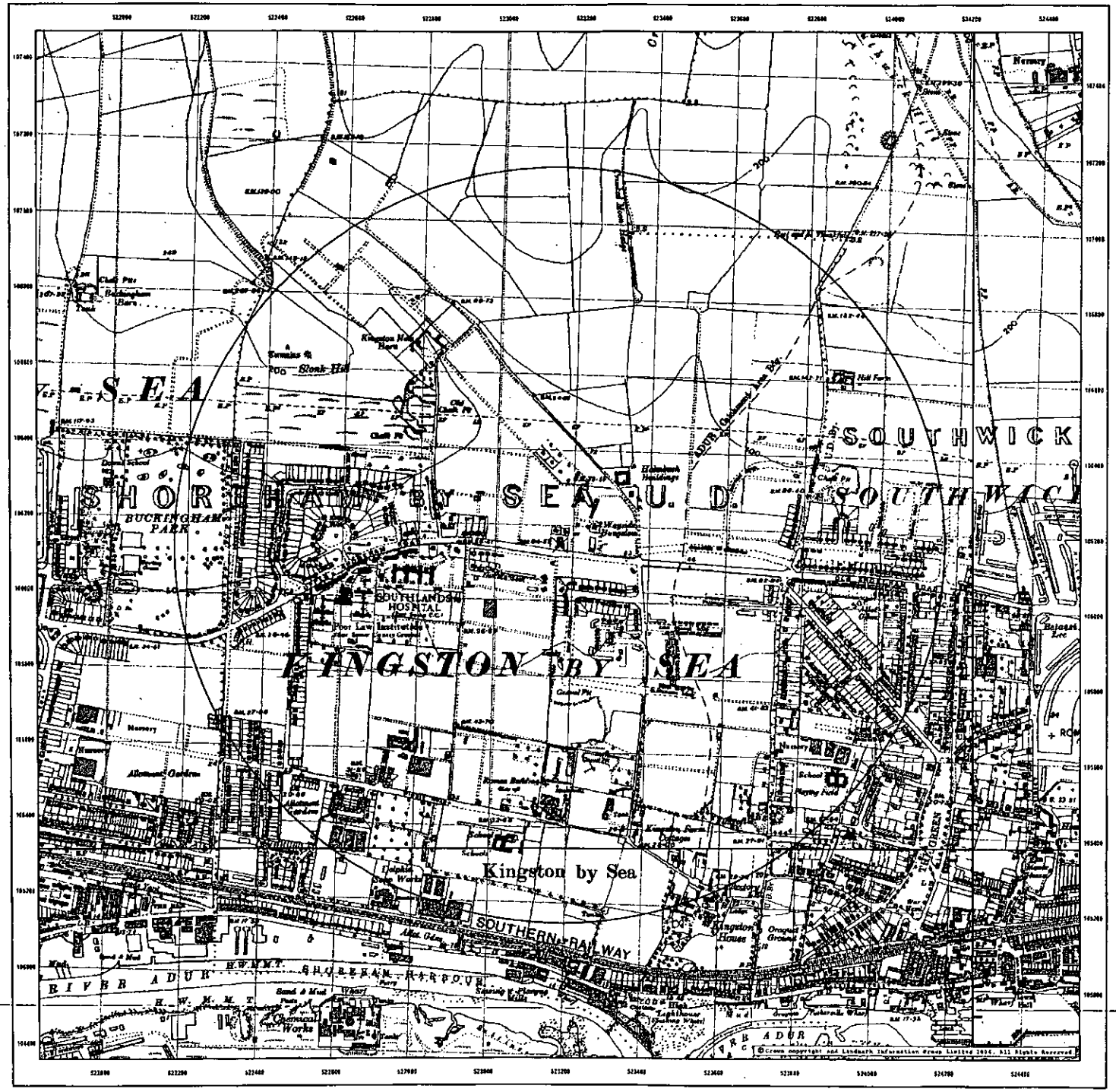

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London
SW15 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

Historical Map Legend

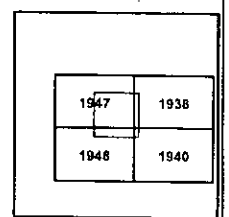
- Quarry
- Shingle
- Railway over Road
- Road over Railway
- Gravel Pit
- Sand Pit
- Level Crossing
- Railway over River
- Other Pits
- Road over Stream
- Road over Stream
- Rough Pasture
- Furze
- Road over River or Canal
- Marsh
- Reeds
- Sunken Road
- Raised Road
- Osiers
- Instrumental Contour
-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

Ordnance Survey County Series 4

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's, ie 1:504 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 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.

SUSSEX
Published 1938 to 1948
Source map scale - 1:10,560



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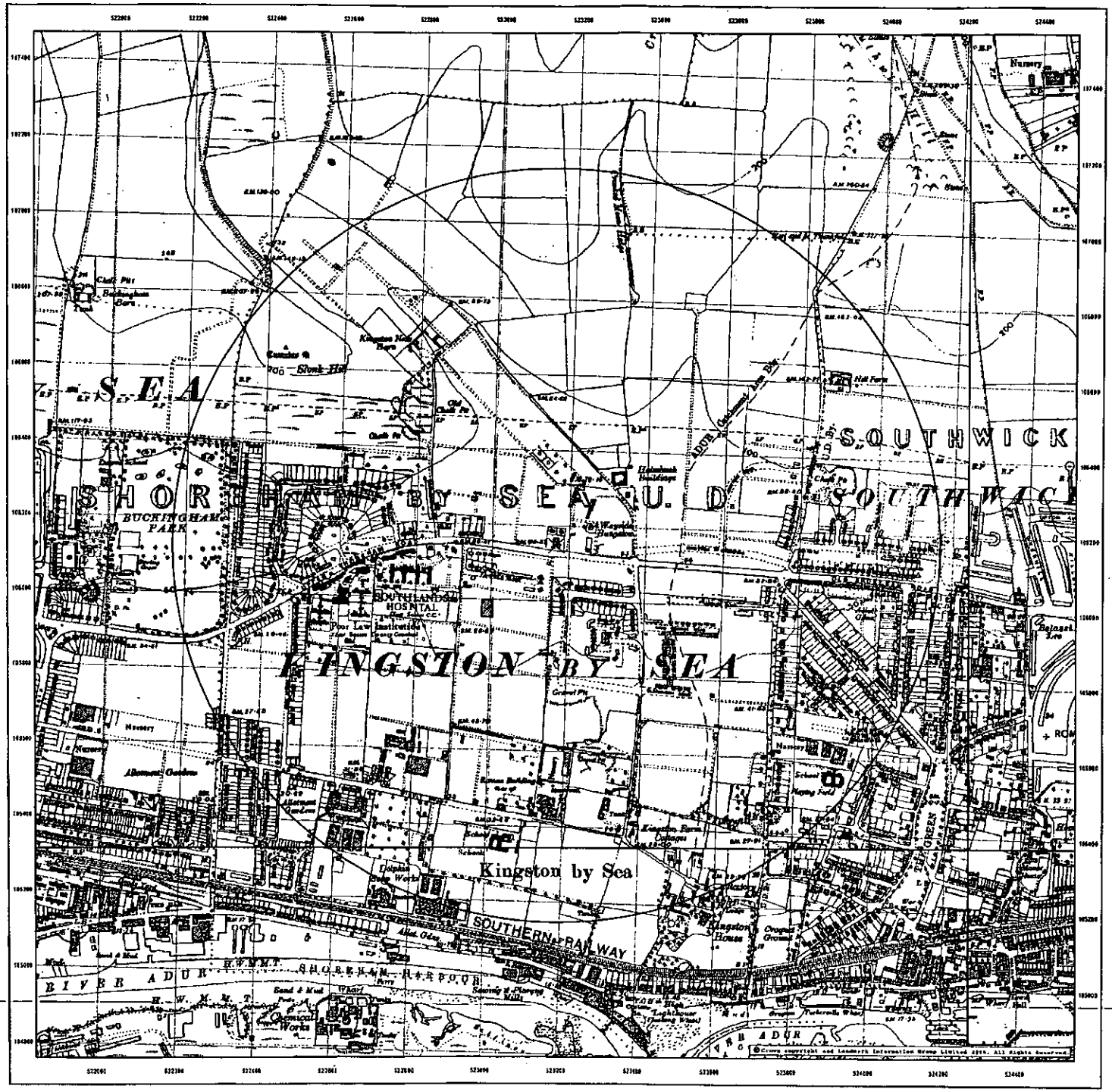
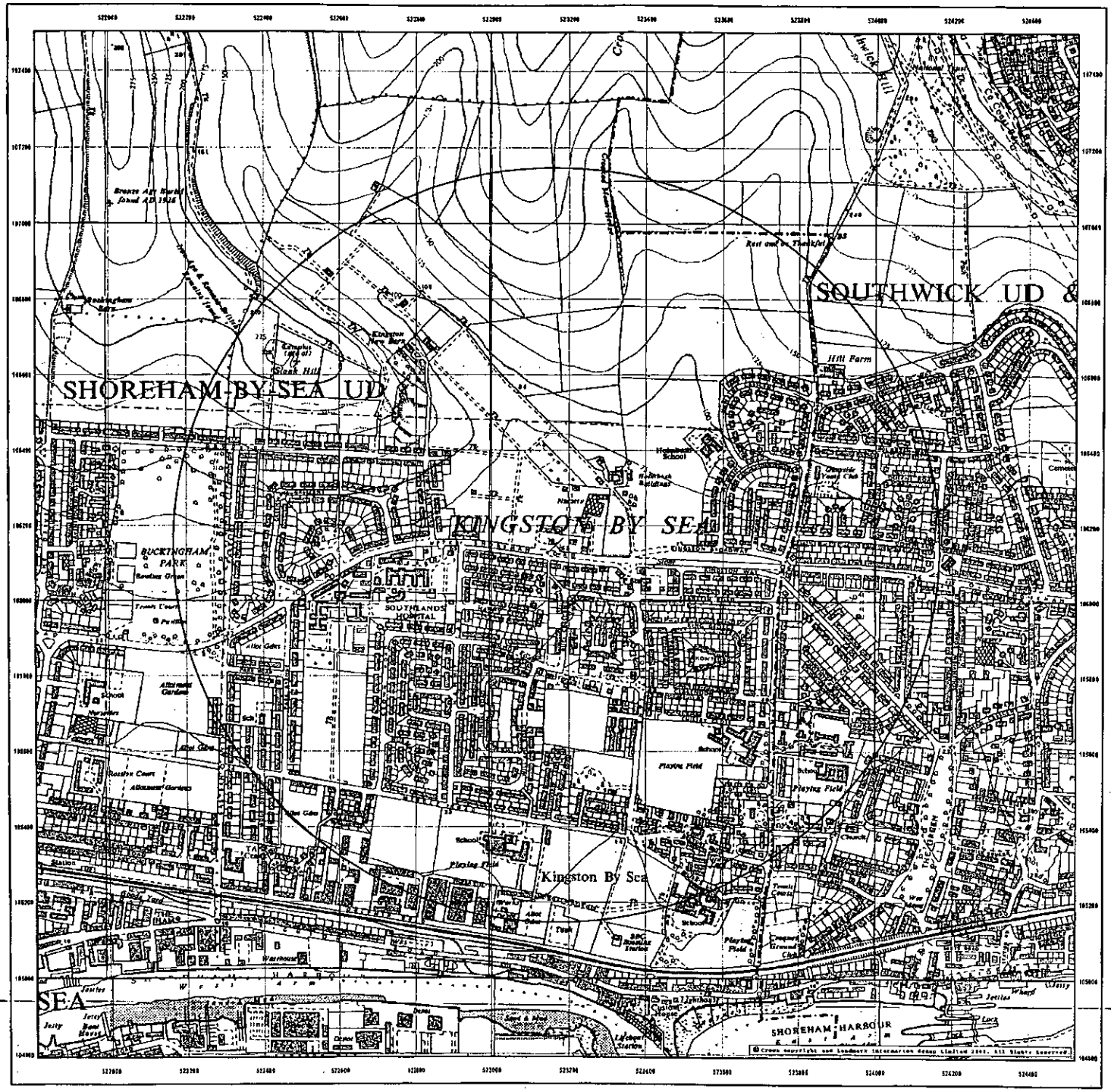
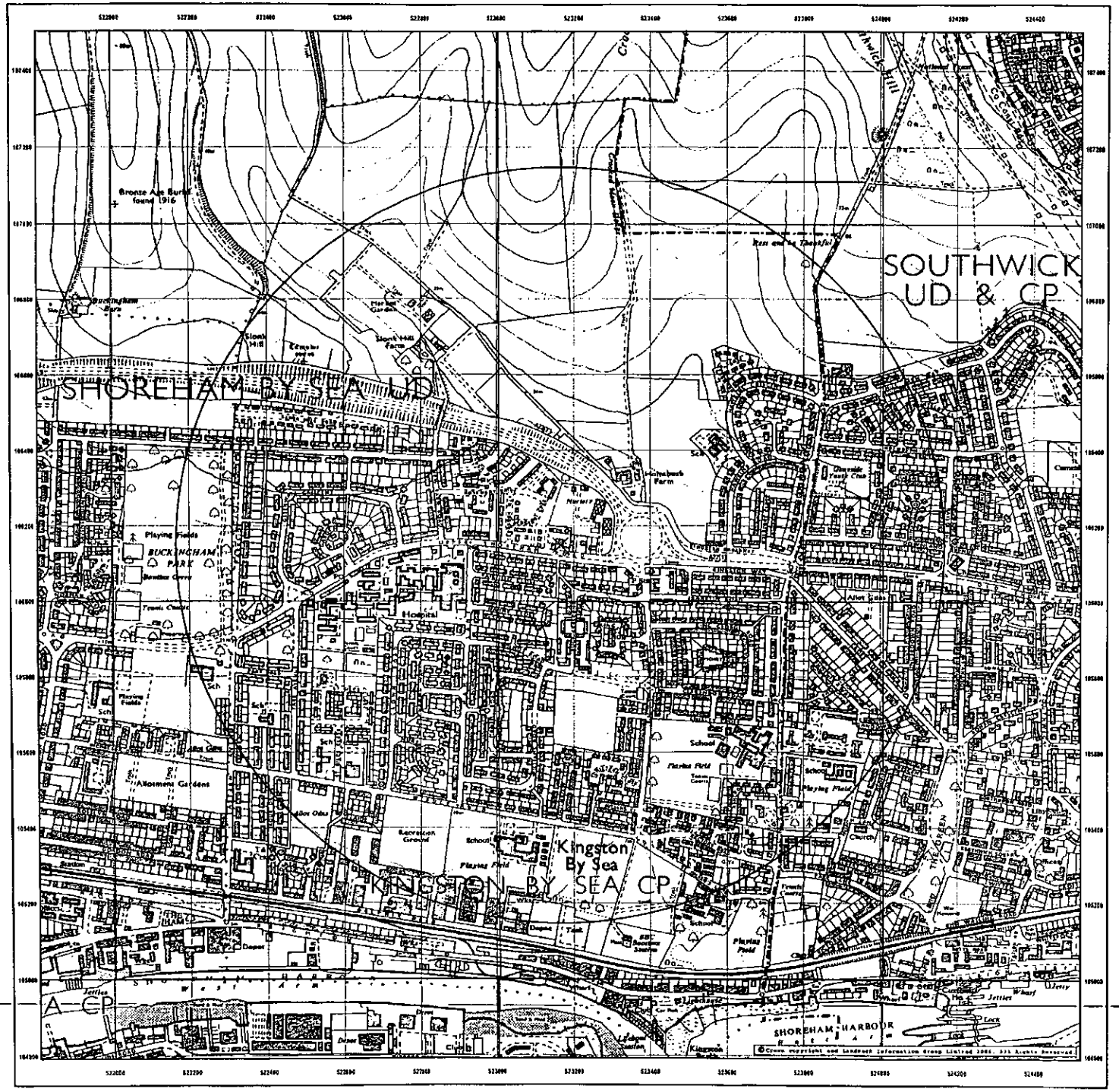

SEA
SHOREHAM-BY-SEA U.D.
SOUTHWICK
BUCKINGHAM PARK
SOUTHLANDS HOSPITAL
KINGSTON BY SEA
Kingston by Sea
SOUTHERN RAILWAY
RIVER ADUR
H.W.M.S.T.
SHOREHAM HARBOUR
Chalk Pit
Slonk Hill
Nursery
Kingston House
Kingston Green
Kingston Cross
Kingston Ground
Kingston Barn
Kingston Buci Barn
Kingston Manor Barn
Hill Farm
Holmbush Buildings
Poor Law Institution
Sewage Works
Gas Works
Oil
Wharf
Sand & Mud
Ferry
Lighthouse (Trafalgar Wharf)
Tucker Mills
Brewery
Allot. Gdns.
Recreation Ground
Bowling Green
Tennis Courts
Pumping Station
Sch.
Ch.
Chapel
Cemetery
Coastguard Cottages
Belgrave Lodge
Belgrave Cottages
Kingston Buci
Kingston Manor


SHOREHAM-BY-SEA UD
SOUTHWICK UD &
KINGSTON BY SEA
Kingston By Sea
SEA
SHOREHAM HARBOUR
Bronze Age Burial found AD 1926
Hill Farm
Kingston Near Sea
Slonk Hill
Buckingham Park
Southlands Hospital
Allotment Gardens
Playing Field
Church
Kingston Lodge Station
Shoreham Harbour Station
Jetties
Wharf
Lock
Pumping Station
Warehouse
Jetty
Tide Gauge
Pipe (Submarine)
Pipe (Submarine) (Disused)
Pipe (Submarine) (Abandoned)
Pipe (Submarine) (Under Construction)
Pipe (Submarine) (Proposed)
Pipe (Submarine) (Decommissio



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Customer Ref: Mr M Watts,44487131
URS Corporation Limited
2nd Floor St George's House
London
SW18 4OR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

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
- Electricity Transmission Line
- Reeds
- Refuse or Slag Heap
- Pole
- Saltings
- Direction of Flow of Water
- Marsh
- Shingle
- Sand
- Cutting
- Embankment
- Standard Gauge Multiple Track
- Standard Gauge Single Track
- Road Under
- Road Over
- Level Crossing
- Foot Bridge
- Siding, Tramway or Mineral Line
- Narrow Gauge

Ordnance Survey Plan

1

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 outlying 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 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 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 suitably 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.

ORDNANCE SURVEY PLAN
Published 1972
Source map scale - 1:10,000

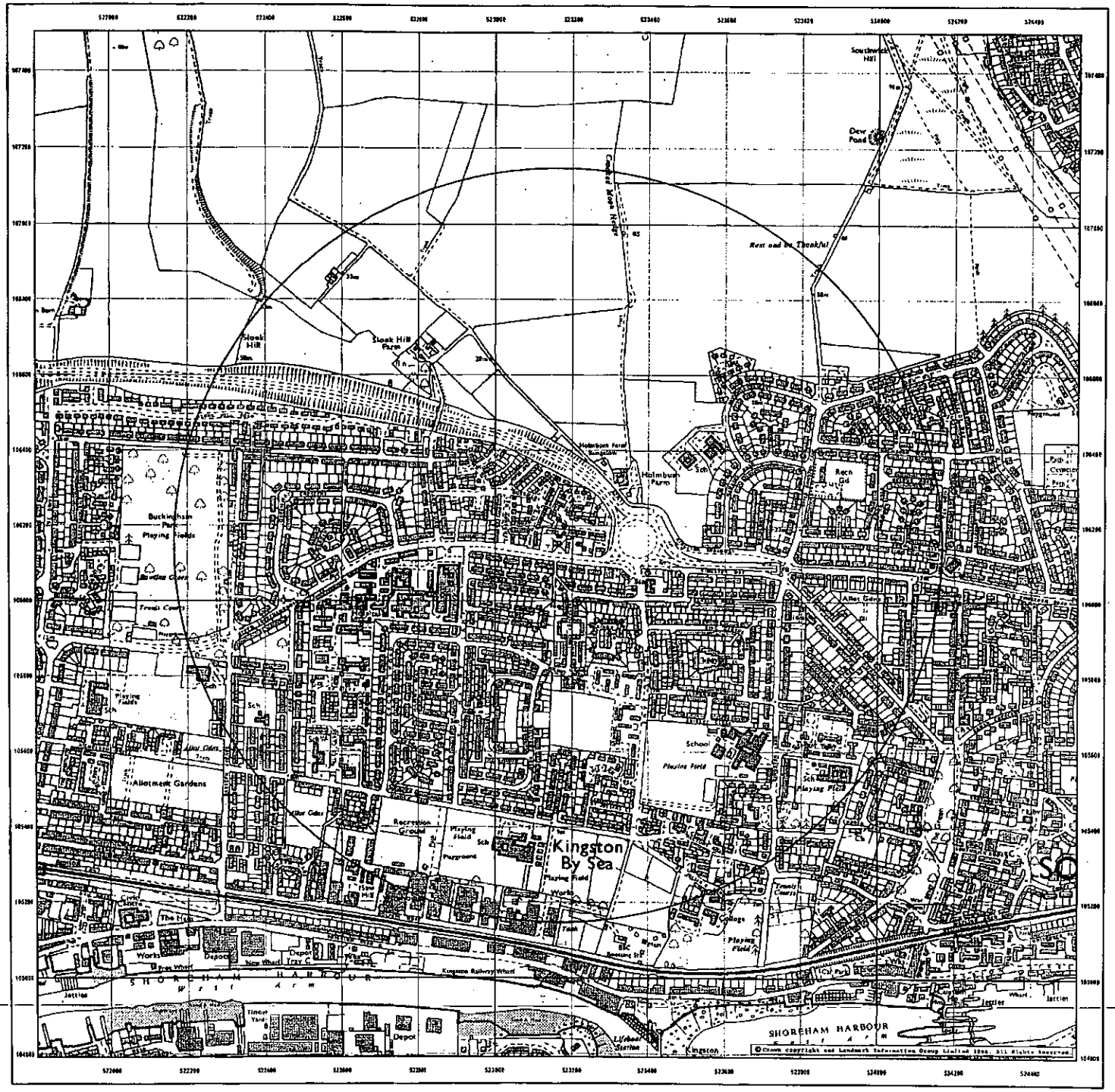
1972
1972

Date(s) of Publication

Ordnance Survey® Licensed Partner

LANDMARK® Information Group

Produced by Landmark Information Group Limited. Tel: 0870 850 6870 Fax: 0870 850 6871



Envirocheck®

A Landmark® product

CLIENT DETAILS Envirocheck Order No. ECD17811561_1_1

Customer Ref: Mr M Watts, 44487131
URS Corporation Limited
2nd Floor St George's House
London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 6TD

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
- Electricity Transmission Line
- Reeds
- 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

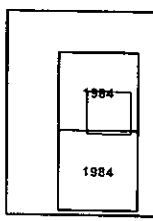
Ordnance Survey Plan

2

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 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 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 ordinary canals and other strategic sites restored. 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 commenced only recently, with new editions appearing every 10 years or so for urban areas.

ORDNANCE SURVEY PLAN
Published 1984
Source map scale - 1:10,000

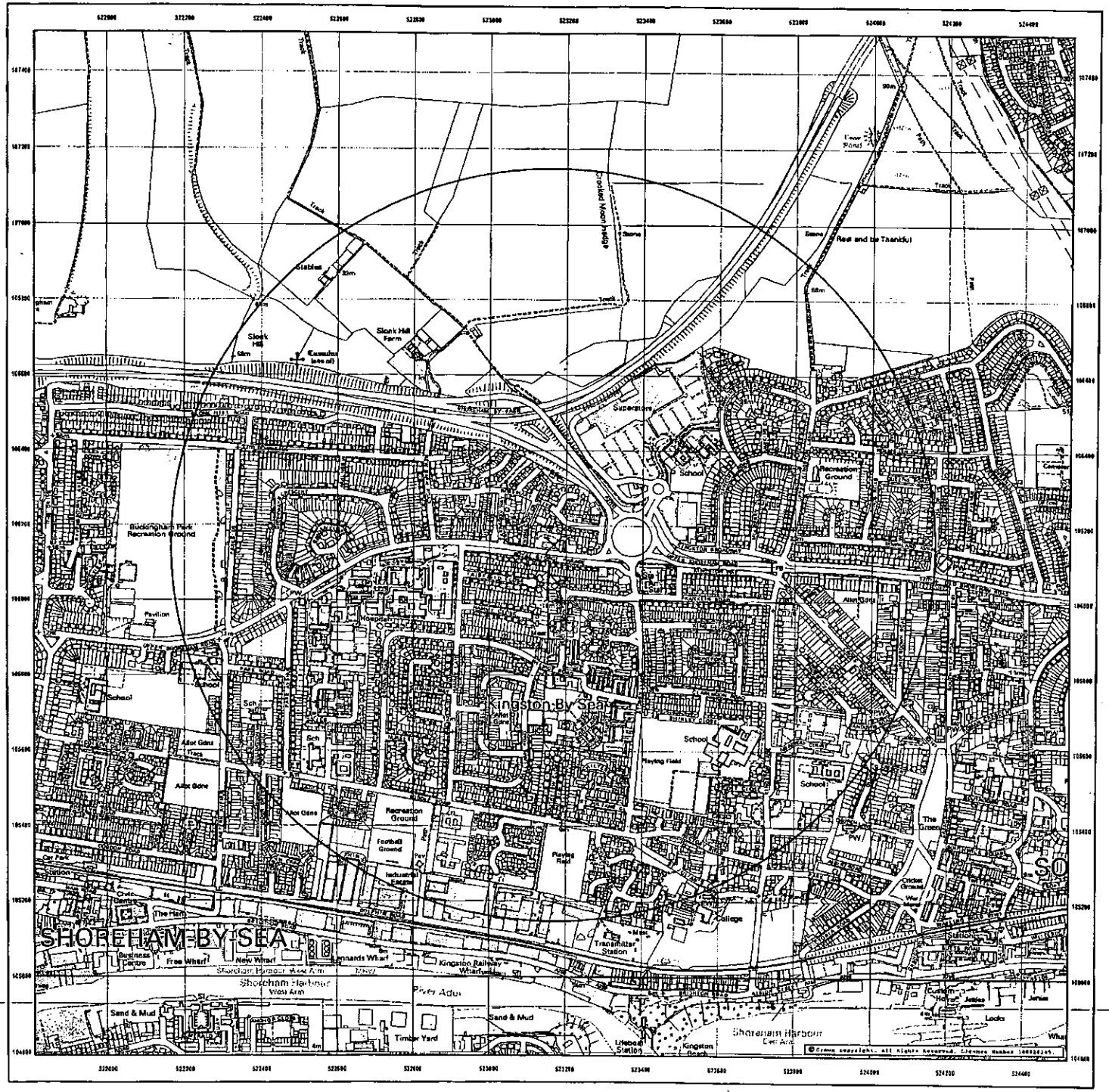


Date(s) of Publication

Ordnance Survey® Licensed Partner

LANDMARK® Information Group

Produced by Landmark Information Group Limited. Tel: 0870 850 6670 Fax: 0870 850 6671



Envirocheck®

A Landmark® product

CLIENT DETAILS Envirocheck Order No. ECD17811561_1_1

Customer Ref: Mr M Watts,44497131
URS Corporation Limited
2nd Floor St George's House
London
SW19 4DR

SITE DETAILS Grid Reference 523170 106150

Shoreham Filling Station
136 Upper Shoreham Road

Shoreham-By-Sea
BN43 5TD

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
County Boundary (England only)	Sand Pit
Civil Parish or Community Boundary	Slopes
Constituency Boundary	District, Unitary, Metropolitan, London Borough Boundary

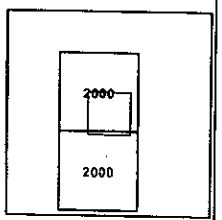
10K Raster Mapping

1

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landmark® 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 depicted includes county, unitary authority, district, civil parish and constituency.

ORDNANCE SURVEY PLAN
Published 2000
Source map scale - 1:10,000



Date(s) of Publication

Ordnance Survey® Licensed Partner

LANDMARK® Information Group

Produced by Landmark Information Group Limited. Tel: 0870 850 6878 Fax: 0870 850 6871

Appendix C - Soil Bore Logs

URS Corporation Ltd
5 St George's Road, St. George's House, 2nd Floor
Wimbledon SW19 4DR
Telephone: +44 (0) 20 8944 3300
Fax: +44 (0) 20 8944 3301

ENVIRONMENTAL BORELOG

Project Name and Site Location	Client	BOREHOLE No
Shoreham Filling Station	BP Oil UK Ltd.	MW1

Job No	Date	Ground Level (m)	Co-Ordinates (Not Surveyed)
44407131	Start Date 25-01-06 End Date 26-01-06	Not Measured	

Contractor	Method / Plant Used	Sheet
Ground Restoration Limited	MC305 - Comacchio Hollow/Solid Stem Auger	1 of 2

Depth BGL	Sample / Test Details	PID (ppm)	Water	Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Backfill
					0.10	GRASS (vegetation)		
					0.20	TOPSOIL	NVO, moist.	
0.5	MW1_0.5m	<0.1			(0.50)	MADE GROUND: loose brown medium gravelly SAND with occasional red brick and flint.	NVO, dry.	
					0.70			
						Weak weathered light brown CHALK with brown coarse sand.	NVO, moist.	
1.0					1.00			
						(UPPER CHALK - Grade VI)	NVO, moist.	
1.5					(0.70)	Soft brown slightly sandy CLAY interspersed with fine to medium chalk and flint fragments.		
					1.70			
	MW1_1.8m	<0.1				Weak weathered light brown CHALK with occasional flint cobbles.	NVO, dry.	
2.0						(UPPER CHALK - Grade V)		
2.5								
3.0								
3.5								
4.0								
4.5								
					(6.30)			
5.0								
5.5								
6.0								
6.5								
7.0								

WELL INSTALLATION DETAILS

- Cement seal riser
- Bentonite seal riser
- Filter pack riser
- Filter pack screen

LEGEND

- MADE GROUND
- Topsoil
- Chalk
- Sandy Clay
- Groundwater Table
- Groundwater Strike

GENERAL REMARKS

NVO = No visible or olfactory evidence of contamination.

Well Diameter = 50 mm.

m bgl = metres below ground level

No water strike

All dimensions in metres
Scale 1:43.75

Logged By L. Southern

Approved By S. Knowles

BP-ENVIRONMENTAL LOG SHOREHAM LOGS.GPJ AGS3 ALL.GDT 7/3/06

URS Corporation Ltd
5 St George's Road, St. George's House, 2nd Floor
Wimbledon SW19 4DR
Telephone: +44 (0) 20 8944 3300
Fax: +44 (0) 20 8944 3301

ENVIRONMENTAL BORELOG

Project Name and Site Location	Client	BOREHOLE No
Shoreham Filling Station	BP Oil UK Ltd.	MW1

Job No	Date	Ground Level (m)	Co-Ordinates (Not Surveyed)
44407131	Start Date 25-01-06 End Date 26-01-06	Not Measured	

Contractor	Method / Plant Used	Sheet
Ground Restoration Limited	MC305 - Comacchio Hollow/Solid Stem Auger	2 of 2

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA Legend	Depth (Thick-ness)	DESCRIPTION	COMMENTS	Backfill
7.5						Weak weathered light brown CHALK with occasional flint cobbles. (UPPER CHALK - Grade V) *(continued)*	NVO, dry. *(continued)*	
8.0					8.00	Borehole terminated at 8.0m bgl.		

WELL INSTALLATION DETAILS

- Cement seal riser
- Bentonite seal riser
- Filter pack riser
- Filter pack screen

LEGEND

- MADE GROUND
- Chalk
- Topsoil
- Sandy Clay
- Groundwater Table
- Groundwater Strike

GENERAL REMARKS

NVO = No visible or olfactory evidence of contamination.

Well Diameter = 50 mm.

m bgl = metres below ground level

No water strike

All dimensions in metres
Scale 1:43.75

Logged By L. Southern

Approved By S. Knowles

BP-ENVIRONMENTAL LOG SHOREHAM LOGS.GPJ AGS3 ALL.GDT 7/3/06

URS Corporation Ltd
5 St George's Road, St. George's House, 2nd Floor
Wimbledon SW19 4DR
Telephone: +44 (0) 20 8944 3300
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ENVIRONMENTAL BORELOG

Project Name and Site Location	Client	BOREHOLE No
Shoreham Filling Station	BP Oil UK Ltd.	MW2

Job No	Date	Ground Level (m)	Co-Ordinates (Not Surveyed)
44407131	Start Date 26-01-06 End Date 26-01-06	Not Measured	

Contractor	Method / Plant Used	Sheet
Ground Restoration Limited	MC305 - Comacchio Hollow Stem Auger	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Backfill
					0.20	CONCRETE (with rebar)		
					(0.40) 0.60	MADE GROUND: loose light brown gravelly SAND with red bricks, cobbles, fragments of concrete.	NVO, dry.	
0.5	MW2_0.5m				0.90	MADE GROUND: loose medium dark brown SAND with occasional gravel.	Strong hydrocarbon odour, moist.	
	MW2_0.9m					Borehole terminated at 0.9m bgl due to contact with underground utility.		

WELL INSTALLATION DETAILS

Cement seal riser Backfill

LEGEND

MADE GROUND

Groundwater Table Groundwater Strike

GENERAL REMARKS

NVO = No visible or olfactory evidence of contamination.

Well Diameter = 50 mm.

m bgl = metres below ground level

No water strike

All dimensions in metres
Scale 1:43.75

Logged By L. Southern

Approved By S. Knowles

BP-ENVIRONMENTAL LOG SHOREHAM LOGS.GPJ AGS3 ALL.GDT 7/3/06

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Wimbledon SW19 4DR
Telephone: +44 (0) 20 8944 3300
Fax: +44 (0) 20 8944 3301

ENVIRONMENTAL BORELOG

Project Name and Site Location	Client	BOREHOLE No
Shoreham Filling Station	BP Oil UK Ltd.	MW3

Job No	Date	Ground Level (m)	Co-Ordinates (Not Surveyed)
44407131	Start Date 27-01-06 End Date 27-01-06	Not Measured	

Contractor	Method / Plant Used	Sheet
Ground Restoration Limited	MC305 - Comacchio Hollow Stem Auger	1 of 1

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA: Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Backfill
					0.10	KEYBLOCK PAVERS		
					0.20	MADE GROUND: loose coarse brown SAND.	NVO, dry.	
					0.30	CONCRETE		
0.5					0.60	Loose coarse black gravelly SAND with frequent large fragments of chalk.	NVO, moist.	
	MW3_0.7m	<0.1			0.80	Weak weathered light brown to white CHALK with brown sand.	NVO, moist.	
1.0					(0.50)	(UPPER CHALK - Grade VI)	NVO, moist.	
					1.30	Soft brown CLAY with occasional cobbles.		
1.5						Soft brown coarse sandy CLAY with occasional cobbles.	NVO	
2.0								
2.5								
	MW3_2.7m	<0.1						
3.0								
	MW3_3.4m	<0.1	▽					
3.5					(4.70)			
4.0								
4.5								
5.0								
5.5								
6.0					6.00	Borehole terminated at 6.0m bgl.		

WELL INSTALLATION DETAILS

- Cement seal riser
- Bentonite seal riser
- Filter pack riser
- Filter pack screen

LEGEND

- MADE GROUND
- Chalk
- Sandy Clay
- Gravelly Sand
- Clay
- Groundwater Table
- Groundwater Strike

GENERAL REMARKS

NVO = No visible or olfactory evidence of contamination.

Well Diameter = 50 mm.

m bgl = metres below ground level

No water strike

All dimensions in metres
Scale 1:43.75

Logged By L. Southern

Approved By S. Knowles

BP-ENVIRONMENTAL.LOG SHOREHAM LOGS.GPJ AGS3_ALL.GDT 7/3/06

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Wimbledon SW19 4DR
Telephone: +44 (0) 20 8944 3300
Fax: +44 (0) 20 8944 3301

ENVIRONMENTAL BOREHOLOG

Project Name and Site Location	Client	BOREHOLE No
Shoreham Filling Station	BP Oil UK Ltd.	MW4

Job No	Date	Ground Level (m)	Co-Ordinates (Not Surveyed)
44407131	Start Date 27-01-06 End Date 27-01-06	Not Measured	

Contractor	Method / Plant Used	Sheet
Ground Restoration Limited	MC305 - Comacchio Hollow Stem Auger	1 of 2

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Backfill
					0.25	CONCRETE (with rebar)		
					0.40	MADE GROUND: loose coarse black gravelly SAND with frequent red bricks.	NVO, moist.	
0.5	MW4_0.6m	<0.1			(0.50)	Soft brown CLAY with occasional angular gravel of flint.	NVO, moist.	
					0.90			
1.0						Soft light brown CLAY with occasional angular flint gravel and cobbles with small fragments of chalk.	NVO, moist.	
1.5	MW4_1.5m	<0.1						
2.0								
2.5								
3.0								
3.5								
4.0					(6.60)			
4.5	MW4_4.5m							
5.0								
5.5								
6.0								
6.5								
7.0								

WELL INSTALLATION DETAILS

- Cement seal riser
- Bentonite seal riser
- Filter pack riser
- Filter pack screen

LEGEND

- MADE GROUND
- Clay
- Groundwater Table
- Groundwater Strike

GENERAL REMARKS

NVO = No visible or olfactory evidence of contamination.

Well Diameter = 50 mm.

m bgl = metres below ground level

No water strike

All dimensions in metres
Scale 1:43.75

Logged By L. Southern

Approved By S. Knowles

BP-ENVIRONMENTAL.LOG SHOREHAM LOGS.GPJ AGS3_ALL.GDT 7/3/06

URS Corporation Ltd
5 St George's Road, St. George's House, 2nd Floor
Wimbledon SW19 4DR
Telephone: +44 (0) 20 8944 3300
Fax: +44 (0) 20 8944 3301

ENVIRONMENTAL BORELOG

Project Name and Site Location		Client		BOREHOLE No
Shoreham Filling Station		BP Oil UK Ltd.		MW4
Job No	Date	Ground Level (m)	Co-Ordinates (Not Surveyed)	
44407131	Start Date 27-01-06 End Date 27-01-06	Not Measured		
Contractor		Method / Plant Used		Sheet
Ground Restoration Limited		MC305 - Comacchio Hollow Stem Auger		2 of 2

Depth BGL	Sample / Test Details	PID (ppm)	Water	STRATA Legend	Depth (Thickness)	DESCRIPTION	COMMENTS	Backfill
					7.50	Soft light brown CLAY with occasional angular flint gravel and cobbles with small fragments of chalk. *(continued)*	NVO, moist. *(continued)*	
7.5						Borehole terminated at 7.5m bgl.		

WELL INSTALLATION DETAILS

- Cement seal riser
- Bentonite seal riser
- Filter pack riser
- Filter pack screen

LEGEND

- MADE GROUND
- Clay
- Groundwater Table
- Groundwater Strike

GENERAL REMARKS

NVO = No visible or olfactory evidence of contamination.

Well Diameter = 50 mm.

m bgl = metres below ground level

No water strike

All dimensions in metres
Scale 1:43.75

Logged By L. Southern

Approved By S. Knowles

BP-ENVIRONMENTAL LOG SHOREHAM LOGS.GPJ AGS3 ALL.GDT 7/3/06

Appendix D - Laboratory Analytical Data

Report Summary

1314
0897
1229
1510

SEVERN TRENT
ENVIRONMENTAL LEADERSHIP

STL

Mr Matthew Watts
URS Corporation Limited
St Georges House
2nd Floor
5 St Georges Rd
Wimbledon
London
SW19 4DR

Report Number : TH/324278/2006 Issue 1

Job Description : BP Retail

Job Location : BP SHOREHAM RD

Number of Samples included in report **7**

Job Received : **26 January 2006**

Number of test results included in report **263**

Analysis Commenced : **27 January 2006**

Signed : JFell

Name : **J. Fell** Date : 08 February 2006

Title : **Production Manager**

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.
Information on the methods of analysis and performance characteristics are available on request
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory
MCerts accreditation refers to analysis carried out at our Lockhurst Lane site only
Analysis carried out on air-dried and ground test portion of the sample(s), unless otherwise stated. Air drying is carried out at not greater than 30 degrees C. Samples are not preserved on site, unless otherwise stated. All results are reported on an air-dried basis

Severn Trent Laboratories Ltd
STL Business Centre, Torrington Avenue, Coventry CV4 9GU Tel : 02476 421213 Fax : 02476 856575

Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 1 Laboratory Number : 248015

of 7 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/MW1//0.5**

Visual Description : **Brown loam with many stone**

Sample Date : **25 January 2006** Sample Time : **1** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	17	%	01/02/2006		*	L	Moisture
Stones BG 2.6/3.0	31	%	01/02/2006		*	L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 ALI	51	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 ALI	61	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 AROM	29	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 AROM	145	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 AROM	169	mg/kg	03/02/2006		*	L	314
benzene	<5.0	ug/kg	06/02/2006		M	L	315
toluene	<5.0	ug/kg	06/02/2006		M	L	315
ethylbenzene	<5.0	ug/kg	06/02/2006		M	L	315
m&p-xylene	<10	ug/kg	06/02/2006		M	L	315
o-xylene	<5.0	ug/kg	06/02/2006		M	L	315
dibromofluoromethane	110	%	06/02/2006		*	L	315
toluene-d8	100	%	06/02/2006		*	L	315
4-bromofluorobenzene	90	%	06/02/2006		*	L	315
MTBE (as TIC)	<5.0	ug/kg	03/02/2006		* M	L	315
naphthalene	<1.0	mg/kg	02/02/2006			L	316
acenaphthylene	<1.0	mg/kg	02/02/2006		M	L	316
acenaphthene	<1.0	mg/kg	02/02/2006		M	L	316
fluorene	<1.0	mg/kg	02/02/2006		M	L	316
phenanthrene	1.3	mg/kg	02/02/2006		M	L	316
anthracene	<1.0	mg/kg	02/02/2006		M	L	316
fluoranthene	3.7	mg/kg	02/02/2006		M	L	316
pyrene	3.7	mg/kg	02/02/2006		M	L	316
benzo(a)anthracene	2.2	mg/kg	02/02/2006		M	L	316
chrysene	2.8	mg/kg	02/02/2006		M	L	316
benzo(b)fluoranthene	2.9	mg/kg	02/02/2006			L	316
benzo(k)fluoranthene	1.8	mg/kg	02/02/2006			L	316

Severn Trent Laboratories Ltd
STL Business Centre, Torrington Avenue, Coventry CV4 9GU Tel : 02476 421213 Fax : 02476 856575

Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 1 Laboratory Number : 248015

of 7 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/MW1//0.5**

Visual Description : **Brown loam with many stone**

Sample Date : **25 January 2006** Sample Time : **1** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
benzo(a)pyrene	3.0	mg/kg	02/02/2006		M L	316
indeno(123-cd)pyrene	2.0	mg/kg	02/02/2006		L	316
dibenzo(ah)anthracene	<1.0	mg/kg	02/02/2006		L	316
benzo(ghi)perylene	3.1	mg/kg	02/02/2006		L	316
2-fluorobiphenyl	100	%	02/02/2006		* L	316
terphenyl-d14	100	%	02/02/2006		* L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Severn Trent Laboratories Ltd
STL Business Centre, Torrington Avenue, Coventry CV4 9GU Tel : 02476 421213 Fax : 02476 856575

Certificate of Analysis

1314
0897
1229
1510

Matrix : Soil

Sample 2 of 7 Laboratory Number : 248016 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**
Sample Point Description **URS CORPORATION**
Sample Description : **BP SHOREHAM RD/MW1//0.5**
Visual Description : **Brown loam with many stone**

Sample Date : **25 January 2006** Sample Time : **2** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	14	%	01/02/2006		*	L	Moisture
Stones BG 2.6/3.0	29	%	01/02/2006		*	L	Stones
Arsenic as As, dry weight	10	mg/kg	06/02/2006		M	L	30/30C
Cadmium as Cd, dry weight	0.84	mg/kg	02/02/2006			L	30
Chromium as Cr, dry weight	18	mg/kg	02/02/2006		M	L	30
Lead as Pb, dry weight	79	mg/kg	02/02/2006		M	L	30
Mercury as Hg, dry weight	<0.20	mg/kg	06/02/2006		M	L	30C
Nickel as Ni, dry weight	14	mg/kg	02/02/2006		M	L	30
Selenium as Se, dry weight	<0.30	mg/kg	06/02/2006		M	L	30C
Zinc as Zn, dry weight	76	mg/kg	02/02/2006		M	L	30
TOC by Ignition in Oxygen	5.9	%	03/02/2006		*	L	27
pH	9.4	pH Units	01/02/2006			L	39

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 3 Laboratory Number : 248017

of 7 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/MW1//1.8**

Visual Description : **Light brown loam with many stone**

Sample Date : **25 January 2006** Sample Time : **3** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	16	%	01/02/2006		*	L	Moisture
Stones BG 2.6/3.0	24	%	01/02/2006		*	L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 AROM	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 AROM	35	mg/kg	03/02/2006		*	L	314
benzene	<5.0	ug/kg	03/02/2006		M	L	315
toluene	<5.0	ug/kg	03/02/2006		M	L	315
ethylbenzene	<5.0	ug/kg	03/02/2006		M	L	315
m&p-xylene	<10	ug/kg	03/02/2006		M	L	315
o-xylene	<5.0	ug/kg	03/02/2006		M	L	315
dibromofluoromethane	100	%	03/02/2006		*	L	315
toluene-d8	100	%	03/02/2006		*	L	315
4-bromofluorobenzene	96	%	03/02/2006		*	L	315
MTBE (as TIC)	<5.0	ug/kg	03/02/2006		* M	L	315
naphthalene	<1.0	mg/kg	02/02/2006			L	316
acenaphthylene	<1.0	mg/kg	02/02/2006		M	L	316
acenaphthene	<1.0	mg/kg	02/02/2006		M	L	316
fluorene	<1.0	mg/kg	02/02/2006		M	L	316
phenanthrene	<1.0	mg/kg	02/02/2006		M	L	316
anthracene	<1.0	mg/kg	02/02/2006		M	L	316
fluoranthene	<1.0	mg/kg	02/02/2006		M	L	316
pyrene	<1.0	mg/kg	02/02/2006		M	L	316
benzo(a)anthracene	<1.0	mg/kg	02/02/2006		M	L	316
chrysene	<1.0	mg/kg	02/02/2006		M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	02/02/2006			L	316
benzo(k)fluoranthene	<1.0	mg/kg	02/02/2006			L	316

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 3 Laboratory Number : 248017

of 7 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/MW1//1.8**

Visual Description : **Light brown loam with many stone**

Sample Date : **25 January 2006** Sample Time : **3** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
benzo(a)pyrene	<1.0	mg/kg	02/02/2006		M L	316
indeno(123-cd)pyrene	<1.0	mg/kg	02/02/2006		L	316
dibenzo(ah)anthracene	<1.0	mg/kg	02/02/2006		L	316
benzo(ghi)perylene	<1.0	mg/kg	02/02/2006		L	316
2-fluorobiphenyl	48	%	02/02/2006		* L	316
terphenyl-d14	45	%	02/02/2006		* L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 4 of 7 Laboratory Number : 248018 Report Number : TH /324278/2006 Issue 1

Sample Source : URS Corporation Limited
Sample Point Description URS CORPORATION
Sample Description : BP SHOREHAM RD/MW2//0.5
Visual Description : Light brown loam with many stone

Sample Date : 25 January 2006 Sample Time : 4 Sample Received : 26 January 2006

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	8.2	%	01/02/2006		*	L	Moisture
Stones BG 2.6/3.0	34	%	01/02/2006		*	L	Stones
Arsenic as As, dry weight	6.5	mg/kg	06/02/2006		M	L	30/30C
Cadmium as Cd, dry weight	<0.50	mg/kg	02/02/2006			L	30
Chromium as Cr, dry weight	15	mg/kg	02/02/2006		M	L	30
Lead as Pb, dry weight	360	mg/kg	02/02/2006		M	L	30
Mercury as Hg, dry weight	<0.20	mg/kg	06/02/2006		M	L	30C
Nickel as Ni, dry weight	9.2	mg/kg	02/02/2006		M	L	30
Selenium as Se, dry weight	<0.30	mg/kg	06/02/2006		M	L	30C
Zinc as Zn, dry weight	280	mg/kg	02/02/2006		M	L	30
pH	11.7	pH Units	01/02/2006			L	39

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 5 Laboratory Number : 248019

of 7 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/MW2//0.9**

Visual Description :

Sample Date : **25 January 2006** Sample Time : **5** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation			Method
Moisture BG 2.6/3.0	21	%	01/02/2006		*		L	Moisture
Stones BG 2.6/3.0	32	%	01/02/2006		*		L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 ALI	34	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 AROM	14	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 AROM	46	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 AROM	71	mg/kg	03/02/2006		*		L	314
benzene	<5.0	ug/kg	03/02/2006			M	L	315
toluene	<5.0	ug/kg	03/02/2006			M	L	315
ethylbenzene	<5.0	ug/kg	03/02/2006			M	L	315
m&p-xylene	<10	ug/kg	03/02/2006			M	L	315
o-xylene	<5.0	ug/kg	03/02/2006			M	L	315
dibromofluoromethane	110	%	03/02/2006		*		L	315
toluene-d8	100	%	03/02/2006		*		L	315
4-bromofluorobenzene	97	%	03/02/2006		*		L	315
MTBE (as TIC)	<5.0	ug/kg	03/02/2006		*	M	L	315
naphthalene	<1.0	mg/kg	02/02/2006				L	316
acenaphthylene	<1.0	mg/kg	02/02/2006			M	L	316
acenaphthene	<1.0	mg/kg	02/02/2006			M	L	316
fluorene	<1.0	mg/kg	02/02/2006			M	L	316
phenanthrene	<1.0	mg/kg	02/02/2006			M	L	316
anthracene	<1.0	mg/kg	02/02/2006			M	L	316
fluoranthene	<1.0	mg/kg	02/02/2006			M	L	316
pyrene	<1.0	mg/kg	02/02/2006			M	L	316
benzo(a)anthracene	<1.0	mg/kg	02/02/2006			M	L	316
chrysene	<1.0	mg/kg	02/02/2006			M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	02/02/2006				L	316
benzo(k)fluoranthene	<1.0	mg/kg	02/02/2006				L	316

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 5 of 7 Laboratory Number : 248019 Report Number : TH /324278/2006 Issue 1

Sample Source : URS Corporation Limited
Sample Point Description URS CORPORATION
Sample Description : BP SHOREHAM RD/MW2//0.9
Visual Description :

Sample Date : 25 January 2006 Sample Time : 5 Sample Received : 26 January 2006

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
benzo(a)pyrene	<1.0	mg/kg	02/02/2006		M L	316
indeno(123-cd)pyrene	<1.0	mg/kg	02/02/2006		L	316
dibenzo(ah)anthracene	<1.0	mg/kg	02/02/2006		L	316
benzo(ghi)perylene	<1.0	mg/kg	02/02/2006		L	316
2-fluorobiphenyl	53	%	02/02/2006		* L	316
terphenyl-d14	50	%	02/02/2006		* L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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Certificate of Analysis

1314
0897
1229
1510

Matrix : Soil

Sample 6 of 7 Laboratory Number : 248020 Report Number : TH /324278/2006 Issue 1

Sample Source : URS Corporation Limited
Sample Point Description URS CORPORATION
Sample Description : BP SHOREHAM RD/SPIKE
Visual Description :

Sample Date : 25 January 2006 Sample Time : 6 Sample Received : 26 January 2006

Test Description	Result	Units	Analysis Date	UoM	%	Accreditation		Method
Moisture BG 2.6/3.0	0.0	%	01/02/2006		*		L	Moisture
Stones BG 2.6/3.0	0.0	%	01/02/2006		*		L	Stones
Arsenic as As, dry weight	20	mg/kg	06/02/2006			M	L	30/30C
Cadmium as Cd, dry weight	6.6	mg/kg	02/02/2006				L	30
Chromium as Cr, dry weight	75	mg/kg	02/02/2006			M	L	30
Lead as Pb, dry weight	770	mg/kg	02/02/2006			M	L	30
Mercury as Hg, dry weight	8.6	mg/kg	06/02/2006			M	L	30C
Nickel as Ni, dry weight	150	mg/kg	02/02/2006			M	L	30
Selenium as Se, dry weight	8.3	mg/kg	06/02/2006			M	L	30C
Zinc as Zn, dry weight	1100	mg/kg	02/02/2006			M	L	30
TOC by Ignition in Oxygen	5.2	%	03/02/2006		*		L	27
pH	8.4	pH Units	01/02/2006				L	39
Risk TPH >C6-C8 ALI	49	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 ALI	100	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 ALI	260	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 ALI	1200	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 ALI	1100	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 ALI	1700	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 ALI	4300	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 AROM	32	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 AROM	71	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 AROM	390	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 AROM	480	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 AROM	670	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 AROM	1600	mg/kg	03/02/2006		*		L	314
benzene	47	ug/kg	03/02/2006			M	L	315
toluene	53	ug/kg	03/02/2006			M	L	315
ethylbenzene	<5.0	ug/kg	03/02/2006			M	L	315
m&p-xylene	<10	ug/kg	03/02/2006			M	L	315
o-xylene	<5.0	ug/kg	03/02/2006			M	L	315
dibromofluoromethane	120	%	03/02/2006		*		L	315
toluene-d8	110	%	03/02/2006		*		L	315
4-bromofluorobenzene	94	%	03/02/2006		*		L	315
MTBE (as TIC)	<5.0	ug/kg	03/02/2006		*	M	L	315
naphthalene	57	mg/kg	02/02/2006				L	316
acenaphthylene	1.6	mg/kg	02/02/2006			M	L	316

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Certificate of Analysis

1314
0697
1229
1510

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

Matrix : Soil

Sample **6** Laboratory Number : **248020**

of **7** Report Number : **TH /324278/2006** **Issue 1**

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/SPIKE**

Visual Description :

Sample Date : **25 January 2006** Sample Time : **6** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
acenaphthene	6.4	mg/kg	02/02/2006		M	L	316
fluorene	5.8	mg/kg	02/02/2006		M	L	316
phenanthrene	33	mg/kg	02/02/2006		M	L	316
anthracene	7.7	mg/kg	02/02/2006		M	L	316
fluoranthene	21	mg/kg	02/02/2006		M	L	316
pyrene	17	mg/kg	02/02/2006		M	L	316
benzo(a)anthracene	6.2	mg/kg	02/02/2006		M	L	316
chrysene	7.4	mg/kg	02/02/2006		M	L	316
benzo(b)fluoranthene	6.0	mg/kg	02/02/2006			L	316
benzo(k)fluoranthene	3.5	mg/kg	02/02/2006			L	316
benzo(a)pyrene	5.9	mg/kg	02/02/2006		M	L	316
indeno(123-cd)pyrene	4.0	mg/kg	02/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	02/02/2006			L	316
benzo(ghi)perylene	6.2	mg/kg	02/02/2006			L	316
2-fluorobiphenyl	73	%	02/02/2006		*	L	316
terphenyl-d14	82	%	02/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 7 Laboratory Number : 248021

of 7 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/BLANK**

Visual Description :

Sample Date : **25 January 2006** Sample Time : **7** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM	%	Accreditation		Method
Moisture BG 2.6/3.0	0.0	%	01/02/2006		*		L	Moisture
Stones BG 2.6/3.0	0.0	%	01/02/2006		*		L	Stones
Arsenic as As, dry weight	<1.0	mg/kg	06/02/2006			M	L	30/30C
Cadmium as Cd, dry weight	<0.50	mg/kg	02/02/2006				L	30
Chromium as Cr, dry weight	<5.0	mg/kg	02/02/2006			M	L	30
Lead as Pb, dry weight	<5.0	mg/kg	02/02/2006			M	L	30
Mercury as Hg, dry weight	<0.20	mg/kg	06/02/2006			M	L	30C
Nickel as Ni, dry weight	<2.5	mg/kg	02/02/2006			M	L	30
Selenium as Se, dry weight	<0.30	mg/kg	06/02/2006			M	L	30C
Zinc as Zn, dry weight	<5.0	mg/kg	02/02/2006			M	L	30
TOC by Ignition in Oxygen	<0.10	%	03/02/2006		*		L	27
pH	8.2	pH Units	01/02/2006				L	39
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 AROM	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 AROM	<25	mg/kg	03/02/2006		*		L	314
benzene	<5.0	ug/kg	03/02/2006			M	L	315
toluene	<5.0	ug/kg	03/02/2006			M	L	315
ethylbenzene	<5.0	ug/kg	03/02/2006			M	L	315
m&p-xylene	<10	ug/kg	03/02/2006			M	L	315
o-xylene	<5.0	ug/kg	03/02/2006			M	L	315
dibromofluoromethane	110	%	03/02/2006		*		L	315
toluene-d8	100	%	03/02/2006		*		L	315
4-bromofluorobenzene	96	%	03/02/2006		*		L	315
MTBE (as TIC)	<5.0	ug/kg	03/02/2006		*	M	L	315
naphthalene	<1.0	mg/kg	02/02/2006				L	316
acenaphthylene	<1.0	mg/kg	02/02/2006			M	L	316

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 7 Laboratory Number : 248021

of 7 Report Number : TH /324278/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **BP SHOREHAM RD/BLANK**

Visual Description :

Sample Date : **25 January 2006** Sample Time : **7** Sample Received : **26 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
acenaphthene	<1.0	mg/kg	02/02/2006		M	L	316
fluorene	<1.0	mg/kg	02/02/2006		M	L	316
phenanthrene	<1.0	mg/kg	02/02/2006		M	L	316
anthracene	<1.0	mg/kg	02/02/2006		M	L	316
fluoranthene	<1.0	mg/kg	02/02/2006		M	L	316
pyrene	<1.0	mg/kg	02/02/2006		M	L	316
benzo(a)anthracene	<1.0	mg/kg	02/02/2006		M	L	316
chrysene	<1.0	mg/kg	02/02/2006		M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	02/02/2006			L	316
benzo(k)fluoranthene	<1.0	mg/kg	02/02/2006			L	316
benzo(a)pyrene	<1.0	mg/kg	02/02/2006		M	L	316
indeno(123-cd)pyrene	<1.0	mg/kg	02/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	02/02/2006			L	316
benzo(ghi)perylene	<1.0	mg/kg	02/02/2006			L	316
2-fluorobiphenyl	100	%	02/02/2006		*	L	316
terphenyl-d14	97	%	02/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Signed : J Fell

Name : **J. Fell** Date : 08 February 2006

Title : **Production Manager**

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Report Summary

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SEVERN TRENT
ENVIRONMENTAL LEADERSHIP

STL

Mr Matthew Watts
URS Corporation Limited
St Georges House
2nd Floor
5 St Georges Rd
Wimbledon
London
SW19 4DR

Report Number : TH/324820/2006 *Issue 1*

Job Description : BP Retail

Job Location : SHOREHAM RD

Number of Samples included in report **12**

Job Received : **30 January 2006**

Number of test results included in report **383**

Analysis Commenced : **31 January 2006**

Signed : JFell

Name : **J. Fell** Date : 08 February 2006

Title : **Production Manager**

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.
Information on the methods of analysis and performance characteristics are available on request
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory
MCerts accreditation refers to analysis carried out at our Lockhurst Lane site only
Analysis carried out on air-dried and ground test portion of the sample(s), unless otherwise stated. Air drying is carried out at not greater than 30 degrees C. Samples are not preserved on site, unless otherwise stated. All results are reported on an air-dried basis

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
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Matrix : Soil

Sample 1 Laboratory Number : 251613

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW3//0.7**

Visual Description : **White and brown loam and clay with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **1** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM	%	Accreditation		Method
Moisture BG 2.6/3.0	17	%	02/02/2006		*		L	Moisture
Stones BG 2.6/3.0	28	%	02/02/2006		*		L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 AROM	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 AROM	<25	mg/kg	03/02/2006		*		L	314
benzene	<5.0	ug/kg	07/02/2006			M	L	315
toluene	<5.0	ug/kg	07/02/2006			M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006			M	L	315
m&p-xylene	<10	ug/kg	07/02/2006			M	L	315
o-xylene	<5.0	ug/kg	07/02/2006			M	L	315
dibromofluoromethane	120	%	07/02/2006		*		L	315
toluene-d8	100	%	07/02/2006		*		L	315
4-bromofluorobenzene	94	%	07/02/2006		*		L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		*	M	L	315
naphthalene	<1.0	mg/kg	06/02/2006				L	316
acenaphthylene	<1.0	mg/kg	06/02/2006			M	L	316
acenaphthene	<1.0	mg/kg	06/02/2006			M	L	316
fluorene	<1.0	mg/kg	06/02/2006			M	L	316
phenanthrene	3.0	mg/kg	06/02/2006			M	L	316
anthracene	1.4	mg/kg	06/02/2006			M	L	316
fluoranthene	9.3	mg/kg	06/02/2006			M	L	316
pyrene	9.0	mg/kg	06/02/2006			M	L	316
benzo(a)anthracene	3.5	mg/kg	06/02/2006			M	L	316
chrysene	4.5	mg/kg	06/02/2006			M	L	316
benzo(b)fluoranthene	4.0	mg/kg	06/02/2006				L	316
benzo(k)fluoranthene	2.7	mg/kg	06/02/2006				L	316

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 1 of 12 Laboratory Number : 251613 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**
Sample Point Description **URS CORPORATION**
Sample Description : **SHOREHAM RD/MW3//0.7**
Visual Description : **White and brown loam and clay with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **1** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
benzo(a)pyrene	4.0	mg/kg	06/02/2006		M	L	316
indeno(123-cd)pyrene	2.7	mg/kg	06/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	06/02/2006			L	316
benzo(ghi)perylene	2.7	mg/kg	06/02/2006			L	316
2-fluorobiphenyl	84	%	06/02/2006		*	L	316
terphenyl-d14	100	%	06/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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1314
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1229
1510

Matrix : Soil

Sample 2 Laboratory Number : 251614

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW3//0.7**

Visual Description : **White brown loam and clay with many stones and clay**

Sample Date : **27 January 2006** Sample Time : **2** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation			Method
Moisture BG 2.6/3.0	16	%	02/02/2006		*		L	Moisture
Stones BG 2.6/3.0	34	%	02/02/2006		*		L	Stones
Arsenic as As, dry weight	7.9	mg/kg	07/02/2006			M	L	30/30C
Cadmium as Cd, dry weight	0.62	mg/kg	03/02/2006				L	30
Chromium as Cr, dry weight	11	mg/kg	03/02/2006			M	L	30
Lead as Pb, dry weight	66	mg/kg	03/02/2006			M	L	30
Mercury as Hg, dry weight	0.68	mg/kg	06/02/2006			M	L	30C
Nickel as Ni, dry weight	18	mg/kg	03/02/2006			M	L	30
Selenium as Se, dry weight	<0.30	mg/kg	06/02/2006			M	L	30C
Zinc as Zn, dry weight	63	mg/kg	03/02/2006			M	L	30
TOC by Ignition in Oxygen	10	%	03/02/2006		*		L	27
pH	9.5	pH Units	03/02/2006				L	39

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
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Matrix : Soil

Sample 3 Laboratory Number : 251615

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW3//2.7**

Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **3** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	15	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	40	%	02/02/2006		*	L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 AROM	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 AROM	<25	mg/kg	03/02/2006		*	L	314
benzene	<5.0	ug/kg	07/02/2006		M	L	315
toluene	<5.0	ug/kg	07/02/2006		M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006		M	L	315
m&p-xylene	<10	ug/kg	07/02/2006		M	L	315
o-xylene	<5.0	ug/kg	07/02/2006		M	L	315
dibromofluoromethane	120	%	07/02/2006		*	L	315
toluene-d8	99	%	07/02/2006		*	L	315
4-bromofluorobenzene	92	%	07/02/2006		*	L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		* M	L	315
naphthalene	<1.0	mg/kg	06/02/2006			L	316
acenaphthylene	<1.0	mg/kg	06/02/2006		M	L	316
acenaphthene	<1.0	mg/kg	06/02/2006		M	L	316
fluorene	<1.0	mg/kg	06/02/2006		M	L	316
phenanthrene	<1.0	mg/kg	06/02/2006		M	L	316
anthracene	<1.0	mg/kg	06/02/2006		M	L	316
fluoranthene	<1.0	mg/kg	06/02/2006		M	L	316
pyrene	<1.0	mg/kg	06/02/2006		M	L	316
benzo(a)anthracene	<1.0	mg/kg	06/02/2006		M	L	316
chrysene	<1.0	mg/kg	06/02/2006		M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	06/02/2006			L	316
benzo(k)fluoranthene	<1.0	mg/kg	06/02/2006			L	316

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STL

1314
0897
1229
1510

Matrix : Soil

Sample **3** Laboratory Number : **251615**

of **12** Report Number : **TH /324820/2006** **Issue 1**

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW3//2.7**

Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **3** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM	Accreditation	Method
benzo(a)pyrene	<1.0	mg/kg	06/02/2006		M L	316
indeno(123-cd)pyrene	<1.0	mg/kg	06/02/2006		L	316
dibenzo(ah)anthracene	<1.0	mg/kg	06/02/2006		L	316
benzo(ghi)perylene	<1.0	mg/kg	06/02/2006		L	316
2-fluorobiphenyl	98	%	06/02/2006		* L	316
terphenyl-d14	98	%	06/02/2006		* L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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STL

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Matrix : Soil

Sample 4 Laboratory Number : 251616

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW3//3.4**

Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **4** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM	%	Accreditation		Method
Moisture BG 2.6/3.0	15	%	02/02/2006		*		L	Moisture
Stones BG 2.6/3.0	48	%	02/02/2006		*		L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 AROM	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 AROM	<25	mg/kg	03/02/2006		*		L	314
benzene	<5.0	ug/kg	07/02/2006			M	L	315
toluene	<5.0	ug/kg	07/02/2006			M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006			M	L	315
m&p-xylene	<10	ug/kg	07/02/2006			M	L	315
o-xylene	<5.0	ug/kg	07/02/2006			M	L	315
dibromofluoromethane	120	%	07/02/2006		*		L	315
toluene-d8	99	%	07/02/2006		*		L	315
4-bromofluorobenzene	94	%	07/02/2006		*		L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		*	M	L	315
naphthalene	<1.0	mg/kg	06/02/2006				L	316
acenaphthylene	<1.0	mg/kg	06/02/2006			M	L	316
acenaphthene	<1.0	mg/kg	06/02/2006			M	L	316
fluorene	<1.0	mg/kg	06/02/2006			M	L	316
phenanthrene	<1.0	mg/kg	06/02/2006			M	L	316
anthracene	<1.0	mg/kg	06/02/2006			M	L	316
fluoranthene	<1.0	mg/kg	06/02/2006			M	L	316
pyrene	<1.0	mg/kg	06/02/2006			M	L	316
benzo(a)anthracene	<1.0	mg/kg	06/02/2006			M	L	316
chrysene	<1.0	mg/kg	06/02/2006			M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	06/02/2006				L	316
benzo(k)fluoranthene	<1.0	mg/kg	06/02/2006				L	316

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 4 Laboratory Number : 251616

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW3//3.4**

Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **4** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
benzo(a)pyrene	<1.0	mg/kg	06/02/2006		M	L	316
indeno(123-cd)pyrene	<1.0	mg/kg	06/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	06/02/2006			L	316
benzo(ghi)perylene	<1.0	mg/kg	06/02/2006			L	316
2-fluorobiphenyl	91	%	06/02/2006		*	L	316
terphenyl-d14	89	%	06/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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Certificate of Analysis

1314
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SEVERN TRENT
ENVIRONMENTAL LEADERSHIP

STL

Matrix : Soil

Sample 5 of 12 Laboratory Number : 251617 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**
Sample Point Description **URS CORPORATION**
Sample Description : **SHOREHAM RD/MW3//3.4**
Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **5** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	11	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	35	%	02/02/2006		*	L	Stones
TOC by Ignition in Oxygen	0.70	%	03/02/2006		*	L	27

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 6 of 12 Laboratory Number : 251618 Report Number : TH /324820/2006 Issue 1

Sample Source : URS Corporation Limited
Sample Point Description URS CORPORATION
Sample Description : SHOREHAM RD/MW4//0.6
Visual Description : Brown loam with many stones and gravel

Sample Date : 27 January 2006 Sample Time : 6 Sample Received : 30 January 2006

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	21	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	31	%	02/02/2006		*	L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 AROM	20	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 AROM	125	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 AROM	152	mg/kg	03/02/2006		*	L	314
benzene	<5.0	ug/kg	07/02/2006		M	L	315
toluene	<5.0	ug/kg	07/02/2006		M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006		M	L	315
m&p-xylene	<10	ug/kg	07/02/2006		M	L	315
o-xylene	<5.0	ug/kg	07/02/2006		M	L	315
dibromofluoromethane	120	%	07/02/2006		*	L	315
toluene-d8	99	%	07/02/2006		*	L	315
4-bromofluorobenzene	93	%	07/02/2006		*	L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		* M	L	315
naphthalene	<1.0	mg/kg	06/02/2006			L	316
acenaphthylene	<1.0	mg/kg	06/02/2006		M	L	316
acenaphthene	<1.0	mg/kg	06/02/2006		M	L	316
fluorene	<1.0	mg/kg	06/02/2006		M	L	316
phenanthrene	<1.0	mg/kg	06/02/2006		M	L	316
anthracene	<1.0	mg/kg	06/02/2006		M	L	316
fluoranthene	<1.0	mg/kg	06/02/2006		M	L	316
pyrene	<1.0	mg/kg	06/02/2006		M	L	316
benzo(a)anthracene	<1.0	mg/kg	06/02/2006		M	L	316
chrysene	<1.0	mg/kg	06/02/2006		M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	06/02/2006			L	316
benzo(k)fluoranthene	<1.0	mg/kg	06/02/2006			L	316

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STL

1314
0897
1229
1510

Matrix : Soil

Sample 6 Laboratory Number : 251618

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW4//0.6**

Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **6** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
benzo(a)pyrene	<1.0	mg/kg	06/02/2006		M	L	316
indeno(123-cd)pyrene	<1.0	mg/kg	06/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	06/02/2006			L	316
benzo(ghi)perylene	<1.0	mg/kg	06/02/2006			L	316
2-fluorobiphenyl	99	%	06/02/2006		*	L	316
terphenyl-d14	95	%	06/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 7 Laboratory Number : 251619

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : URS Corporation Limited

Sample Point Description URS CORPORATION

Sample Description : SHOREHAM RD/MW4//0.6

Visual Description : Brown loam with many stones and gravel

Sample Date : 27 January 2006 Sample Time : 7 Sample Received : 30 January 2006

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	23	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	23	%	02/02/2006		*	L	Stones
Arsenic as As, dry weight	21	mg/kg	07/02/2006		M	L	30/30C
Cadmium as Cd, dry weight	1.1	mg/kg	03/02/2006			L	30
Chromium as Cr, dry weight	24	mg/kg	03/02/2006		M	L	30
Lead as Pb, dry weight	1000	mg/kg	03/02/2006		M	L	30
Mercury as Hg, dry weight	1.1	mg/kg	06/02/2006		M	L	30C
Nickel as Ni, dry weight	27	mg/kg	03/02/2006		M	L	30
Selenium as Se, dry weight	0.32	mg/kg	06/02/2006		M	L	30C
Zinc as Zn, dry weight	270	mg/kg	03/02/2006		M	L	30
pH	8.4	pH Units	03/02/2006			L	39

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 8 Laboratory Number : 251620

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW4//1.5**

Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **8** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation			Method
Moisture BG 2.6/3.0	15	%	02/02/2006		*		L	Moisture
Stones BG 2.6/3.0	33	%	02/02/2006		*		L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*		L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*		L	314
Risk TPH >C21-C40 AROM	76	mg/kg	03/02/2006		*		L	314
Risk TPH >C6-C40 AROM	86	mg/kg	03/02/2006		*		L	314
benzene	<5.0	ug/kg	07/02/2006			M	L	315
toluene	<5.0	ug/kg	07/02/2006			M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006			M	L	315
m&p-xylene	<10	ug/kg	07/02/2006			M	L	315
o-xylene	<5.0	ug/kg	07/02/2006			M	L	315
dibromofluoromethane	110	%	07/02/2006		*		L	315
toluene-d8	99	%	07/02/2006		*		L	315
4-bromofluorobenzene	94	%	07/02/2006		*		L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		*	M	L	315
naphthalene	<1.0	mg/kg	06/02/2006				L	316
acenaphthylene	<1.0	mg/kg	06/02/2006			M	L	316
acenaphthene	<1.0	mg/kg	06/02/2006			M	L	316
fluorene	<1.0	mg/kg	06/02/2006			M	L	316
phenanthrene	<1.0	mg/kg	06/02/2006			M	L	316
anthracene	<1.0	mg/kg	06/02/2006			M	L	316
fluoranthene	<1.0	mg/kg	06/02/2006			M	L	316
pyrene	<1.0	mg/kg	06/02/2006			M	L	316
benzo(a)anthracene	<1.0	mg/kg	06/02/2006			M	L	316
chrysene	<1.0	mg/kg	06/02/2006			M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	06/02/2006				L	316
benzo(k)fluoranthene	<1.0	mg/kg	06/02/2006				L	316

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STL

1314
0897
1229
1510

Matrix : Soil

Sample 8 of 12 Laboratory Number : 251620 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**
Sample Point Description **URS CORPORATION**
Sample Description : **SHOREHAM RD/MW4//1.5**
Visual Description : **Brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **8** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
benzo(a)pyrene	<1.0	mg/kg	06/02/2006		M	L	316
indeno(123-cd)pyrene	<1.0	mg/kg	06/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	06/02/2006			L	316
benzo(ghi)perylene	<1.0	mg/kg	06/02/2006			L	316
2-fluorobiphenyl	94	%	06/02/2006		*	L	316
terphenyl-d14	89	%	06/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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Certificate of Analysis

1314
0897
1229
1510

Matrix : Soil

Sample 9 Laboratory Number : 251621

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW4//4.5**

Visual Description : **Light brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **9** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	9.9	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	20	%	02/02/2006		*	L	Stones
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 ALI	108	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 ALI	133	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 AROM	84	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 AROM	93	mg/kg	03/02/2006		*	L	314
benzene	<5.0	ug/kg	07/02/2006		M	L	315
toluene	<5.0	ug/kg	07/02/2006		M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006		M	L	315
m&p-xylene	<10	ug/kg	07/02/2006		M	L	315
o-xylene	<5.0	ug/kg	07/02/2006		M	L	315
dibromofluoromethane	120	%	07/02/2006		*	L	315
toluene-d8	99	%	07/02/2006		*	L	315
4-bromofluorobenzene	96	%	07/02/2006		*	L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		* M	L	315
naphthalene	<1.0	mg/kg	06/02/2006			L	316
acenaphthylene	<1.0	mg/kg	06/02/2006		M	L	316
acenaphthene	<1.0	mg/kg	06/02/2006		M	L	316
fluorene	<1.0	mg/kg	06/02/2006		M	L	316
phenanthrene	<1.0	mg/kg	06/02/2006		M	L	316
anthracene	<1.0	mg/kg	06/02/2006		M	L	316
fluoranthene	<1.0	mg/kg	06/02/2006		M	L	316
pyrene	<1.0	mg/kg	06/02/2006		M	L	316
benzo(a)anthracene	<1.0	mg/kg	06/02/2006		M	L	316
chrysene	<1.0	mg/kg	06/02/2006		M	L	316
benzo(b)fluoranthene	<1.0	mg/kg	06/02/2006			L	316
benzo(k)fluoranthene	<1.0	mg/kg	06/02/2006			L	316

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 9 of 12 Laboratory Number : 251621 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**
Sample Point Description **URS CORPORATION**
Sample Description : **SHOREHAM RD/MW4//4.5**
Visual Description : **Light brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **9** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
benzo(a)pyrene	<1.0	mg/kg	06/02/2006		M	L	316
indeno(123-cd)pyrene	<1.0	mg/kg	06/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	06/02/2006			L	316
benzo(ghi)perylene	<1.0	mg/kg	06/02/2006			L	316
2-fluorobiphenyl	96	%	06/02/2006		*	L	316
terphenyl-d14	96	%	06/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample **10** Laboratory Number : **251622**

of **12** Report Number : **TH /324820/2006** **Issue 1**

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/MW4//4.5**

Visual Description : **Light brown loam with many stones and gravel**

Sample Date : **27 January 2006** Sample Time : **10** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	9.7	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	22	%	02/02/2006		*	L	Stones
TOC by Ignition in Oxygen	7.6	%	03/02/2006		*	L	27

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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STL

1314
0897
1229
1510

Matrix : Soil

Sample 11 Laboratory Number : 251623

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : URS Corporation Limited

Sample Point Description URS CORPORATION

Sample Description : SHOREHAM RD/SPIKE

Visual Description :

Sample Date : 27 January 2006 Sample Time : 11 Sample Received : 30 January 2006

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	0.0	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	0.0	%	02/02/2006		*	L	Stones
Risk TPH >C6-C8 ALI	20	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 ALI	65	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 ALI	250	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 ALI	1100	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 ALI	1100	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 ALI	2000	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 ALI	4600	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 AROM	37	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 AROM	81	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 AROM	420	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 AROM	490	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 AROM	890	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 AROM	1900	mg/kg	03/02/2006		*	L	314
benzene	45	ug/kg	07/02/2006		M	L	315
toluene	46	ug/kg	07/02/2006		M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006		M	L	315
m&p-xylene	<10	ug/kg	07/02/2006		M	L	315
o-xylene	<5.0	ug/kg	07/02/2006		M	L	315
dibromofluoromethane	110	%	07/02/2006		*	L	315
toluene-d8	99	%	07/02/2006		*	L	315
4-bromofluorobenzene	92	%	07/02/2006		*	L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		* M	L	315
naphthalene	69	mg/kg	06/02/2006			L	316
acenaphthylene	2.3	mg/kg	06/02/2006		M	L	316
acenaphthene	7.9	mg/kg	06/02/2006		M	L	316
fluorene	7.5	mg/kg	06/02/2006		M	L	316
phenanthrene	44	mg/kg	06/02/2006		M	L	316
anthracene	10	mg/kg	06/02/2006		M	L	316
fluoranthene	30	mg/kg	06/02/2006		M	L	316
pyrene	24	mg/kg	06/02/2006		M	L	316
benzo(a)anthracene	8.8	mg/kg	06/02/2006		M	L	316
chrysene	9.3	mg/kg	06/02/2006		M	L	316
benzo(b)fluoranthene	7.6	mg/kg	06/02/2006			L	316
benzo(k)fluoranthene	5.2	mg/kg	06/02/2006			L	316

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 11 Laboratory Number : 251623

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : URS Corporation Limited

Sample Point Description URS CORPORATION

Sample Description : SHOREHAM RD/SPIKE

Visual Description :

Sample Date : 27 January 2006 Sample Time : 11 Sample Received : 30 January 2006

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
benzo(a)pyrene	8.0	mg/kg	06/02/2006		M	L	316
indeno(123-cd)pyrene	5.2	mg/kg	06/02/2006			L	316
dibenzo(ah)anthracene	1.1	mg/kg	06/02/2006			L	316
benzo(ghi)perylene	5.6	mg/kg	06/02/2006			L	316
2-fluorobiphenyl	92	%	06/02/2006		*	L	316
terphenyl-d14	96	%	06/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 12 Laboratory Number : 251624

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : URS Corporation Limited

Sample Point Description URS CORPORATION

Sample Description : SHOREHAM RD/BLANK

Visual Description :

Sample Date : 27 January 2006 Sample Time : 12 Sample Received : 30 January 2006

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
Moisture BG 2.6/3.0	0.0	%	02/02/2006		*	L	Moisture
Stones BG 2.6/3.0	0.0	%	02/02/2006		*	L	Stones
TOC by Ignition in Oxygen	<0.10	%	03/02/2006		*	L	27
pH	8.0	pH Units	03/02/2006			L	39
Risk TPH >C6-C8 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 ALI	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 ALI	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 ALI	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C7 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C7-C8 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C8-C10 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C10-C12 AROM	<5.0	mg/kg	03/02/2006		*	L	314
Risk TPH >C12-C16 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C16-C21 AROM	<10	mg/kg	03/02/2006		*	L	314
Risk TPH >C21-C40 AROM	<25	mg/kg	03/02/2006		*	L	314
Risk TPH >C6-C40 AROM	<25	mg/kg	03/02/2006		*	L	314
benzene	<5.0	ug/kg	07/02/2006		M	L	315
toluene	<5.0	ug/kg	07/02/2006		M	L	315
ethylbenzene	<5.0	ug/kg	07/02/2006		M	L	315
m&p-xylene	<10	ug/kg	07/02/2006		M	L	315
o-xylene	<5.0	ug/kg	07/02/2006		M	L	315
dibromofluoromethane	110	%	07/02/2006		*	L	315
toluene-d8	99	%	07/02/2006		*	L	315
4-bromofluorobenzene	94	%	07/02/2006		*	L	315
MTBE (as TIC)	<5.0	ug/kg	07/02/2006		* M	L	315
naphthalene	<1.0	mg/kg	06/02/2006			L	316
acenaphthylene	<1.0	mg/kg	06/02/2006		M	L	316
acenaphthene	<1.0	mg/kg	06/02/2006		M	L	316
fluorene	<1.0	mg/kg	06/02/2006		M	L	316
phenanthrene	<1.0	mg/kg	06/02/2006		M	L	316
anthracene	<1.0	mg/kg	06/02/2006		M	L	316
fluoranthene	<1.0	mg/kg	06/02/2006		M	L	316
pyrene	<1.0	mg/kg	06/02/2006		M	L	316
benzo(a)anthracene	<1.0	mg/kg	06/02/2006		M	L	316
chrysene	<1.0	mg/kg	06/02/2006		M	L	316

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Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

1314
0897
1229
1510

Matrix : Soil

Sample 12 Laboratory Number : 251624

of 12 Report Number : TH /324820/2006 Issue 1

Sample Source : **URS Corporation Limited**

Sample Point Description **URS CORPORATION**

Sample Description : **SHOREHAM RD/BLANK**

Visual Description :

Sample Date : **27 January 2006** Sample Time : **12** Sample Received : **30 January 2006**

Test Description	Result	Units	Analysis Date	UoM %	Accreditation		Method
benzo(b)fluoranthene	<1.0	mg/kg	06/02/2006			L	316
benzo(k)fluoranthene	<1.0	mg/kg	06/02/2006			L	316
benzo(a)pyrene	<1.0	mg/kg	06/02/2006		M	L	316
indeno(123-cd)pyrene	<1.0	mg/kg	06/02/2006			L	316
dibenzo(ah)anthracene	<1.0	mg/kg	06/02/2006			L	316
benzo(ghi)perylene	<1.0	mg/kg	06/02/2006			L	316
2-fluorobiphenyl	99	%	06/02/2006		*	L	316
terphenyl-d14	98	%	06/02/2006		*	L	316

Accreditation Codes : * = Not UKAS accrecited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Signed : J Fell

Name : **J. Fell** Date : 08 February 2006

Title : **Production Manager**

Severn Trent Laboratories Ltd

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Report Summary

1314
0897
1229
1510

SEVERN TRENT
ENVIRONMENTAL LEADERSHIP

STL

Mr Matthew Watts
URS Corporation Limited
St Georges House
2nd Floor
5 St Georges Rd
Wimbledon
London
SW19 4DR

Report Number : TH/325346/2006 Issue 1

Job Description : BP Retail

Job Location : BP Shoreham

Number of Samples included in report **3**

Job Received : **01 February 2006**

Number of test results included in report **108**

Analysis Commenced : **02 February 2006**

Signed : JFell

Name : **J. Fell** Date : 15 February 2006

Title : **Production Manager**

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.
Information on the methods of analysis and performance characteristics are available on request
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory

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Certificate of Analysis

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SEVERN TRENT
ENVIRONMENTAL LEADERSHIP

STL

Sample 1 of 3 Laboratory Number : **255017**
Report Number : **TH /325346/2006** **Issue 1**

Sample Source : **URS Corporation Limited**
Sample Point Description : **URS CORPORATION**
Sample Description : **BP Shoreham/MW4**

Sample Date : **31 January 2006** Sample Received : **01 February 2006** Analysis Complete : **10 February 2006**

Test Description	Result	Units	Accreditation	Method
TPH >C6-C8 6 split	<10	ug/l	* C	GEO35
TPH >C8-C10 6 split	<10	ug/l	C	GEO35
TPH >C10-C12 6 split	<10	ug/l	C	GEO35
TPH >C12-C16 6 split	<20	ug/l	C	GEO35
TPH >C16-C21 6 split	<20	ug/l	C	GEO35
TPH >C21-C40 6 split	<50	ug/l	C	GEO35
TPH >C6-C40 6 split	<50	ug/l	* C	GEO35
PAH 16 Suite	y	ug/l	* C	CON25
BTEX	Y	ug/l	* C	GEO32
Benzene	<1.0	ug/l	C	GEO32
Toluene	<1.0	ug/l	C	GEO32
Ethyl Benzene	<1.0	ug/l	C	GEO32
m,p-xylene	<1.0	ug/l	C	GEO32
o-xylene	<1.0	ug/l	C	GEO32
MTBE	<1.0	ug/l	C	GEO32
Dibromofluoromethane	104.3	%Recovery	* C	GEO32
Toluene-d8	100.4	%Recovery	* C	GEO32
4-bromofluorobenzene	84.8	%Recovery	* C	GEO32
Naphthalene	<30.0	ug/l	C	GEO40
Acenaphthylene	<30.0	ug/l	C	GEO40
Acenaphthene	<30.0	ug/l	C	GEO40
Fluorene	<30.0	ug/l	C	GEO40
Phenanthrene	<30.0	ug/l	C	GEO40
Anthracene	<30.0	ug/l	C	GEO40
Fluoranthene	<30.0	ug/l	C	GEO40
Pyrene	<30.0	ug/l	C	GEO40
Benzo(a)anthracene	<30.0	ug/l	C	GEO40
Chrysene	<30.0	ug/l	C	GEO40
Benzo(b)fluoranthene	<30.0	ug/l	C	GEO40
Benzo(k)fluoranthene	<30.0	ug/l	C	GEO40
Benzo(a)pyrene	<30.0	ug/l	C	GEO40
Indeno(1,2,3-cd)pyrene	<30.0	ug/l	C	GEO40
Dibenz(a,h)anthracene	<30.0	ug/l	C	GEO40
Benzo(ghi)perylene	<30.0	ug/l	C	GEO40
2-Fluorobiphenyl	68.3	%Recovery	* C	GEO40
Terphenyl-d14	100.9	%Recovery	* C	GEO40

Analyst Comment for 255017 : Reporting limits for SVOCs raised due to sample matrix.

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

Sample 2 of 3 Laboratory Number : 255018
Report Number : TH /325346/2006 issue 1

Sample Source : URS Corporation Limited
Sample Point Description : URS CORPORATION
Sample Description : BP Shoreham/Spike

Sample Date : Sample Received : 01 February 2006 Analysis Complete : 10 February 2006

Test Description	Result	Units	Accreditation		Method
TPH >C6-C8 6 split	320	ug/l	*	C	GEO35
TPH >C8-C10 6 split	2020	ug/l		C	GEO35
TPH >C10-C12 6 split	118	ug/l		C	GEO35
TPH >C12-C16 6 split	736	ug/l		C	GEO35
TPH >C16-C21 6 split	558	ug/l		C	GEO35
TPH >C21-C40 6 split	1270	ug/l		C	GEO35
TPH >C6-C40 6 split	5026	ug/l	*	C	GEO35
PAH 16 Suite	y	ug/l	*	C	CON25
BTEX	Y	ug/l	*	C	GEO32
Benzene	104	ug/l		C	GEO32
Toluene	99.5	ug/l		C	GEO32
Ethyl Benzene	<1.0	ug/l		C	GEO32
m,p-xylene	<1.0	ug/l		C	GEO32
o-xylene	<1.0	ug/l		C	GEO32
MTBE	<1.0	ug/l		C	GEO32
Dibromofluoromethane	102.6	%Recovery	*	C	GEO32
Toluene-d8	102.0	%Recovery	*	C	GEO32
4-bromofluorobenzene	78.7	%Recovery	*	C	GEO32
Naphthalene	<1.0	ug/l		C	GEO40
Acenaphthylene	<1.0	ug/l		C	GEO40
Acenaphthene	48.8	ug/l		C	GEO40
Fluorene	<1.0	ug/l		C	GEO40
Phenanthrene	<1.0	ug/l		C	GEO40
Anthracene	<1.0	ug/l		C	GEO40
Fluoranthene	<1.0	ug/l		C	GEO40
Pyrene	55.0	ug/l		C	GEO40
Benzo(a)anthracene	<1.0	ug/l		C	GEO40
Chrysene	<1.0	ug/l		C	GEO40
Benzo(b)fluoranthene	<1.0	ug/l		C	GEO40
Benzo(k)fluoranthene	<1.0	ug/l		C	GEO40
Benzo(a)pyrene	<1.0	ug/l		C	GEO40
Indeno(1,2,3-cd)pyrene	<1.0	ug/l		C	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l		C	GEO40
Benzo(ghi)perylene	<1.0	ug/l		C	GEO40
2-Fluorobiphenyl	67.7	%Recovery	*	C	GEO40
Terphenyl-d14	89.9	%Recovery	*	C	GEO40

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

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SEVERN TRENT ENVIRONMENTAL LEADERSHIP

STL

Sample 3 of 3 Laboratory Number : **255019**

Report Number : **TH /325346/2006** **Issue 1**

Sample Source : **URS Corporation Limited**

Sample Point Description : **URS CORPORATION**

Sample Description : **BP Shoreham/Blank**

Sample Date : Sample Received : **01 February 2006** Analysis Complete : **10 February 2006**

Test Description	Result	Units	Accreditation		Method
TPH >C6-C8 6 split	<10	ug/l	*	C	GEO35
TPH >C8-C10 6 split	<10	ug/l		C	GEO35
TPH >C10-C12 6 split	<10	ug/l		C	GEO35
TPH >C12-C16 6 split	<20	ug/l		C	GEO35
TPH >C16-C21 6 split	<20	ug/l		C	GEO35
TPH >C21-C40 6 split	<50	ug/l		C	GEO35
TPH >C6-C40 6 split	<50	ug/l	*	C	GEO35
PAH 16 Suite	y	ug/l	*	C	CON25
BTEX	Y	ug/l	*	C	GEO32
Benzene	<1.0	ug/l		C	GEO32
Toluene	<1.0	ug/l		C	GEO32
Ethyl Benzene	<1.0	ug/l		C	GEO32
m,p-xylene	<1.0	ug/l		C	GEO32
o-xylene	<1.0	ug/l		C	GEO32
MTBE	<1.0	ug/l		C	GEO32
Dibromofluoromethane	102.9	%Recovery	*	C	GEO32
Toluene-d8	103.7	%Recovery	*	C	GEO32
4-bromofluorobenzene	76.5	%Recovery	*	C	GEO32
Naphthalene	1.4	ug/l		C	GEO40
Acenaphthylene	<1.0	ug/l		C	GEO40
Acenaphthene	<1.0	ug/l		C	GEO40
Fluorene	<1.0	ug/l		C	GEO40
Phenanthrene	<1.0	ug/l		C	GEO40
Anthracene	<1.0	ug/l		C	GEO40
Fluoranthene	<1.0	ug/l		C	GEO40
Pyrene	<1.0	ug/l		C	GEO40
Benzo(a)anthracene	<1.0	ug/l		C	GEO40
Chrysene	<1.0	ug/l		C	GEO40
Benzo(b)fluoranthene	<1.0	ug/l		C	GEO40
Benzo(k)fluoranthene	<1.0	ug/l		C	GEO40
Benzo(a)pyrene	<1.0	ug/l		C	GEO40
Indeno(1,2,3-cd)pyrene	<1.0	ug/l		C	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l		C	GEO40
Benzo(ghi)perylene	<1.0	ug/l		C	GEO40
2-Fluorobiphenyl	66.9	%Recovery	*	C	GEO40
Terphenyl-d14	85.8	%Recovery	*	C	GEO40

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Signed : J Fell Name : **J. Fell** Date : 15 February 2006

Title : **Production Manager**

Severn Trent Laboratories Ltd
STL Business Centre, Torrington Avenue, Coventry CV4 9GU Tel : 02476 421213 Fax : 02476 856575

Report Summary

SEVERN TRENT ENVIRONMENTAL LEADERSHIP STL

Mr Matthew Watts
URS Corporation Limited
St Georges House
2nd Floor
5 St Georges Rd
Wimbledon
London
SW19 4DR

Report Number : TH/324826/2006 Issue 1

Job Description : BP Retail

Job Location : SHOREHAM RD

Number of Samples included in report	1	Job Received :	30 January 2006
Number of test results included in report	1	Analysis Commenced :	31 January 2006

Signed : J Fell

Name : J. Fell Date : 15 February 2006

Title : Production Manager

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.
Information on the methods of analysis and performance characteristics are available on request
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory

Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP STL

Sample 1 of 1 Laboratory Number : 251675
Report Number : TH /324826/2006 Issue 1

Sample Source : URS Corporation Limited
Sample Point Description : URS CORPORATION
Sample Description : SHOREHAM RD/MW4//4.5

Sample Date : 27 January 2006 Sample Received : 30 January 2006 Analysis Complete : 15 February 2006

Test Description	Result	Units	Accreditation	Method
PSD Sieve + Pipette	Analyst Comment		S	SUBCON

Analyst Comment for 251675 : Please see attached PSD report from subcontract lab

Accreditation Codes : 1 = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Aylesford, S = Subcontracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered IS = Insufficient sample

Signed : JFell Name : J. Fell Date : 15 February 2006
Title : Production Manager

Severn Trent Laboratories Ltd
STL Business Centre, Torrington Avenue, Coventry CV4 9GU Tel : 02476 421213 Fax : 02476 856575

LABORATORY RESULTS - Particle Size Distribution

Project: LABORATORY TESTING PO RD17622

Project No: PC062246

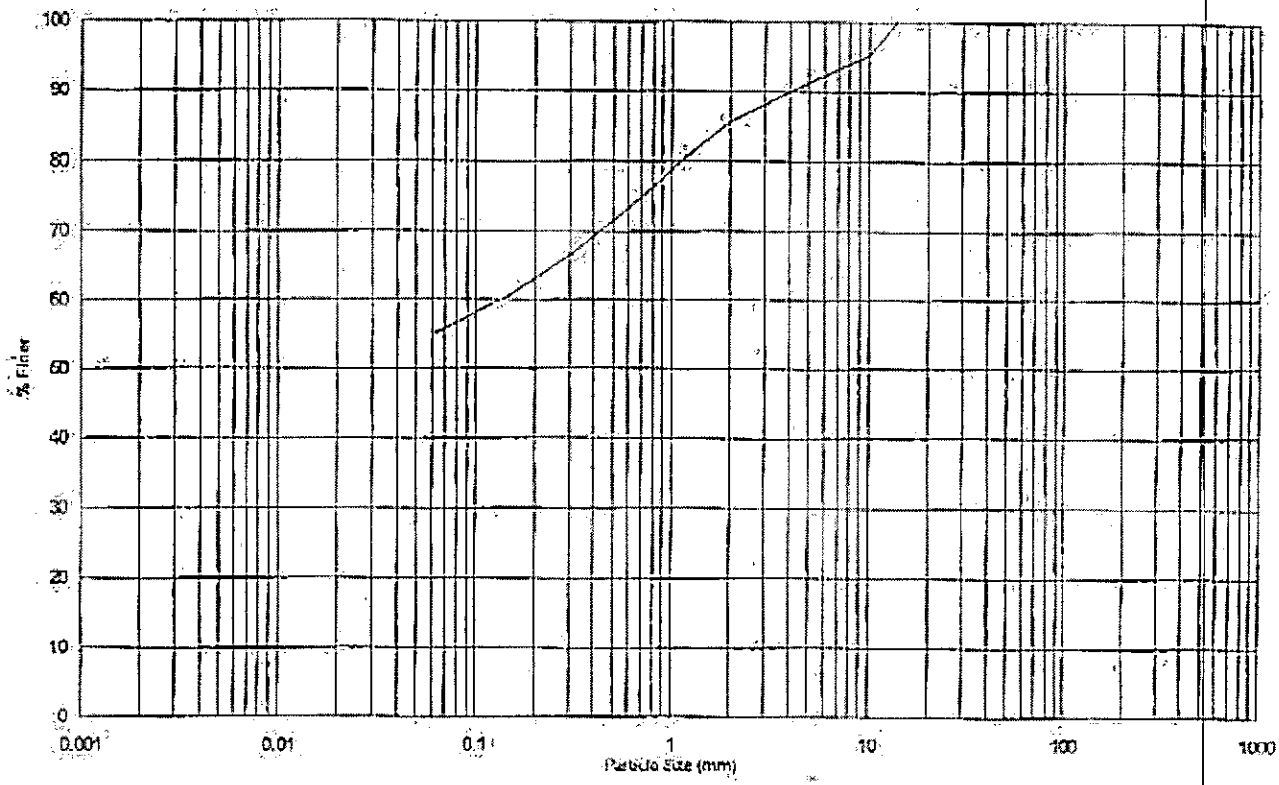
TH / 324&26/06

Hole MW4
Sample Depth 4.50m
Sample Type D
Sample Ref 31665

Sample Description

251675 Brown gravelly very sandy SILT **

BP Shoreham Rd/MW4//4.5m



Description	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	53
SAND	33
GRAVEL	14
COBBLES	0
BOULDERS	0

Size	Percentage Finer
125mm	100
100mm	100
75mm	100
63mm	100
50mm	100
37.5mm	100
28mm	100
20mm	100
14mm	100
10mm	95
6.3mm	-
5mm	91
3.35mm	-

Size	Percentage Finer
2mm	86
1.18mm	81
600µm	73
425µm	-
300µm	66
212µm	-
150µm	61
75µm	-
63µm	55
20µm	-
6µm	-
2µm	-

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks:

13/02/2006

geotechnics

Report Summary

SEVERN TRENT ENVIRONMENTAL LEADERSHIP STL

Mr Matthew Watts
URS Corporation Limited
St Georges House
2nd Floor
5 St Georges Rd
Wimbledon
London
SW19 4DR

Report Number: TH/324297/2006 Issue 1

Job Description : BP Retail

Job Location : BP SHOREHAM RD

Number of Samples included in report: 1

Job Received: 26 January 2006

Number of test results included in report: 1

Analysis Commenced : 27 January 2006

Signed : JFell

Name : **J. Fell** Date : 15 February 2006

Title : **Production Manager**

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.
Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

Certificate of Analysis

SEVERN TRENT ENVIRONMENTAL LEADERSHIP STL

Sample 1 of 1 Laboratory Number : 248112
Report Number : TH /324297/2006 Issue 1

Sample Source : URS Corporation Limited
Sample Point Description : URS CORPORATION
Sample Description : BP SHOREHAM RD/MW2//0.6

Sample Date : 26 January 2006 Sample Received : 26 January 2006 Analysis Complete : 15 February 2006

Test Description	Result	Units	Accreditation	Method
PSD Sieve + Pipette	Analyst Comment		S	SUBCON

Analyst Comment for 248112 : Please see attached PSD report from subcontract lab

Accreditation Codes : U = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. IS = Insufficient sample

Signed : J Fell Name : J. Fell Date : 15 February 2006
Title : Production Manager

Severn Trent Laboratories Ltd
STL Business Centre, Torrington Avenue, Coventry CV4 9GU Tel : 02476 421213 Fax : 02476 856575

LABORATORY RESULTS - Particle Size Distribution

Project: LABORATORY TESTING PORD:7622

Project No: PC062246

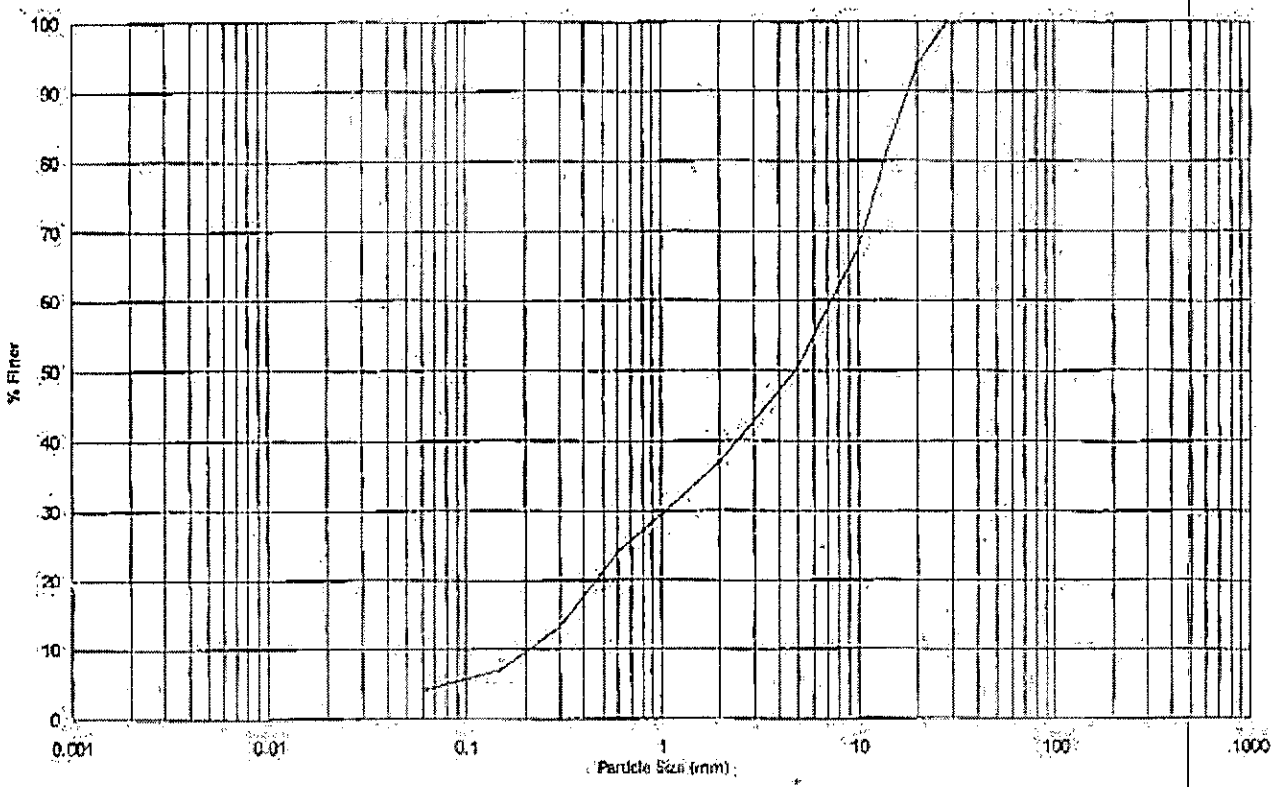
TH/324297/06

Hole MW2
Sample Depth 0.60m
Sample Type D
Sample Ref 31666

Sample Description

246112 Brown slightly silty very sandy GRAVEL **

BP Shoreham Rd/MW2/06



Classification	CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
		Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse		

Classification	% of each
SILT (including CLAY)	4
SAND	33
GRAVEL	63
COBBLES	0
BOULDERS	0

Size	Percentage Finer
125mm	100
100mm	100
75mm	100
63mm	100
50mm	100
37.5mm	100
28mm	100
20mm	94
14mm	81
10mm	68
6.3mm	-
5mm	50
3.35mm	-

Size	Percentage Finer
2mm	37
1.18mm	31
600µm	24
425µm	-
300µm	13
212µm	-
150µm	7
75µm	-
63µm	4
20µm	-
6µm	-
2µm	-

Uniformity Coefficient	
32.10	
Sieving Method	
wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks

13/02/2006

geotechnics