TWEEDIE EVANS CONSULTING

Winchester City Council

Carfax Site, Winchester

Preliminary Geo-Environmental and Geotechnical Assessment

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TWEEDIE EVANS CONSULTING

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Carfax Site, Winchester

Preliminary Geo-Environmental and Geotechnical Assessment

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TABLE OF CONTENTS

1 INTRODUCTION

1.1 Terms of Reference

1.1.1 Tweedie Evans Consulting Ltd (TEC) has been appointed by Winchester City Council to undertake a preliminary geo-environmental and geotechnical assessment of the Carfax site, Winchester. All works were undertaken in accordance with our proposal letter dated 06 September 2013 and referenced 1308015.001_006.bidlet.

1.2 Background

1.2.1 The site is bounded by three roads; Station Road along the northern and western boundary, Gladstone Street along the southern boundary and Sussex Street along the eastern boundary (Figure 1). The site covers an area of approximately 0.77Ha with the centre of the site located at National Grid Reference 447800, 129900. The nearest postcode is SO23 8TJ.

1.2.2 The site currently comprises an irregular shaped parcel of land, which can be divided into four sections (Figure 2). The site is primarily used for a range of car parks with associated soft landscaping whilst the County Council Register Office is present in the north-western corner of the site. Adjacent to the eastern boundary of the site is the County Council Records Office and further car parking to the south-west of the site.

1.2.3 Although full details of the proposed development have not been made available to TEC, it is understood the redevelopment is to comprise a mixed use site comprising a combination of office space, commercial properties, residential buildings, soft landscaped areas and car parking.

1.2.4 The aim of these works is to provide information regarding the characteristics of the sub-soils to support the redevelopment of the site and to provide the basis upon which abnormal costs associated with the development can be assessed.

1.3 Scope of Works

1.3.1 The scope of work undertaken as part of this report is presented below:

- Preliminary Risk Assessment. This phase of assessment involves development of an initial site conceptual model, based on desk study research and a site reconnaissance survey, in order to establish whether or not there are potentially unacceptable risks.

- Generic Quantitative Risk Assessment. This phase of assessment involves refinement of the site conceptual model developed as part of the Preliminary Risk Assessment based on the findings of an intrusive investigation. Generic assessment criteria and assumptions, if appropriate, are used to evaluate potentially unacceptable risks. Should unacceptable risks be identified, a feasible remediation options appraisal is provided and/or a Detailed Quantitative Risk Assessment is recommended. The purpose of the Detailed Quantitative Risk Assessment is to further refine the conceptual model and use more detailed site specific information and criteria to determine whether there are unacceptable risks.

- Preliminary Geotechnical Assessment. General recommendations regarding likely engineering abnormals are provided on the basis of the findings of an intrusive investigation, together with preliminary foundation design recommendations for the proposed development.

1.3.2 The above scope of work has been undertaken in accordance with current guidance such as CLR 11 *'Model Procedures for the Management of Land Contamination'* (Environment Agency, 2004), BS10175:2011+A1:2013 and, where appropriate NHBC and Eurocode 7.

1.3.3 The report is presented in the following format.

- Preliminary Risk Assessment:
  Section 2 – Site Description
  Section 3 – Site History
  Section 4 – Environmental Setting
  Section 5 – Outline Conceptual Model

- Generic Quantitative Risk Assessment:
  Section 6 – Intrusive Investigation
  Section 7 – Encountered Ground Conditions
  Section 8 – Contamination Characterisation
  Section 9 – Refined Conceptual Model

- Preliminary Geotechnical Assessment:
  Section 10 – Ground Engineering

- Section 11 – Conclusions and Recommendations

2 SITE DESCRIPTION

2.1 Site Location

2.1.1 The site is located within a predominantly commercial area and is bounded by the following features (Table 2.1):

Table 2.1: Site Boundary Features

Direction from Site	Description
North	The northern boundary of the site is bounded by Station Road. Beyond this is car parking associated with the nearby railway station.
East	The eastern boundary of the site is bounded by Hampshire County Council Records Office. Beyond this is Sussex Street and a number of residential properties.
South	The southern boundary of the site is bounded by Gladstone Street. Beyond this are a number of residential properties.
West	The western boundary of the site is bounded by Station Road. Beyond this is Winchester railway station and associated sidings.

2.2 Land Use and Site Condition

2.2.1 A site reconnaissance survey was undertaken on 21st October 2013. A summary of the observations is presented below. Photographs taken during the site reconnaissance survey are presented in Appendix A.

Current Site Use

2.2.2 The site is currently occupied by a number of car parks associated with the adjacent Council buildings. These can be divided into three areas; within the northern section of the site is the Records Office car park, within the western section of the site is the Register Office car park and within the southern section of the site is Gladstone Street car park. The centre of the site is occupied by an area of soft landscaping comprising grass, flower beds and a number of semi-mature deciduous trees.

Site Topography

2.2.3 Available Ordnance Survey mapping indicates the site is generally situated at an approximate elevation of 54mAOD (Above Ordnance Datum) along the northern boundary of the site rising to 59mAOD within the western section of the site and 58mAOD in the southern section of the site, joined to the rest of the site via a series of steps. A slope is situated within the centre of the site rising from approximately 54mAOD along the eastern boundary of the site with the Records Office to approximately 56mAOD over an approximate distance of 10m.

Hard and Soft Landscaping

2.2.4 The western car park of the Register Office is laid entirely to tarmacadam hardstanding, which was observed to be in good condition. The northern car park associated with the Records Office comprises a dense granular material covered by a layer of decorative gravel. The centre of the site comprises a grass slope leading to a concrete pathway and an area of soft landscaping comprising shrubs and semi-

mature deciduous trees. The southern section of the site in the location of Gladstone car park is laid to gravel cover, with a number of potholes observed.

Fuel Storage

2.2.5 Although no fuel storage was observed on site during the walkover, a number of underground storage tanks (USTs) are suspected to be present within the northern section of the site, following information provided by Winchester City Council's Environmental Health Officer as well as documentary evidence obtained from searches at the HCC records office (Appendix D).

2.2.6 Ground Penetrating Radar (GPR) was utilised across the site to delineate the locations of suspected tanks prior to the intrusive investigation. Ground anomalies were reported along the northern boundary of the site within the Records Office car park, suspected to be associated with USTs for the former garage noted within this area.

Hazardous Chemicals and Waste Materials Storage

2.2.7 No evidence of hazardous chemical storage was observed on site. Notwithstanding this, waste material storage including recycling and waste bins were observed in a number of locations across the site.

Asbestos Containing Materials

2.2.8 No potential asbestos containing materials (ACM) was observed on site during the site reconnaissance. Notwithstanding this, given the potential age of onsite buildings and past developments being present on site, the potential for ACM cannot be discounted.

Site Drainage

2.2.9 A network of near surface storm water and foul water drains were observed across the site during the site reconnaissance. In addition, a manhole cover associated with a number of soakaways was observed in the southern Gladstone Street car park.

Evidence of Potential Contamination

2.2.10 No visual or olfactory evidence of contamination was noted on site during the site reconnaissance. Notwithstanding this, localised minor staining of the tarmacadam within both car parks was observed during the site reconnaissance.

General

2.2.11 A large power generator was observed along the eastern boundary of the site, associated with the adjacent records office. This was located at approximately the same elevation of the northern Records Office car park, although was observed to lead to further section, noted to be below that of the southern Gladstone Street car park in the south of the site.

2.3 Proposed Development

2.3.1 The full details of the proposed development have not been given to TEC. Notwithstanding this, it is understood the redevelopment of the site is to incorporate a combination of office space, further commercial properties, residential properties, soft landscaped areas and parking areas.

3 SITE HISTORY

3.1 Introduction

3.1.1 Details of the site history have been obtained through the review of historical Ordnance Survey (OS) mapping. The mapping reviewed is contained within Appendix B.

3.1.2 It is not the purpose of this section to provide a comprehensive account of development history, but only to detail those factors that are or could be relevant to the potentially contaminative history of the site and surrounds and the development of an outline site conceptual model.

3.2 Site History

3.2.1 The following represents a summary of potentially significant features recorded within the site area (Table 3.1).

Table 3.1: Site Features

Site Features	OS Dates
Earliest available mapping (1871) indicates the site was subjected to development within the southern section of the site (Gladstone Street car park) and the northern section of the site (Records Office car park). Gladstone Street car park comprises a number of residential properties with associated rear gardens located along the frontage of Gladstone Street, whilst the northern section of Gladstone Street car park contains part of Sussex Brewery. The Records Office car park in the northern section of the site contains a number of buildings and pathways.	1871
Additional development is shown within the northern section of the site within the Records Office car park (marked as a public house from 1932), with buildings extending into the Register Office car park in the eastern section of the site. Further development is noted in the centre of the site also. The brewery is no longer marked on mapping.	1897 - 1932
Residential housing in the southern Gladstone Street car park and the public house in the northwest corner of the site still recorded as present. In addition, a large engineering works is present from the northwest corner of the site where it continues through the centre of the site.	1953 - 1954
Residential properties are still located in Gladstone Street car park in the southern section of the site. In addition to the public house in the northwest corner house a second is present on the northwest corner of the site. The engineering works is recorded to decrease in size and now occupies the central section of the site only. A garage is shown to be present within the central section of the Records Office car park extending into the central section of the site. Development within the register office car park is no longer present on mapping.	1970 - 1971

Site Features	OS Dates
Residential properties along Gladstone Street in the southern section of the site are no longer present on mapping, as is the case with the public house in the northeast corner of the site.	1987
The garage and engineering works are no longer present on mapping. These have been replaced by a large car park, which continues through the centre of the site into the southern section of the site along Gladstone Street.	1991
The site is shown on mapping in its current formation, with the exception of the public house in the northwest corner of the site.	1993

3.3 Neighbouring History

3.3.1 The land uses within the immediate vicinity of the site have been considered. Based upon the reviewed map information the following potentially significant features have been identified (Table 3.2).

Table 3.2: Surrounding Features

Surrounding Features	OS Dates	Distance	Direction
Reservoirs	1871 - 1971	~10m	West
Railway	1871 – 2013	~20m	West
Timber Yard	1871	~90m	West
Goods Yard	1871 – 1897 1952 - 1967	~90m	North-west
Gasometer Second Gasometer	1871 – 1966 1897 - 1910	~110m ~110m	North North
Union Workhouse Later, St Pauls Hospital	1871 – 1990 1932	~120m	South-west
Gas works	1871 - 1897	~130m	South-east
Brewery	1871 – 1954 1909	~200m ~170m	East North-east
Hospital	1898	~175m	South
Laundry; Later, Power Station	1898 1910	~250m	East
Engineering Works	1953 - 1971	~105m	East
Builders Yard	1953 – 1954	~170m	North-east
Electrical Sub Station	1953 – 1993 1974 1993 – 1994	~130m ~95m ~215m	South-east North-east South-east
Printing Works	1953 - 1971	~200m	South-east
Warehouse	1953 - 1975	~200m	North
Caravan Works; Later, Builders Yard	1953 1957 - 1967	~200m	North-west

Surrounding Features	OS Dates	Distance	Direction
Gas Depot	1965 – 1975	~90m	North
Garage	1966 – 1975	~175m	North
	1974	~200m	South-east
	1984 – 1993	~195m	North-east
	1987	~95m	East
	1987	~105m	East

4 ENVIRONMENTAL SETTING

4.1 Information Sources

4.1.1 Environmental information for the site has been obtained through review of an Envirocheck® report for the site. This report provides extensive information, obtained from regulatory and commercial sources, regarding the environmental setting of the site. The Envirocheck® report has been included within Appendix C.

4.2 Geology and Hydrogeology

4.2.1 Published geological and hydrogeological information indicate the following geological sequence at the site:

Table 4.1: Geological and Hydrogeological Setting

Geological Unit	Thickness	Aquifer Status
Seaford Chalk Formation	50-80m	Principal Aquifer

Geology

4.2.2 The published geology for the site is shown on British Geological Survey (BGS) Sheet 299 (Winchester) Solid and Drift Edition as comprising the Seaford Chalk Formation, which is described by the BGS as generally firm white chalk with conspicuous semi-continuous nodular and tabular flint seams.

4.2.3 A number of historic borehole records are available from the BGS within proximity to the site. The closest available record is approximately 90m northeast of the site. A summary of the reported ground conditions are provided below:

- **SU42NE171**: Tarmacadam hardstanding underlain by made ground comprising grey sand silty gravel of chalk, brick, coal and stone to a depth of 1.2mbgl. This in turn is recorded to be underlain by chalk, reported to becoming more competent with depth to the base of the excavation (10.0mbgl).

4.2.4 A second borehole record (SU42NE170) approximately 10m east of the first record reports similar ground conditions, with chalk reported to become more competent with depth to the base of the excavation (15.0mbgl).

4.2.5 The BGS estimated soil chemistry on site is reported within the Envirocheck® report as follows:

- Arsenic - <15mg/kg;
- Cadmium - <1.8mg/kg;
- Chromium – 90 - 120mg/kg;
- Lead - <150mg/kg; and
- Nickel – 15 - 30mg/kg

4.2.6 It is noted that these values are below current SSVs for commercial and residential site end uses.

Ground Gas Generation

4.2.7 In accordance with current guidance (Wilson, Card and Haines (2009)), the ground gas generation potential of the natural ground reported to underlie the site may be

classified as being very low with a negligible reported level of risk for on site development and a negligible reported risk of lateral migration.

4.2.8 Therefore, the natural ground anticipated to be encountered on site is not considered a potential significant source of ground gas generation. Notwithstanding this, made ground, if present, may provide a potential source of ground gas, subject to thickness and chemical composition.

4.2.9 The site is reported to be located within a lower probability radon area, as less than 1% of homes are reported to be above the Action Level. It is reported that no radon protection measures are necessary in the construction of new dwellings or extensions.

Hydrogeology

4.2.10 The Envirocheck® report for the site identifies the underlying geology (Seaford Chalk Formation) to be designated by the Environment Agency as a Principal Aquifer. The Environment Agency classifies a Principal Aquifer as follows:

- ***Principal Aquifer****: These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer;*

4.2.11 The underlying soils are reported as being of High Leaching Potential (i.e. soils which can possibly transmit a wide range of pollutants).

4.2.12 It is considered that any potential hydraulic gradient on site is likely to flow in a generally easterly direction towards the River Itchen and associated tributaries.

4.2.13 There are no reported groundwater abstraction licenses within 250m of the site.

4.2.14 The site is situated approximately 495m north-east of a source protection borehole. Consequently, the site is located approximately 85m north-east of a Zone I, Zone II and Zone III Source Protection Zone, understood to be associated with this groundwater source borehole. These Source Protection Zones are defined as follows:

> ***Zone I*** *(Inner Protection Zone): Defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres.*
>
> ***Zone II*** *(Outer Protection Zone): Defined by a 400 day travel time from a point below the water table. This zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction.*
>
> ***Zone III*** *(Source Catchment Protection Zone): Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.*

4.2.15 Based upon the above information the geological and hydrogeological setting of the site is considered to be of **Moderate to High Sensitivity**.

4.3 Hydrology

4.3.1 The closest surface water course to the site is a small stream by the name of Nuns Walk Stream located approximately 330m south-west of the site. The River Itchen is

located approximately 750m east of the site. The Environment Agency classifies the nearby surface water features as follows:

Table 4.2: Surface Water Features

Name	Quality	Distance	Direction
Nuns Walk Stream	River Quality A	~645m	East
River Itchen	River quality A	~820m	East

4.3.2 There are no reported surface water abstraction licenses in proximity to the site.

4.3.3 Licensed discharge consents to surface waters within 500m of the site are as follows:

Table 4.3: Licensed Discharge Consents

Receiving Water	Effluent Type	Distance	Direction
Not Supplied	Unknown discharge to land/soakaway	~325m	South-east
Freshwater Stream/River	Other matter surface water	~425m	North-east
		~440m	North-east
		~450m	North-east
		~490m	South-east

4.3.4 Pollution incidents to surface waters within 500m of the site are presented in Table 4.4.

Table 4.4: Pollution Incidents

Receiving Water	Pollution Incident	Distance	Direction
Not Given	Road Traffic Accident – Loss of 3 litres of petrol to drain 6th November 1995 Category 3 (Minor) Incident	~340m	North
	Release of unknown oils into Brook as a result of poor operational practice 1st August 1998 Category 3 (Minor) Incident	~350m	East
	Release of Inert Suspended Solids into stream through industrial practices 13th august 1993 Category 3 (Minor) Incident	~370m	East
	Loss of 1500 litres of heating oil 22nd October 1992 Category 3 (Minor) Incident	~460m	East

Receiving Water	Pollution Incident	Distance	Direction
	Release of Inert Suspended Solids into stream 17th July 1995 Category 3 (Minor) Incident	~470m	East

4.3.5 The site is not reported to be located within an Environment Agency Flood Zone.

4.3.6 Given the above information, the hydrology of the site is considered to be of **Moderate Sensitivity**.

4.4 Environmental Data

4.4.1 Additional environmental data from the Envirocheck® report for the site is summarised in Table 4.5.

Table 4.5: Additional Environmental Data Summary

Category	0-250m	250-500m	Details
Authorisations, Incidents and Registers			
Integrated Pollution Controls (IPC)	0	0	None Recorded
Integrated Pollution Prevention and Control (IPPC)	0	0	None Recorded
Local Authority Integrated Pollution Prevention and Control	0	0	None Recorded
Local Authority Pollution Prevention and Controls	2	2	~60m north-east – PG6/46 Dry Cleaning; ~215m north – PG1/14 Petrol Filling Station
Local Authority Pollution Prevention and Control Enforcements	0	0	None Recorded
Prosecutions Relating to Authorised Processes and Controlled Waters	0	1	Guilty verdict delivered 10/12/01 – causing dirty water to enter a tributary of the River Itchen.
Registered Radioactive Substances	0	0	None Recorded
COMAH and NIHHS Sites	0	0	None recorded
Planning Hazardous Substance Consents and Enforcements	0	0	None Recorded
Enforcement and Prohibition Notices	0	0	None Recorded

Category	0-250m	250-500m	Details
Substantiated Pollution Incident Register	0	0	None Recorded
Contaminated Land Register Entries and Notices	0	0	None Recorded
Waste Management			
Landfills and/or other waste management sites	0	0	None Recorded
Current Land Uses			
Potentially contaminative land uses	20	45	*Including*: ~55m north-west – MOT test centre; ~95m east – Car Dealers (inactive); ~165m north-west – Commercial cleaning services (inactive); ~195m north – Railways (inactive); ~230m north – Petrol Filling Station (inactive); ~230m east – Oil and gas exploration supplies; ~220m south – Chemicals – distribution and wholesalers; ~240m east – Printers; ~260m north-east – Scrap metal merchants (inactive); ~265m south – Commercial cleaning company
Petrol and fuel sites	2	0	~205m north-east – A H F Auto, now obsolete; and ~230m north – ESSO, status open.
Ecological Designated Areas			
Site of ecological value	1	0	The site is located within a Nitrate Vulnerable Zone.

4.5 Engineering Considerations

4.5.1 Engineering considerations identified from the Envirocheck® report for the site are summarised below:

Table 4.6: Engineering Considerations

Category	Yes/No	Details
Natural Hazards	Yes (very Low)	There is a very low reported hazard potential for collapsible ground and dissolution stability issues on site. There is no reported hazard potential with regards to compressible ground, landslide hazards, running sands and shrink/swell clays.
Mining Hazards	Yes	A number of man-made mining cavities are recorded in proximity to the site. These all relate to possible voids during piling operations within the chalk.

4.6 Regulatory Consultations

4.6.1 The following regulatory consultation has been undertaken with respect to possible environmental issues and ground conditions on-site and in the surrounding area (Appendix D).

Environmental Health– Winchester City Council

4.6.2 Environmental Health at Winchester City Council was contacted with regards to any potential contaminated land issues on site and within the surrounding area. The information provided is presented in Appendix D. A summary of the response is provided below.

4.6.3 It is understood that a number of potentially contaminative land uses have been present on site in the past. These include a petrol filling station (PFS) along the northern boundary of the site. The PFS is identified as Wykeham Motors and it is understood that there were four petroleum tanks associated with the PFS, with a total capacity of 8000 gallons. It has been reported that these were filled with concrete in 1977 but the potential for the tanks, associated infrastructure and residual contamination associated with such structures may still remain.

4.6.4 Further potentially contaminative processes include an engineering works c. 1953 – 1991 within the northern and central part of the site, as indicated on historical mapping and landmark entry, although the nature of these works are unknown.

4.6.5 Furthermore, a brewery was present on site c. 1871 although no further information regarding this feature is available.

4.6.6 In addition, a number of potentially contaminative land uses are reported in proximity to the site including, but not limited to, the railway, further PFS and several motor vehicle garages.

4.6.7 Finally, a contaminated land report undertaken by Structural Soils for the redevelopment of the adjacent Records Office has been logged as finding no evidence for contamination, although full details of this report were not available through WCC.

Building Control – Winchester City Council

4.6.8 Building Control was contacted with regards to any potential foundation and ground condition issues on site and within the surrounding area. A summary of the response is provided below.

- The ground conditions underlying the site are likely to be chalk, although a significant thickness of fill may be present associated with the presence of the nearby railway.

- Based on development undertaken in proximity to the site (Stockbridge Road) and the potential for a significant thickness of fill associated with the nearby railway, piling may be the most suitable option for foundation design within the proposed development.

- Following information provided within the Envirocheck report for the site regarding potential voids within the underlying chalk reported during piling operations on nearby sites, it is the opinion of Winchester City Council building control that this may be the case on the site also.

Petroleum Licensing Officer

4.6.9 Details regarding petroleum licensing information held by Hampshire County Council's Petroleum Service by emails dated 05 September 2013. A copy of this email and the included information is contained in Appendix D.

4.6.10 The information received indicates the historical presence of 4 No. 2000gallon USTs which were made safe by concrete infilling between May 1977 and December 1977. Although the historical contents of the tanks is not clear there is a suggestion that at least of them were utilised for the storage of petrol.

4.6.11 The tanks were recorded to be located to the north of the Wykeham Motors forecourt located off Station Road. No information was provided as to whether the four detailed USTs were subsequently removed.

4.6.12 In addition to the USTs the petroleum data also recorded a 600gallon paraffin above ground storage tank within the workshops to the rear.

4.7 Hampshire County Council Records

4.7.1 A review of records held at the Hampshire County Council Records Office was also undertaken. Copies of photographs and pre-construction blueprints obtained during these searches are provided in Appendix D.

4.7.2 Photographic evidence indicates that a garage, pre-existing Wykeham Motors, may have existed in the 1950's also in the northern area of the site. The photographs show that the garage, identified as Autoworks (Winchester) Ltd, utilised three fuels pumps with manholes in the forecourt suggesting that these may also have been supplied by USTs. The pumps and possible USTs would have been located to the east of those identified as being associated with Wykeham Motors.

4.7.3 Pre-construction blueprints for Wykeham Motors were reviewed. Dated 1965/66 the garage appeared to have been associated with an extensive workshop which is highlighted on mapping as being an engineering works. Blueprints for this structure indicated that it may have accommodated a range of uses such as vehicle spraying, repairs, small scale oil / lubricant storage, machine shop. In addition, an oil fired boiler with associated heating oil storage (~340litres) was shown as being present in the northern area of the site.

4.7.4 The ground floor for the Wykeham Motors establishment was detailed as being a 6" cast in situ reinforced concrete slab. In normal circumstances such a construction in good condition would be considered to provide significant protection from infiltration of spillages etc to ground.

4.8 Previous Site Report Summary

4.8.1 Geo-environmental and geotechnical information for the site has also been obtained through a review of the following report previously undertaken on part of the subject site (Gladstone Street car park) and the adjacent Hampshire County Council (HCC) Records Office. The report was provided by HCC and it is understood the information is in the public domain and can be utilised as part of this assessment. However, it should be noted that TEC can hold no liability with regards to the validity of this third part information.

- Ground Investigation Report – Winchester Cultural Centre, by White Young and Green Environmental. Prepared for Hampshire County Council. Report issued in March 2004, Ref: REPORT/E3696/JAV/NOV03/GIR/V2.

4.8.2 This report was received after the investigative works detailed in this report had been completed. However, the main findings of this report are summarised below.

Introduction

4.8.3 This investigation was undertaken to provide data/guidance for a proposed four storey building (HCC Records Office), constructed over a sub-basement car park. The site works reported were undertaken by Structural Soils and it is assumed that this is report previously referred to in correspondence with Winchester City Council Environmental Health.

4.8.4 The report reviewed related principally to investigative works undertaken in the Gladstone Street car park area although it is apparent that additional information had previously been gathered for the actual County Records Office.

4.8.5 Intrusive works were reportedly undertaken across the current Carfax site and adjacent land between 26 August and 2 September 2003 and comprised the advancement of 5No. cable percussive boreholes to a maximum depth of 15.65mbgl in order to assess ground conditions and enable foundation design for the proposed centre.

Ground Conditions

4.8.6 The general ground profile encountered at the site during the WYG Environmental ground investigation is summarised below.

Made Ground

4.8.7 Made ground was encountered in all boreholes and varied in thickness between 1.4mbgl and 7.3mbgl, although generally observed to depths between 1.4mbgl and 3.0mbgl. Made ground was reported to be variable in clayey sand with occasional chalk, brick and concrete fragments, silty sand, coarse angular limestone aggregate and chalk gravel.

4.8.8 The greater thickness of made ground encountered within one location (7.3mbgl - BH103) was reported as a varied mixture of materials including vegetable matter at various depths but did not include anthropogenic materials such as brick, concrete etc. It was considered by WYGE that this anomalous thickness of made ground may be associated with a backfilled excavation from former archaeological investigations undertaken at the site, although it was acknowledged that the feature may have been an indication of an infilled Chalk solution feature.

Natural Ground

4.8.9 White chalk was encountered in all boreholes and was described by WYGE as generally comprising Grade II to III (locally Grade IV in BH04), with grade generally improving with depth.

4.8.10 A number of discrete nodular flint bands were recorded within the chalk, in some instances chiselling was required to penetrate these flint bands.

Groundwater

4.8.11 No groundwater was reported to be encountered during the investigation.

Contamination Summary

4.8.12 No visual or olfactory evidence of contamination was reported within any of the investigation positions.

4.8.13 As a result of this, no laboratory testing was undertaken during the investigation.

Geotechnical Analysis

4.8.14 Geotechnical testing was undertaken on representative samples of the various encountered strata. Testing included moisture content, liquid and plastic limits, saturation moisture content of chalk, sulphate content and pH.

4.8.15 Classification testing undertaken on made ground materials encountered as both granular and cohesive reported soils of intermediate plasticity and low shrinkage potential where cohesive. pH and water soluble sulphate testing reported values of between 0.16g/l and 0.18g/l for sulphate and pH values of between 7.8 and 7.9.

4.8.16 Bulk densities of the chalk were reported to range between 1.72 and 1.84Mg/m^3 averaging 1.76Mg/m^3. Corresponding dry densities ranged between 1.35 and 1.52Mg/m^3, averaging 1.41Mg/m^3 and saturated moisture contents ranging between 28.79% and 36.8% averaging 33.98% were also determined. WYGE reported that the testing indicated the chalk to be of low density.

4.8.17 pH and water soluble sulphate tests were undertaken on five samples of the chalk. The results indicated water soluble sulphate concentrations of between 0.08g/l and 0.23g/l with pH values reported between 8.5 and 9.1. WYGE considered the Aggressive Chemical Environment for Concrete (ACEC) class to be AC-1 on the basis of the testing undertaken.

Engineering Considerations

4.8.18 WYGE reported that conventional foundations from the existing ground levels would not be practical due to the significant thickness of made ground recorded at the site (up to 7.3mbgl). However, it was recommended that, following removal of overburden materials during the construction of the below ground car park, it may be practical for conventional spread foundations constructed into the chalk for light and medium structural loadings. Alternatively, piled foundations would be required.

4.8.19 It was reported that, due to the variable thickness of made ground across the site, ground bearing floor slabs would undergo unacceptable total and differential settlements. Notwithstanding this, following the potential removal of made ground materials for the construction of the basement parking, the chalk may be exposed,

and following the introduction of a compacted granular fill, ground bearing floor slabs would be suitable for the building.

Previous HCC Site Investigation Data

4.8.20 The appendices of the WYGE report included a 'Report on the Site Investigations and Pile Foundation Design, Development of the Carfax Site, Winchester, Re. IA.1/2, dated October 1990. The report states that a site investigation was carried out at the Carfax car park site at the request of the County Architect, associated with a proposal to build an office block on the site.

4.8.21 The investigation was reported to have comprised three phases including 10no. trial pits, non-destructive radar survey and three boreholes.

4.8.22 The desk study section of the report recorded the site to be underlain by upper chalk. An archaeological excavation was reported to have been undertaken on part of the site that identified ancient refuse pits that extended 3m and deeper into the chalk. In addition, it was reported that development of the site indicated most of the site would comprise rubble to a depth of up to 2mbgl.

4.8.23 Ground conditions from the investigation works identified evidence of previous buildings including concrete floors, brick walls and rubble. A rubble filled cellar was reported within a concrete floor to a depth of 1.1mbgl and an ancient refuse pit was reported to 3.5mbgl comprising clay fill with items of archaeological interest.

4.8.24 Natural materials were reported to comprise partially weathered and unweathered hard chalk (reported to be Wakeling grades I, II, and III). Groundwater was reported in one borehole only at a depth of 16.2mbgl.

4.8.25 The radar survey identified walls and floors at depths up to 1m, a possible cellar and a suspected pit at a depth of approximately 2.0m. The cellar was noted to possibly continue beneath banking to the east.

4.8.26 It was reported that a piled foundation solution was selected on the basis of the ground conditions and consultation with HCC and it was recommended that pile lengths of 10m (for pile groups of three) and 8m (for pile groups of four) would be required.

4.9 General Summary

4.9.1 Given the above Environmental Setting and the general land use for the area, discussed in Section 2, this site is considered to be of **Moderate to High Overall Environment Sensitivity.**

5 OUTLINE CONCEPTUAL MODEL

5.1 Introduction

5.1.1 The assessment of potential risk associated with any identified contamination is based upon the identification and evaluation of Significant Pollutant Linkages.

5.1.2 A Significant Pollutant Linkage exists on a site only if three conditions are satisfied. These conditions are:

- *The presence of substances (potential contaminants / pollutants) that may cause harm (a **Source**)*
- *The presence of a target which may be harmed e.g. site residents, groundwater (a **Receptor**)*
- *A linkage between the Source and the Receptor e.g. ingestion of soil, inhalation of vapour (a **Pathway**)*

5.1.3 In each case, the existence of a pollutant linkage requires that not only does both a Source and a Receptor have to exist but that a demonstrable Pathway also exists. Therefore, the presence of measurable concentrations of contaminants within the ground or groundwater environment does not automatically imply that a contamination problem exists on site.

5.1.4 The nature and importance of both pathways and receptors, which are relevant to a particular site, will vary according to the actual or intended use of the site, its characteristics and its surroundings.

5.1.5 This process of the identification of Pollutant Linkages has been applied below to assess the potential risks associated with the site.

5.2 Hazard Identification

5.2.1 Potentially contaminative current and historic processes have been identified on and within the vicinity of the site and are presented in Table 5.1.

Table 5.1: Identified Potential Hazards

Potential Hazard / Source	Location	Details
Made Ground	On site	The site has been subject to a number of phases of development since earliest available mapping. Previous phases of investigation undertaken on the site and adjacent land, by HCC and WYGE in 1990 and 2003 reported made ground across the site to depths generally between 1.4m and 3.0m, although a localised area of decayed organic matter was reported by WYGE to a depth of 7.3mbgl in the south-east of the site (possibly associated with an infilled solution feature or historical archaeological trenches). No geochemical laboratory analysis was reported to have been undertaken. Therefore, the presence of made ground of unknown thickness and composition cannot be discounted at this time. Any significant thickness of made ground may provide a potential source of ground gas, subject to nature and composition

Potential Hazard / Source	Location	Details
Potential contamination associated historical processes including a former garage with reported USTs and fuel pumps, a brewery and engineering works	On site	A garage and associated vehicle workshop (engineering works) is shown on available Ordnance Survey mapping from 1970-1971. In addition, information provided by Winchester City Council (WCC) suggests former fuel pumps and up to 4no. USTs, which may be present in the Records Office car park. GPR surveying undertaken within this area reported a ground anomaly approximately 25 square metres in size, which may be associated with USTs along the northern boundary of the site. The tanks are reported by WCC to have been concrete filled in 1977 although it is not known if the tanks and associated infrastructure were removed from site. Additional pumps and USTS may have located to the east of these. The potential for hydrocarbon contamination associated with the presence of these reported tanks and historical leakages and fuel spills cannot be discounted. The vehicle / engineering works may have been associated with a range of potentially contaminative uses including vehicle repairs and painting. Furthermore, an oil fired boiler and associated above ground heating oil storage may also have been present in the northern area of the site.
Potentially contaminative current and historic processes off site	Off site	Potentially contaminative processes have been identified in proximity to the site. These include a railway, gasholder stations, engineering works, garages and a hospital.

5.3 Potential Receptors and Pathways

5.3.1 Potential receptors identified as part of this preliminary risk assessment are:

- Current/future site users;
- Construction workers; and
- Controlled waters (Principal Aquifer and surface waters)

5.3.2 Potential contaminant pathways relating to the identified receptors and contaminants of concern include:

- Dermal contact – contact with soil, dust or water;
- Ingestion - ingestion of soil, dust or water;
- Inhalation – inhalation of soil, dust or vapours;
- Vertical migration – e.g. seepage of contaminants at the ground surface (i.e. leakage/spillage of hydrocarbons) through cracks in hardstanding and/or leaching of contaminants within the unsaturated zone resulting in vertical contaminant migration; and
- Horizontal migration – e.g. lateral migration of contaminants within the saturated zone and along preferential pathways such as drainage pipe bedding.

5.4 Hazard Assessment and Risk Estimation

5.4.1 Potential significant pollutant linkages identified as part of this preliminary risk assessment are summarised in the Outline Site Conceptual Model presented in Table 5.2. References to risk estimations are made in accordance with the methodology presented in CIRIA publication C552 (2001) titled *'Contaminated Land Risk Assessment: A Guide to Good Practice'* and summarised in Appendix E.

Table 5.2: Outline Conceptual Model (Hazard Assessment and Risk Estimation)

Potential Hazard / Source	Potential Receptor	Potential Pathway to Receptors	Associated Hazard	Scale of Impact	Potential Consequence of Source-Receptor Linkage	Potential Likelihood for Significant Source-Receptor Linkage	Risk Classification
Made Ground	Site end users and construction workers	Exposure to potential contaminants through ingestion, inhalation and dermal contact.	Risk of harm to human health	Local	Medium	**Likely:** Made ground has been recorded at the site, locally up to 7.3mbgl, although generally between 1.4m and 3.0mbgl. Therefore, made ground of unknown chemical composition is understood to be present at the site.	**Moderate Risk**
	Controlled waters	Infiltration of water through the unsaturated zone resulting in leaching of contaminants and potential vertical and horizontal migration along preferential pathways	Risk to Principal Aquifer	Local to regional	Medium to Severe	**Likely:** Given the reported presence of made ground material of unknown chemical composition, the reported presence of soils of high leaching potential and the aquifer status of the Seaford Chalk Formation (Principal Aquifer), a potential risk to controlled waters cannot be discounted.	**Moderate Risk**
	Site users and proposed development structures	Migration ingress and accumulation / inhalation of ground gasses	Risk to human health and damage to proposed structures	Local	Medium to Severe	**Low Likelihood:** Made ground may provide a potential source of ground gas, subject to thickness and composition. WYGE reported a significant thickness of organic material to be present in a localised area in the south-east of the site. However, general made ground was reported to be of limited thickness with no significant degradable material reported.	**Moderate Risk**
Potential contamination associated with historical processes including a former garage with reported USTs and fuel pumps, a brewery and engineering works	Site end users and construction workers	Exposure to contaminants through ingestion, vapour inhalation and dermal contact.	Risk of harm to human health	Local	Medium	**Likely:** A former brewery and engineering works have been reported on site. In addition, part of the site has historically been used as a garage, with information provided by WCC indicating historical USTs (reported to be concrete filled) and former fuel pumps. Therefore, the potential risk of contamination associated with the former brewery, engineering works and garage e.g. leaks and spills beneath former fuel pumps and around potential USTs and fuel lines cannot be discounted at this time.	**Moderate Risk**

Potential Hazard / Source	Potential Receptor	Potential Pathway to Receptors	Associated Hazard	Scale of Impact	Potential Consequence of Source-Receptor Linkage	Potential Likelihood for Significant Source-Receptor Linkage	Risk Classification
	Controlled waters	Vertical migration of hydrocarbon contamination through made ground and underlying natural strata and potential horizontal migration along preferential pathways.	Risk to controlled waters (Principal Aquifer and surface waters)	Local and regional	Medium	**Likely:** Owing to the reported historical garage with USTs and former fuel pumps and the former engineering works and brewery, the potential for contamination to be present cannot be discounted. The underlying Seaford Chalk Formation (Upper Chalk) is classified as a Principal Aquifer, with a potentially high permeability subject to fractures and fissures within the underlying materials. Therefore, the potential risk to controlled waters cannot be fully discounted at this time.	**Moderate Risk**
Potentially Contaminative Current and Historic Processes – Off site	Future site users, construction worker and controlled waters	Potential on site contaminant/gas migration from on and off site sources	Risk to human health and controlled waters	Local	Medium	**Low likelihood to Likely:** Potentially contaminative current and historical processes have been identified in close proximity to the site including railway lines, gasholder stations, garages, engineering works and hospital. The Seaford Chalk Formation (Upper Chalk) is recorded to underlie the site area, which would be anticipated to have a high permeability. Therefore, the potential risk from on site migration of contaminants from off-site sources cannot be discounted at this stage.	**Low to Moderate Risk**

6 INTRUSIVE INVESTIGATION

6.1 Background

6.1.1 The ground investigation undertaken was designed to provide specific information regarding site conditions in support of the proposed site development.

6.1.2 In particular, the investigation was designed to provide further information on:

- Ground conditions to aid with the design of the development; and
- The potential significant pollutant linkages identified as part of the Preliminary Risk Assessment.

6.1.3 All site works were undertaken in accordance with BS5930:2010 (Amendment), BS10175:2011+A1:2013 and, where appropriate, Eurocode 7. Works were supervised by a suitably experienced geo-environmental consultant from TEC.

6.2 Methodology

6.2.1 Three cable percussive boreholes (BH01 – BH03) were progressed to a maximum depth of 25.0mbgl using a Dando 2000 cable percussive rig to allow for the characterisation of ground materials, the collection of samples for laboratory geochemical and geotechnical analysis and for the installation of combined groundwater and ground gas monitoring wells.

6.2.2 Fifteen dynamic sample boreholes were progressed to a maximum depth of 5.0mbgl using an Archway Dart drilling rig at locations across the site (WS01 – WS15). Five of the boreholes included the provision of a combined groundwater and ground gas monitoring installation screened within either the made ground or natural ground.

6.2.3 Three hand dug pits (HDP1 – HDP3) were advanced to delineate the extent of potential USTs noted along the northern boundary of the site following a Ground Penetrating Radar (GPR) survey and to allow for the collection of near surface samples for geochemical testing.

6.2.4 Exploratory hole locations are presented in Figure 3 and the reasoning behind each investigation location is given in Table 6.1, as follows:

Table 6.1: Exploratory Hole Rationale

Location	Location Rationale
BH01 & WS01 – WS04 (Area 1)	• Classification and description of deposits underlying the site within the location of the historical garage and northern extent of former engineering works; • Soil screening and sampling of the near surface ground materials for geo-environmental and geotechnical testing; • Standard Penetration Testing to provide a strength profile of ground materials across the site; and • Installation of combined ground gas and groundwater monitoring wells (BH01).

Location	Location Rationale
BH02 & WS05 – WS10 (Areas 2 – 3)	• Classification and description of deposits underlying the site within the location of the former engineering works; • Soil screening and sampling of the near surface ground materials for geo-environmental and geotechnical testing; • Standard Penetration Testing to provide a strength profile of ground materials across the site; and • Installation of combined ground gas and groundwater monitoring wells (BH02, WS06 & WS10).
BH03 & WS11 – WS15 (Area 4)	• Classification and description of deposits underlying the site within the location of the former brewery/ southern site area; • Soil screening and sampling of the near surface ground materials for geo-environmental and geotechnical testing; • Standard Penetration Testing to provide a strength profile of ground materials across the site; and • Installation of combined ground gas and groundwater monitoring wells (BH03, WS12 & WS13).
HDP1 to HDP3 (Area 1)	• Delineation of the extent of suspected USTs situated along the northern boundary of the site; and • Classification and description of near surface deposits for geo-chemical and geotechnical analysis
DCP1 to DCP5	• In-situ DCP testing to provide indicative CBR values for the underlying ground materials.

6.2.5 A detailed description of encountered ground conditions are shown on exploratory hole logs presented in Appendix F.

6.3 Field Testing

6.3.1 Standard Penetration Tests (SPTs) were undertaken at regular intervals within cable percussive and dynamic sample boreholes at depths of between 1.0mbgl and 24.5mbgl to gain an indicative strength profile of the underlying materials. The results of which are presented in Appendix F.

6.3.2 In situ testing using a dynamic cone penetrometer (DCP-TRL) was undertaken by TEC at a five locations across the site. The results are presented in Appendix J.

6.3.3 A MiniRAE Lite (10.6eV UV lamp) photo-ionisation detector (PID) was used on site to screen soil samples for the presence of total volatile organic compounds (VOCs) prior to laboratory testing. The corresponding results are presented on the exploratory hole logs in Appendix F.

6.3.4 Combined groundwater and gas monitoring wells were installed within the three cable percussive boreholes and five dynamic sample boreholes. Upon completion of the intrusive investigation, the groundwater level was taken using a dual phase interface probe dip meter and gas monitoring was undertaken at these locations using a calibrated GFM 430 gas analyser. The results of the gas monitoring are presented in Appendix I.

6.4 Chemical Testing

6.4.1 Laboratory testing was scheduled on the basis of field observations.

6.4.2 Representative soil and groundwater samples were collected and chemically tested at i2 Analytical Ltd, a UKAS/MCERTS accredited laboratory, for a selection of the following parameters:

Soils (Totals and Leachate)

- Asbestos screen;
- Total Organic Carbon (TOC);
- Heavy metals;
- Total Phenols (monohydric), Cyanide (total), Total Sulphate, Sulphide and pH;
- Speciated Polycyclic Aromatic Hydrocarbons (PAHs);
- Fractionated Total Petroleum Hydrocarbons;
- Volatile Organic Compounds (VOCs); and
- Semi-Volatile Organic Compounds (SVOCs).

Waters

- Heavy metals;
- Total Phenols (monohydric), Cyanide (total), Total Sulphate, Sulphide and pH;
- Speciated Polycyclic Aromatic Hydrocarbons (PAHs);
- Fractionated Total Petroleum Hydrocarbons;
- Volatile Organic Compounds (VOCs); and
- Semi-Volatile Organic Compounds (SVOCs).

6.4.3 Geochemical certificates of analysis are presented Appendix G.

6.5 Geotechnical Testing

6.5.1 Selected soil samples were submitted for geotechnical analysis at Geotechnical Engineering Ltd.

6.5.2 Laboratory testing was scheduled upon the basis of field observations for a selection of the following:

- Moisture Content;
- Liquid and Plastic Limits;
- Saturated Moisture Content; and
- pH and Sulphate

6.5.3 Soil geotechnical certificates of analysis are presented in Appendix H.

6.6 General Sampling

6.6.1 Soil samples were collected directly into pre-labelled sample containers. During the course of the sampling care was taken to minimise head space of the sample containers. Once filled sample containers were placed within cool boxes containing ice packs to maintain as cool a temperature as possible, nominally 4^{o}C.

6.6.2 Samples were collected by courier for delivery to the selected laboratories. All samples were accompanied by detailed chain of custody sheets.

7 ENCOUNTERED GROUND CONDITIONS

7.1 Introduction

7.1.1 A summary of encountered ground conditions for the site is provided below.

7.1.2 Detailed descriptions of encountered ground conditions are shown on exploratory hole logs presented in Appendix F.

Made Ground

7.1.3 Made ground was observed to a maximum depth of 3.5mbgl (BH02), although previous site investigation undertaken in the south of the site by WYGE (2003) reported a maximum depth of 7.3mbgl. The made ground was generally observed to be variable across the four sections of the site. A summary of the encountered made ground materials encountered in each section of the site is summarised in Table 7.1 below.

Table 7.1: Encountered Made Ground Materials

Location	Encountered Material
Records Office Car Park (Area 1)	Encountered between 1.5mbgl (WS03) and 2.5mbgl (BH01) and recorded to generally comprise reddish brown to brown sandy gravel of flint, limestone and red brick underlain by light brown to white gravelly sandy silt or clay. The primary gravel components were recorded as chalk, flint and red brick. Cobbles and boulders of red brick were encountered across the site between depths of 1.1mbgl (WS01) and 1.8mbgl (BH01). WS02 and WS04 terminated on obstructions comprising red brick and concrete at depths of 1.25mbgl and 1.5mbgl, respectively.
Registry Office Car Park (Area 2)	Encountered to depths between 0.95mbgl (WS05) and 3.5mbgl (BH02) and generally reported to comprise tarmacadam hardstanding underlain by reddish brown slightly clayey sandy gravel of limestone, red brick and charcoal. In turn, recorded to be underlain by brown locally dark brown and yellowish brown sandy gravel of limestone, tarmacadam, flint, red brick and charcoal underlain by brown locally white slightly sandy gravelly silty clay to the base of the made ground within WS05 and white gravelly clay with gravel of chalk and red brick within WS06.

Location	Encountered Material
Central Section (Area 3)	Encountered to depths of 0.1mbgl (WS10) and 0.3mbgl (WS07) and generally reported to comprise dark brown to light brown gravelly sandy silt or clay with the primary gravel component reported as flint, red brick, chalk and rare glass. Deeper made ground was encountered within one location (WS08), to a depth of 0.9mgl. The made ground was encountered as light brown speckled white and locally yellowish brown slightly sandy slightly clayey gravelly silt. The gravel component within this material was recorded as red brick, chalk, concrete, charcoal and flint. The dynamic sample hole was recorded to terminate on concrete at a depth of 0.9mbgl.
Gladstone Street Car Park (Area 4 - southern site area)	Encountered to depths between 1.1mbgl (WS14) and 3.0mbgl (BH03) and generally recorded to comprise reddish brown to black gravel of limestone, flint and occasional red brick underlain by dark brown locally white slightly clayey sandy gravel of chalk, red brick flint and concrete. This in turn was observed to be underlain by white locally brown, reddish brown or light brown clayey gravel of chalk, red brick, flint and concrete.

Natural Ground

7.1.4 The natural ground was encountered from depths between 0.1mbgl (WS08) and 3.5mbgl (BH02) to a maximum proven depth of 25.0mbgl (BH01). The upper natural materials observed comprised structureless chalk (CIRIA Grade Dm/Dc?) generally recorded as being clayey silt and clayey gravel to a maximum depth of 4.5mbgl (BH02). This in turn was recorded to be underlain by very weak to weak, low to medium density chalk becoming weak to moderately weak, medium to high density chalk with depth. Hard bands of flint were reported at various depths across the site. A CIRIA grade could not be attributed to the encountered chalk as a result of the drilling technique used to advance the boreholes.

7.2 UST Investigation

7.2.1 Following information provided by Winchester City Council and available historical mapping it was understood that a number of underground storage tanks (USTs) were likely to be present along the northern boundary of the site associated with the former onsite garage.

7.2.2 Ground penetrating radar (GPR) survey was undertaken to determine the extent of these potential tanks. A ground anomaly approximately 25 square metres was recorded along the boundary with Station Road.

7.2.3 Two hand dug pits were advanced along the edge of this anomaly to allow for the collection of soil samples for laboratory analysis to determine whether or not they have been impacted by hydrocarbon contamination associated with this feature.

7.2.4 A third hand dug pit was advanced over the potential USTs to determine the depth at which they are situated. The pit was terminated at a depth of 0.74mbgl on a solid material, considered to be potentially the top of an UST.

7.2.5 No visual or olfactory evidence of gross hydrocarbon contamination was noted within the hand dug pits in association with the potential USTs.

7.3 Groundwater and Perched Water

7.3.1 Water strikes encountered during the site works are shown on the exploratory hole logs in Appendix F and summarised in Table 7.2 below.

Table 7.2: Groundwater Strikes

Location	Date	Groundwater Strike (mbgl)	Strata
BH01	22/10/2013	19.6mbgl	Chalk

7.3.2 Groundwater was encountered within one location (BH01) at depth during the drilling process within the moderately weak, high density chalk deposits.

7.3.3 Following completion of the site works, groundwater levels were gauged as part of the ground gas monitoring. The results of the monitoring are presented in Appendix I and Table 7.3.

Table 7.3: Groundwater Levels

Location	Date	Groundwater Levels (mbgl)	Strata
BH01	25/10/2013	18.53	Natural
	13/11/2013	18.28	
	27/11/2013	18.41	
BH02	25/10/2013	Dry	Natural
	13/11/2013		
	27/11/2013		
BH03	25/10/2013	Dry	Natural
	13/11/2013		
	27/11/2013		
WS03	25/10/2013	Dry	Natural
	13/11/2013		
	27/11/2013		
WS06	25/10/2013	Dry	Made Ground
	13/11/2013		
	27/11/2013		
WS10	25/10/2013	Dry	Natural
	13/11/2013		
	27/11/2013		
WS11	25/10/2013	Dry	Natural
	13/11/2013		
	27/11/2013		
WS13	25/10/2013	Dry	Natural
	13/11/2013		
	27/11/2013		

7.4 Contamination Summary

7.4.1 During the intrusive investigation, no visual or olfactory evidence of significant hydrocarbon contamination was observed.

7.4.2 The GPR survey identified an area of buried structures, considered likely to be associated with underground fuel storage tanks along the northern boundary of the site, which is likely to be associated with the former garage situated within this area of the site.

7.4.3 Notwithstanding this, no elevated total Volatile Organic Compounds (VOCs) were recorded within sampled made ground material using a photo-ionisation detector (PID). All concentrations were recorded at 0.0ppm (i.e. below the limit of detection for the instrument).

7.4.4 During the ground gas monitoring, the groundwater level was taken using a Dual Phase Interface Meter, which did not record the presence of any free phase hydrocarbons (NAPL).

7.4.5 No evidence of vertical migration of contamination was observed within BH01 advanced in the northern area of the site.

8 CONTAMINATION CHARACTERISATION

8.1 Legislation

8.1.1 Contaminated Land is defined in Part IIA of the Environmental Protection Act (1990) as:

8.1.2 "Any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reasons of substances in, on or under the land that:

- Significant harm is being caused or there is a significant possibility of such harm being caused;

or

- *significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused."

**Section 86 of the Water Act 2003 amends section 78A of Environmental Protection Act 1990 for Controlled Waters.*

8.2 Generic Quantitative Risk Assessment

Human Health Screening

8.2.1 Current legislation and guidance on the assessment of contaminated land promotes a tiered risk approach (CLR 11). The generic quantitative risk assessment comprises a screening of identified contaminants against generic guideline values that are appropriate to the site setting and the receptors concerned. For risks to human health the basis for these generic guideline values are the methodologies set out by the Environment Agency's Contaminated Land Exposure Assessment (CLEA) guidelines.

Soil Guideline Values

8.2.2 Following release of DEFRA's *Outcome of the "Way Forward" exercise on Soil Guideline Values,* the Environment Agency has recently made significant changes to the CLEA package of software and guidance which resulted in formerly published Soil Guideline Values (SGVs) being withdrawn (August 2008). However, the Environment Agency has an on-going programme of publication of revised SGVs with a number already having been issued with further potential contaminants being reported as nearing publication. Where such revised SGVs have been published these have been utilised as part of the GQRA.

Generic Assessment Criteria

8.2.3 In the absence of published SGVs the GQRA has been undertaken by comparison of recorded values against GACs published by the Chartered Institute of Environmental Health and Land Quality Management (CIEH/LQM 2009) and CL:AIRE/ EIC/ AGS (2009), both of which have been derived using the CLEA model v1.04.

8.2.4 It is understood that the site is proposed to be redeveloped for mainly commercial use and therefore the standard land use for the site, for use in the generic assessment, has been defined as "commercial". Notwithstanding this, an initial comparison of the analytical results with "residential" screening criteria has also been undertaken should any residential use be proposed for the site.

Lead

8.2.5 The updated CLEA software cannot currently be used to derive Soil Guidance Values for lead as current regulatory guidance and commonly accepted good practice for the derivation of such a value is based upon predicted blood lead levels as opposed a threshold or "tolerable" intake values. To maintain consistency with the methodology previously detailed in SGV10, which also reviewed and discounted the IEUBK model for the generation of a GAC, we have derived an interim Generic Assessment Criteria (GAC) for lead using the SEGH model. Details regarding the derivation of this SSV can be provided on request however, based upon a blood lead level Health Criteria Value of 5µg/dl a SSV of 500mg/kg has been derived for a commercial / industrial end use.

Cyanide

8.2.6 In the absence of a published SGV or GAC for cyanide the GQRA for total cyanide is based upon comparison of recorded values against the Dutch Intervention Value for free cyanide (VROM 2000).

Total Petroleum Hydrocarbons

8.2.7 The Environment Agency document titled *'The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils'* (2005) describes the framework for the assessment of petroleum hydrocarbons in the UK. The approach adopted is similar to that detailed by the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG) with assessment of both carcinogenic indicator compounds (e.g. benzene) and the combined threshold effects of various hydrocarbon fractions. TEC have adopted this approach for generic risk assessment purposes with the GAC for the various fractions being derived from current recognised guidance (LQM/CIEH (2009)).

Controlled Waters Screening

8.2.8 Risks to controlled waters have been assessed following current Environment Agency guidance such as "*Remedial Targets Methodology – Hydrogeological Risk Assessment for Land Contamination*". This guidance describes a tiered approach to the assessment and, if necessary, derivation of clean up targets for soils and groundwater with the emphasis on the protection of controlled waters.

8.2.9 In accordance with Environment Agency guidance, a Level 1 soil (leachability) and Level 2 groundwater generic screening assessment has been undertaken, based on the findings of the sampling undertaken as part of this phase of works, to identify the contaminants of concern that may pose a risk to controlled waters. This assessment has been undertaken by the comparison of soil leachate and groundwater contaminant concentrations with criteria applicable to the long term protection of water quality.

8.2.10 Based on our conceptual understanding, the nearest significant controlled water receptor is considered to be the underlying Principal Aquifer. Therefore, analytical results have been assessed against River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Direction 2010, where available. Where such standards are not available, analytical results have been assessed against The Water Supply (Water Quality) Regulations 2010.

Ground Gas Screening

8.2.11 An initial qualitative risk screening assessment based upon the methodology for characterising gassing sites detailed within the following documents has been undertaken:

- CIRIA Report C665 (2007) '*Assessing risks posed by hazardous ground gases to buildings (revised)'*;
- NHBC (March 2007) '*Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present'*;
- BS8485:2007 *'Code of Practice for the characterisation and remediation from ground gas in affected developments'*;
- BS8576:2013 '*Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)';* and
- Wilson S., Card C. and Haines S. (2009) '*Ground Gas Handbook'*.

8.2.12 The objectives of the screening assessment are to provide a general characterisation of the ground materials within the site based on the investigation works undertaken to-date. This information is used to provide a preliminary assessment of gassing potential for the materials encountered at the site. This, together with ground gas data collected as part of the monitoring undertaken to date, is used to provide a qualitative conceptual model of identified risk in relation to the proposed development.

8.3 Soil Analysis - Human Health

8.3.1 Soil samples were collected and analysed from both made ground and natural soils. Certificates of analysis for samples are contained within Appendix G.

8.3.2 Current regulatory guidance for the statistical assessment of environmental data within a contaminated land context is detailed within the CIEH and CL:AIRE joint publication titled '*Guidance on Comparing Soil Concentration Data with a Critical Concentration'* (2008). However, as judgemental sampling has been undertaken, statistical assessment as detailed in CL:AIRE (2008) has not been carried out as part of this assessment. Therefore, to identify Contaminants of Potential Concern (COPC) as part of this preliminary assessment, the analytical results for the ground materials sampled have been assessed by the screening of individual analyses against the relevant Tier 1 Site Screening Values (SSVs) adopted.

8.3.3 For generic assessment purposes, SSVs have been conservatively selected, where appropriate, based upon a sandy soil and Soil Organic Matter (SOM) of 1%.

Made Ground

8.3.4 13No. samples of made ground were scheduled for analysis from the site. The results obtained from made ground are summarised in Table 8.1 below:

Table 8.1: Soil Analysis Summary

Contaminant	Max (mg/kg)	Min (mg/kg)	SSV[1] (mg/kg)	No. of Tests	No. of Exceedances
Arsenic	21	2.2	640	13	0
Boron	1.4	<0.2	192000(1)	13	0
Cadmium	2.6	<0.2	230	13	0
Chromium (III)	31	3.7	30400(2,6)	13	0
Chromium (VI)	<4.0	<4.0	-	6	0
Copper	73	6.5	71700(1)	13	0
Lead	760	13	500(4)	13	**1**
Mercury	1.2	<0.3	3600	13	0
Nickel	29	4.8	1800	13	0
Selenium	<1.0	<1.0	13000	13	0
Zinc	350	27	66500(1)	13	0
Beryllium	1.8	0.2	51(1)	13	0
Vanadium	36	6.5	3160(1)	13	0
Barium	350	19	1300(8)	13	0
Antimony	1.3	<1.0	-	6	0
Cobalt	4.1	1.6	-	6	0
Iron	13000	5100	-	6	0
Manganese	460	190	-	6	0
Molybdenum	0.4	<0.3	-	6	0
Phosphorus	470	240	-	6	0
Tin	3.6	<1.0	-	6	0
Cyanide (Total)	<1	<1	20(3)	13	0
Total Phenol (Monohydric)	<2.0	<2.0	3200	13	0
Water Soluble Sulphate (SO_4) – g/l	0.18	0.0077	-	13	0
Ammonium as NH_4	7.1	<5.0	-	6	0
Calcium	430000	79000	-	6	0
Magnesium	21000	3000	-	6	0
Potassium	910	460	-	6	0
Sodium	200	110	-	6	0
pH	9.8	7.9	-	13	0
Naphthalene	<0.05	<0.05	200(1)	13	0
Acenaphthylene	<0.20	<0.20	84000(1)	13	0
Acenaphthene	<0.10	<0.10	85000(1)	13	0
Fluorene	<0.20	<0.20	64000(1)	13	0
Phenanthrene	1.7	<0.20	200(1)	13	0
Anthracene	0.34	<0.10	530000(1)	13	0
Fluoranthene	3.0	<0.20	23000(1)	13	0
Pyrene	2.5	<0.20	54000(1)	13	0
Benzo(a)anthracene	1.3	<0.20	90(1)	13	0
Chrysene	1.4	<0.05	140(1)	13	0
Benzo(b)fluoranthene	2.1	<0.10	100(1)	13	0
Benzo(k)fluoranthene	0.9	<0.20	140(1)	13	0
Benzo(a)pyrene	1.3	<0.10	14(1)	13	0
Indeno(1,2,3-cd)pyrene	0.44	<0.20	60(1)	13	0
Dibenz(a,h)anthracene	<0.20	<0.20	13(1)	13	0
Benzo(g,h,i)perylene	0.55	<0.05	650	13	0
Total PAH	<2.0	<2.0	-	13	0

Contaminant	Max (mg/kg)	Min (mg/kg)	SSV[1] (mg/kg)	No. of Tests	No. of Exceedances
Benzene	<1.0	<1.0	95	13	0
Toluene	<1.0	<1.0	4400	13	0
Ethylbenzene	<1.0	<1.0	2800	13	0
p & m-xylene	<1.0	<1.0	3200(5)	13	0
o-xylene	<1.0	<1.0	2600	13	0
MTBE	<1.0	<1.0	-	13	0
TPH Aliphatic C5-C6	<0.1	<0.1	3400(1)	13	0
TPH Aliphatic C6-C8	<0.1	<0.1	8300(1)	13	0
TPH Aliphatic C8-C10	<0.1	<0.1	2100(1)	13	0
TPH Aliphatic C10-C12	<1.0	<1.0	10000(1)	13	0
TPH Aliphatic C12-C16	<2.0	<2.0	61000(1)	13	0
TPH Aliphatic C16-C21	<8.0	<8.0	1600000(1)	13	0
TPH Aliphatic C21-C35	52	<8.0		13	0
TPH Aromatic C5-C7	<0.1	<0.1	28000(1)	13	0
TPH Aromatic C7-C8	<0.1	<0.1	59000(1)	13	0
TPH Aromatic C8-C10	<0.1	<0.1	3700(1)	13	0
TPH Aromatic C10-C12	<1.0	<1.0	17000(1)	13	0
TPH Aromatic C12-C16	<2.0	<2.0	36000(1)	13	0
TPH Aromatic C16-C21	13	<10	28000(1)	13	0
TPH Aromatic C21-C35	180	<10	28000(1)	13	0
TPH (C6-C10)	<0.1	<0.1	-	6	0
TPH (C10-C40)	280	<10	-	6	0
Mineral Oil (C10-C40)	52	<10	-	6	0

Notes:

1 SSV based on "*Commercial*" end use
2 LQM/CIEH Generic Assessment Criteria (2009)
3 Dutch Intervention Value for free cyanide (VROM 2000)
4 TEC derived interim GAC for "*Commercial*" end use
5 SSV based on p-xylene "*Commercial*" SGV
6 SSV based on Chromium III GAC
7 Reported as Laboratory Limit of Detection (LOD)
8 CL:AIRE, AGS & EIS based on "*Commercial*" (2009)

8.3.5 A single exceedance was reported for the site for lead at WS06 at 0.25-0.35mbgl (760mg/kg) with regards to a Tier 1 SSV for a commercial site end use. No further exceedances of the Tier 1 SSV for inorganic or organics contaminants were recorded within the sampled made ground materials when considering a commercial site end use.

8.3.6 Notwithstanding this, marginal exceedances of Tier 1 SSVs of benzo(a)pyrene were reported in three locations across the site when considering a residential site end use. These are as follows:

- WS06 at 0.25-0.35mbgl (1.2mg/kg);
- WS08 at 0.1-0.2mbgl (1.1mg/kg); and
- WS11 at 1.2-1.3mbgl (1.3mg/kg)

8.3.7 Laboratory analysis of this material did not record the presence of volatile or semi-volatile organic compounds (VOCs and SVOCs) with all concentrations recorded below the laboratory limit of detect.

Natural Strata

8.3.8 7No. samples of the natural ground were scheduled for chemical testing. A summary of the analytical results are presented in Table 8.2:

Table 8.2: Soil Analysis Summary –Natural Strata

Contaminant	Max (mg/kg)	Min (mg/kg)	SSV[1] (mg/kg)	No. of Tests	No. of Exceedances
Arsenic	<1.0	<1.0	640	2	0
Boron	<0.2	<0.2	192000(1)	2	0
Cadmium	0.2	<0.2	230	2	0
Chromium	1.2	1.0	30400(2,6)	2	0
Copper	3.8	3.7	71700(1)	2	0
Lead	<2.0	<2.0	500(4)	2	0
Mercury	<0.3	<0.3	3600	2	0
Nickel	2.3	<2.0	1800	2	0
Selenium	<1.0	<1.0	13000	2	0
Zinc	70	13	66500(1)	2	0
Beryllium	<0.1	<0.1	51(1)	2	0
Vanadium	2.5	2.1	3160(1)	2	0
Barium	9.1	8.9	1300(8)	2	0
Cyanide (Total)	<1	<1	20(3)	2	0
Total Phenol (Monohydric)	<2.0	<2.0	3200	2	0
Water Soluble Sulphate (SO_4) – g/l	0.13	0.0077	-	2	0
pH	8.2	7.9	-	2	0
Naphthalene	<0.05	<0.05	200(1)	7	0
Acenaphthylene	<0.20	<0.20	84000(1)	7	0
Acenaphthene	<0.10	<0.10	85000(1)	7	0
Fluorene	<0.20	<0.20	64000(1)	7	0
Phenanthrene	<0.20	<0.20	200(1)	7	0
Anthracene	<0.10	<0.10	530000(1)	7	0
Fluoranthene	<0.20	<0.20	23000(1)	7	0
Pyrene	<0.20	<0.20	54000(1)	7	0
Benzo(a)anthracene	<0.20	<0.20	90(1)	7	0
Chrysene	<0.05	<0.05	140(1)	7	0
Benzo(b)fluoranthene	<0.10	<0.10	100(1)	7	0
Benzo(k)fluoranthene	<0.20	<0.20	140(1)	7	0
Benzo(a)pyrene	<0.10	<0.10	14(1)	7	0
Indeno(1,2,3-cd)pyrene	<0.20	<0.20	60(1)	7	0
Dibenz(a,h)anthracene	<0.20	<0.20	13(1)	7	0
Benzo(g,h,i)perylene	<0.05	<0.05	650	7	0
Benzene	<1.0	<1.0	95	7	0
Toluene	<1.0	<1.0	4400	7	0
Ethylbenzene	<1.0	<1.0	2800	7	0
p & m-xylene	<1.0	<1.0	3200(5)	7	0
o-xylene	<1.0	<1.0	2600	7	0
MTBE	<1.0	<1.0	-	7	0
TPH Aliphatic C5-C6	<0.1	<0.1	3400(1)	7	0
TPH Aliphatic C6-C8	<0.1	<0.1	8300(1)	7	0
TPH Aliphatic C8-C10	<0.1	<0.1	2100(1)	7	0
TPH Aliphatic C10-C12	<1.0	<1.0	10000(1)	7	0

Contaminant	Max (mg/kg)	Min (mg/kg)	SSV[1] (mg/kg)	No. of Tests	No. of Exceedances
TPH Aliphatic C12-C16	<2.0	<2.0	61000(1)	7	0
TPH Aliphatic C16-C21	<8.0	<8.0	1600000(1)	7	0
TPH Aliphatic C21-C35	<8.0	<8.0		7	0
TPH Aromatic C5-C7	<0.1	<0.1	28000(1)	7	0
TPH Aromatic C7-C8	<0.1	<0.1	59000(1)	7	0
TPH Aromatic C8-C10	<0.1	<0.1	3700(1)	7	0
TPH Aromatic C10-C12	<1.0	<1.0	17000(1)	7	0
TPH Aromatic C12-C16	<2.0	<2.0	36000(1)	7	0
TPH Aromatic C16-C21	<10	<10	28000(1)	7	0
TPH Aromatic C21-C35	<10	<10	28000(1)	7	0

Notes:
1 SSV based on "*Commercial*" end use
2 LQM/CIEH Generic Assessment Criteria (2009)
3 Dutch Intervention Value for free cyanide (VROM 2000)
4 TEC derived interim GAC for "*Commercial*" end use
5 SSV based on p-xylene "*Commercial*" SGV
6 SSV based on Chromium III GAC
7 Reported as Laboratory Limit of Detection (LOD)
8 CL:AIRE, AGS & EIS based on "*Commercial*" (2009)

8.3.9 No exceedances of the Tier 1 SSV for inorganic or organics contaminants were recorded within the sampled made ground materials when considering a commercial site end use.

8.3.10 In addition, no exceedances of Tier 1 SSV are noted when considering a residential site end use.

8.3.11 Furthermore, all analysed samples recorded concentrations of PAH and TPH to be below the laboratory limit of detection.

8.4 Soil Analysis - Controlled Waters (Leachability)

8.4.1 4No. samples obtained from the made ground were scheduled for leachability analysis. The certificate of analysis is shown in Appendix G with a comparison of results with Tier 1 SSVs shown below in Table 8.3.

Table 8.3: Made Ground Leachability Analysis

Contaminant	Max (µg/l)	Min (µg/l)	SSV (µg/l)[1]	No. of Tests	No. of Exceedances
Arsenic	13	4.3	199	4	0
Boron	27	<10(3)	750	4	0
Cadmium	<0.08(3)	<0.08(3)	1.1	4	0
Chromium	4.4	0.8	27.6	4	0
Copper	13	2.6	57.8	4	0
Lead	4.5	2.7	39.8	4	0
Mercury	<0.5(3)	<0.5(3)	0.75	4	0
Nickel	1.9	<0.3(3)	116	4	0
Selenium	<4.0(3)	<4.0(3)	10(2)	4	0
Zinc	12	4.9	414	4	0
Beryllium	<0.2(3)	<0.2(3)	-	4	-
Vanadium	19	<1.7(3)	-	4	-
Barium	63	12	-	4	-
Cyanide (Total)	<10(3)	<10(3)	50(2)	4	0

Total Phenol (Monohydric)	<10[3]	<10[3]	7.5	4	0
Sulphide	<5.0[3]	<5.0[3]	-	4	-
pH	9.8	8.1	-	4	-
Naphthalene	<0.01[3]	<0.01[3]	13.2	4	0
Acenaphthylene	<0.01[3]	<0.01[3]	-	4	-
Acenaphthene	<0.01[3]	<0.01[3]	-	4	-
Fluorene	<0.01[3]	<0.01[3]	-	4	-
Phenanthrene	<0.01[3]	<0.01[3]	-	4	-
Anthracene	<0.01[3]	<0.01[3]	0.55	4	0
Fluoranthene	<0.01[3]	<0.01[3]	0.6	4	0
Pyrene	<0.01[3]	<0.01[3]	-	4	-
Benzo(a)anthracene	<0.01[3]	<0.01[3]	-	4	-
Chrysene	<0.01[3]	<0.01[3]	-	4	-
Benzo(b)fluoranthene	<0.01[3]	<0.01[3]	-	4	-
Benzo(k)fluoranthene	<0.01[3]	<0.01[3]	-	4	-
Benzo(a)pyrene	<0.01[3]	<0.01[3]	0.075	4	0
Indeno(1,2,3-cd)pyrene	<0.01[3]	<0.01[3]	-	4	-
Dibenz(a,h)anthracene	<0.01[3]	<0.01[3]	-	4	-
Benzo(g,h,i)perylene	<0.01[3]	<0.01[3]	-	4	-

Notes:

1 SSV based upon Groundwater Threshold Values from The Water Framework Directive (England and Wales) Directions (2010), unless otherwise stated.
2 The Water Supply (Water Quality) Regulations 2010
3 Laboratory Limit of Detection

8.4.2 The analytical results record concentrations of leachable contaminants of potential concern to be below the relevant Level 1 SSV. Concentrations of organic contaminants (i.e. PAHS) were recorded below the laboratory limit of detect in all samples analysed.

8.5 Controlled Waters - Groundwater Analysis

8.5.1 Groundwater samples were taken from one location (BH01). Certificates of analysis are contained in Appendix G with results being summarised below in Table 8.4.

Table 8.4: Groundwater Analysis Summary

Contaminant	BH01 (µg/l)	SSV (µg/l)[1]	No. of Exceedances
Arsenic	7.7	199	0
Boron	42	750	0
Cadmium	<0.08[3]	1.1	0
Chromium	8.4	27.6	0
Chromium (VI)	<5.0[3]	3.4	0
Copper	0.19	57.8	0
Lead	27	39.8	0
Mercury	<0.5[3]	0.75	0
Nickel	0.4	116	0
Selenium	<4.0[3]	10[2]	0
Zinc	4.8	414	0
Beryllium	<0.2[3]	-	-
Vanadium	<1.7[3]	-	-
Barium	9.2	-	-
Antimony	<1.7[3]	5[3]	0

Contaminant	BH01 (µg/l)	SSV (µg/l)[1]	No. of Exceedances
Cobalt	0.4	-	-
Iron	0.19	0.2[3]	0
Manganese	27	-	-
Molybdenum	<0.4[3]	-	-
Phosphorus	74.5	-	-
Tin	<1.0[3]	-	-
Ammonium as NH_4	16	500[3]	0
Calcium	170	-	-
Magnesium	2.9	-	-
Potassium	1.7	-	-
Sodium	13	113	0
pH	7.1	-	-
Naphthalene	<0.01[3]	13.2	0
Acenaphthylene	<0.01[3]	-	-
Acenaphthene	<0.01[3]	-	-
Fluorene	<0.01[3]	-	-
Phenanthrene	<0.01[3]	-	-
Anthracene	<0.01[3]	0.55	0
Fluoranthene	<0.01[3]	0.6	0
Pyrene	<0.01[3]	-	-
Benzo(a)anthracene	<0.01[3]	-	-
Chrysene	<0.01[3]	-	-
Benzo(b)fluoranthene	<0.01[3]	-	-
Benzo(k)fluoranthene	<0.01[3]	-	-
Benzo(a)pyrene	<0.01[3]	0.075	0
Indeno(1,2,3-cd)pyrene	<0.01[3]	-	-
Dibenz(a,h)anthracene	<0.01[3]	-	-
Benzo(g,h,i)perylene	<0.01[3]	-	-
Total PAH	<0.20[3]	-	-
Benzene	<1.0[3]	55.2	0
Toluene	<1.0[3]	276	0
Ethylbenzene	<1.0[3]	-	-
p & m-xylene	<1.0[3]	37.5	0
o-xylene	<1.0[3]	-	-
MTBE	<1.0[3]	-	-
TPH Aliphatic C5-C35	<10[3]	-	-
TPH Aromatic C5-C35	<10[3]	-	-

Notes:

1 SSV based upon Groundwater Threshold Values from The Water Framework Directive (England and Wales) Directions (2010), unless otherwise stated.
2 The Water Supply (Water Quality) Regulations 2010
3 Laboratory Limit of Detection

8.5.2 The laboratory analysis of the groundwater recorded concentrations of organic and inorganic determinands to be below the Tier 2 screening values deemed protective of controlled waters receptors.

8.5.3 In addition to the above, no Volatile Organic Compounds (VOCs) or Semi-Volatile Organic Compounds (SVOCs) were recorded above the laboratory limits of detection.

8.6 Ground Gas

8.6.1 3no. rounds of ground gas monitoring have been undertaken at the site at the time of this assessment.

8.6.2 All gas monitoring was undertaken using a calibrated GFM 430 infra red gas analyser fitted with an internal flow pod. The monitoring results are presented in Appendix I and summarised in Table 8.5 below.

Table 8.5: Summary of Ground Gas Monitoring Data

Borehole	Response Zone/Strata	Evidence of potential source of ground gas	No. of monitoring occasions	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Flow (l/hr)	Water levels (mbgl)	Range of atmospheric pressure (mb)
BH01	Natural	None	3	0.00	0.9 (0.0)	18.1 (18.3)	0.3 (-0.1)	18.53-18.28	996-1027
BH02	Natural	None	3	0.00	4.1 (1.3)	15.6 (18.5)	0.5 (0.1)	Dry	996-1025
BH03	Natural	None	3	0.00	0.0	19.8 (20.4)	0.0	Dry	996-1025
WS03	Natural	None	3	0.00	1.5 (0.6)	15.4 (19.8)	0.0	Dry	996-1027
WS06	Made Ground	None	3	0.00	1.5 (1.3)	17.7 (18.2)	0.1 (0.0)	Dry	996-1025
WS10	Natural	None	3	0.00	1.6 (0.8)	16.9 (19.3)	0.3 (-0.1)	Dry	996-1025
WS11	Natural	None	3	0.00	0.4 (0.0)	19.9 (20.1)	0.0	Dry	996-1024
WS13	Natural	None	3	0.00	0.3 (0.0)	19.4 (20.0)	0.0 (-0.1)	Dry	996-1024

8.6.3 Atmospheric pressure was recorded between 996mb and 1027mb during the monitoring visits. Atmospheric pressure was generally reported to be falling prior to the monitoring visits, with low pressure recorded during the first round of monitoring.

8.6.4 Maximum instantaneous flow rates between 0.4l/hr and 1.0l/hr were recorded within the monitored deeper boreholes (BH01 – BH03), with maximum stable flow rates of 0.1l/hr recorded.

8.6.5 No concentrations of methane were recorded during any of the monitoring visits (i.e. below the limit of detection of the instrument (0.0%v/v)). The methane concentrations recorded are below the screening levels presented in current guidance for a low sensitivity end use (i.e. 1% for non-residential developments).

8.6.6 Concentrations of up to 4.1%v/v for carbon dioxide were recorded (BH02 during the second monitoring visit on 13 November 2013). All carbon dioxide concentrations recorded during the monitoring visits are below the screening levels presented in current guidance for a low sensitivity end use (i.e. 5% carbon dioxide for non-residential developments).

8.6.7 Reduced concetrations of oxygen were also recorded within BH02 (15.6%v/v), WS03 (15.4%v/v) and WS10 (16.9%v/v). No elevated concentrations of hydrogen sulphide or carbon monoxide were recorded during the monitoring visits.

8.6.8 Based on the ground gas monitoring undertaken to date, the proposed development area would be characterised, in accordance with current guidance (CIRIA C665) as have a maximum Gas Screening Value of 0.0l/hr for methane and 0.0041l/hr for carbon dioxide (based on maximum flow rates of 0.5l/hr, 0.0%v/v for methane and a steady flow of 0.1l/hr and 4.1%v/v for carbon dioxide).

8.6.9 Therefore, on the basis of Gas Screening Values recorded to date, site observations and maximum recorded concentrations, the site would be placed into Characteristic Situation 1 (<0.07l/hr) in accordance with the Revised Wilson and Card Classificiation detailed within CIRIA C665 for developments other than low rise housing. While, this is reported to be generally characteristic of naturally occuring soils observed on site, a futher two rounds of monitoring is proposed to confirm the gas regime at the site.

8.6.10 Notwithstanding this, information provided within the WYGE report undertaken across the site in 2003 (Ref: REPORT/E3696/JAV/NOV03/GTR/V2) reported a localised area of made ground comprising decayed organic matter to a depth of 7.3mbgl (BH103), which may provide a potential source for ground gas generation within the site. No ground gas monitoring is reported to have been undertaken as part of the works by WYGE. However, no evidence of this material was encountered during the current phase of investigation, including in exploratory holes located in proximity to the borehole where this material was formerly identified (WS13, WS15 and BH03).

8.6.11 The site is not situated within a Radon Affected Area as less than 1% of homes are reported above the Action Level. Therefore, no radon protective measures are required in the construction of new dwellings or extensions.

9 REFINED CONCEPTUAL MODEL

9.1 Introduction

9.1.1 The Preliminary Risk Assessment undertaken as part of this report identified the presence of potential significant pollutant linkages associated with the site and surrounds. Therefore, in accordance with the approach recommended in CLR11, additional information was collected about the site and its surroundings as part of a Generic Quantitative Risk Assessment. Based upon this additional information, the site conceptual model has been refined and pollutant linkages confirmed for evaluation where considered necessary.

9.2 Hazard Identification

9.2.1 Potential sources of contamination have been identified on and within the vicinity of the site and are presented in Table 9.1.

Table 9.1: Identified Hazards

Identified Hazard / Source	Location	Details
Made Ground	On site	Made ground was reported to a maximum observed depth of 3.0mbgl (BH03). No visual or olfactory evidence of significant contamination was recorded at the site. A single exceedance of the Tier 1 SSV with regards to a commercial site end use was reported for lead (760mg/kg). In addition, when considering a residential end use for the site, three marginal exceedances of benzo(a)pyrene were reported following laboratory analysis. The general made ground encountered within the exploratory locations is not considered to be a potential significant source of ground gas based on its observed composition and general limited thickness (i.e. <3.0m thick and with low degradable organic content). Notwithstanding this, during the previous phase of investigation undertaken by WYGE in 2003, made ground comprising decayed organic matter was reported to a depth of 7.3mbgl in one location in the southern Gladstone Street car park, which may provide a potential source for ground gas generation, although this material was not encountered during the present phase of investigation.

Identified Hazard / Source	Location	Details
Potential contamination associated with historical engineering works, brewery and garage (with reported USTs and fuel pumps and associated infrastructure)	On site	Former hydrocarbon storage has been reported on site associated with the former garage present in the northern section of the site. A GPR survey identified an anomaly within the ground in the northern section of the site thought likely to be associated with these potential USTs. In addition, a historical brewery and engineering works have been recorded on site. No visual or olfactory evidence of gross contamination was reported on site during the intrusive investigation. Laboratory analysis of soil samples from the natural strata reported concentrations of determinands below the Tier 1 SSV for a commercial site end use (and a residential site end use). In addition, a single groundwater sample collected from within the vicinity of the reported former garage and engineering works recorded concentrations of determinands to be below the Tier 2 SSVs deemed protective of the underlying Principal Aquifer (concentrations of PAH and TPH compounds were recorded to be below the laboratory limit of detect).
Potentially contaminative current and historic processes off site	Off site	A number of potentially contaminative current and historic land uses were reported in proximity to the site. Notwithstanding this, no evidence of contamination was reported during the intrusive investigation and laboratory analysis of natural ground materials reported no exceedances with regards to a commercial site end use. A single groundwater sample collected from the site did not identify potential on-site migration of contaminants with all concentrations of determinands reported below Tier 2 SSVs.

9.3 Identified Potential Receptors and Pathways

9.3.1 Potential receptors identified as part of the generic risk assessment are:

- Current/future site users;
- Construction workers; and
- Controlled waters (Principal Aquifer and surface waters)

9.3.2 Potential contaminant pathways identified as part of the generic risk assessment include:

- Dermal contact – contact with soil, dust or water;
- Ingestion - ingestion of soil, dust or water;
- Inhalation – inhalation of soil, dust or vapours;

- Vertical migration – seepage of contaminants at the ground surface (i.e. leakage/spillage of hydrocarbons) through cracks in hardstanding and/or leaching of contaminants within the unsaturated zone resulting in vertical contaminant migration; and
- Horizontal migration – lateral migration of contaminants within the saturated zone and along preferential pathways such as drainage pipe bedding.

9.4 Hazard Assessment and Risk Estimation

9.4.1 Potential significant pollutant linkages identified following completion of the intrusive works are summarised in the Refined Site Conceptual Model presented in Table 9.2.

Table 9.2: Refined Conceptual Model (Hazard Assessment and Risk Estimation)

Identified Hazard / Source	Identified Receptor	Potential Pathway to Receptors	Associated Hazard	Scale of Impact	Potential Consequence of Source-Receptor Linkage	Potential Likelihood for Significant Source-Receptor Linkage	Risk Classification
Made Ground	Site end users and construction workers	Exposure to potential contaminants through ingestion, inhalation and dermal contact.	Risk of harm to human health	Local	Medium	**Unlikely to Low Likelihood:** Made ground was encountered across the site to a maximum depth of 3.0mbgl (previously reported by WYGE up to 7.3mbgl in a localised area of the site). A single exceedance of lead was recorded of the SSVs for a commercial site end use and three marginal exceedances of benzo(a)pyrene with regards to a residential site end use. Short term (acute) exposure to the identified contaminant levels is not considered likely to cause harm to construction workers, provided appropriate health and safety procedures and brown field working practices are observed.	**Low Risk**
	Controlled waters	Infiltration of water through made ground and unsaturated zone resulting in leaching of contaminants and potential vertical and horizontal migration of contaminants to and within controlled waters.	Risk to controlled waters (Principal Aquifer and surface waters)	Local to Regional	Medium	**Unlikely:** Concentrations of some PAHs and lead were recorded within the sampled near surface made ground in exceedance of human health SSV. Notwithstanding this, no evidence of gross contamination was observed on site during the intrusive investigation. Furthermore, leachability analysis undertaken recorded no exceedances of the screening values deemed protective of identified controlled waters receptors. In addition, groundwater was only encountered in one location, at a depth of greater than 19mbgl. Therefore vertical migration of identified COPCs within the made ground into the underlying aquifer is considered to be unlikely.	**Low Risk**

Identified Hazard / Source	Identified Receptor	Potential Pathway to Receptors	Associated Hazard	Scale of Impact	Potential Consequence of Source-Receptor Linkage	Potential Likelihood for Significant Source-Receptor Linkage	Risk Classification
	Future site end users and proposed development structures	Migration, ingress and inhalation of ground gasses	Risk of harm to human health and buildings	Local	Medium to Severe	**Unlikely (General made ground)**: Based upon the observed thickness and composition of the general made ground encountered on site, and in accordance with current guidance, the ground gas generation potential of this material is considered to be very low. **Low Likelihood (localised deep made ground):** A localised area of decayed organic matter was reported to a maximum depth of 7.3mbgl during a previous phase of investigation by WYGE in 2003, which may provide a localised source for ground gas generation. This material was not observed during the recent phase of works.	**Low Risk** **Low to Moderate Risk**
Potential contamination associated with historical processes including a former garage with reported USTs and fuel pumps, a brewery and an engineering works	Site end users and construction workers	Exposure to contaminants through ingestion, vapour inhalation and dermal contact.	Risk of harm to human health	Local	Medium	**Low Likelihood:** No evidence of gross hydrocarbon contamination was observed on site during the intrusive investigation, confirmed by the laboratory testing of encountered ground materials. Furthermore, no visual or olfactory evidence of hydrocarbon contamination was observed within the targeted dynamic sample boreholes and hand dug pits surrounding this feature. Notwithstanding this, consideration to the removal of these features will be required prior to the redevelopment of the site and the potential for hydrocarbon contamination to be present beneath these suspected tanks cannot be fully discounted.	**Low to Moderate Risk**
	Controlled waters	Vertical migration of hydrocarbon contamination through made ground and underlying natural strata and potential horizontal migration along preferential pathways.	Risk to aquifer quality	Local and regional	Medium	**Unlikely:** No evidence of gross hydrocarbon contamination was observed on site during the intrusive investigation, confirmed by the laboratory testing of encountered ground materials. Groundwater was only encountered in one location, at a depth of greater than 19mbgl. Leachability and groundwater analysis undertaken recorded no exceedances of the screening values deemed protective of identified controlled waters receptors.	**Low Risk**

Identified Hazard / Source	Identified Receptor	Potential Pathway to Receptors	Associated Hazard	Scale of Impact	Potential Consequence of Source-Receptor Linkage	Potential Likelihood for Significant Source-Receptor Linkage	Risk Classification
Potentially contaminative current and historic on-site and off-site processes	Site users, construction worker and controlled waters	Potential on site contaminant/gas migration from off-site sources	Risk to human health and controlled waters on site	Local	Medium	**Unlikely:** Potentially contaminative historic land uses have been recorded on and off site. Notwithstanding this, no visual or olfactory evidence of contaminant migration on to site was observed during TECs intrusive investigation. Given this and the distance to identified potential off-site sources, the potential likelihood of significant on-site contaminant migration would be considered unlikely.	**Low Risk**

10 GROUND ENGINEERING

10.1 Proposed Development

10.1.1 The final development plan for the site has not be made available to TEC. Notwithstanding this, it is understood that the proposed development is likely to comprise a mixed use development with commercial and potential residential buildings approximately three to four storeys in height along with potential basement car parking and areas of open recreational space.

10.1.2 Although full details of the proposed development have not yet been made available to TEC, for the purposes of this preliminary assessment loadings of up to 150kN per metre run and column loads of up to 1000kN have been assumed appropriate. Consequently, only preliminary ground engineering recommendations are provided here and there is likely to be a requirement for detailed ground investigation work in order to provide specific design parameters for the proposed scheme.

Site Preparation

10.1.3 It is understood that a number of services are present across the site area. Due consideration to realignment/ and or removal of any existing services on site should be given as appropriate.

10.1.4 Consideration will need to be given to the removal of hardstanding encountered across the site, in addition, potential foundations associated with historical onsite buildings were encountered in the southern Gladstone Street car park and within the northern section of site within the Records Office car park. A previous ground investigation undertaken for Hampshire County Council (1990) included a radar survey, which identified remnant walls and floors at depths up to 1m, a possible cellar and a suspected pit at a depth of approximately 2.0m. Consideration for the appropriate removal of these potential below ground obstructions will be required prior to the construction of the proposed development.

10.1.5 A previous investigation undertaken by WYGE in 2003 (Ref: REPORT/E3696/JAV/NOV03/GIR/V2) reported made ground comprising decayed organic matter to a depth of 7.3mbgl in a single location located within the centre of the southern Gladstone Street car park. It was considered by WYGE that this may be associated with a possible solution feature in the chalk. As a consequence, suitable ground treatment may be required in this area to allow construction of the proposed development.

10.1.6 Information provided by Winchester City Council indicates a number of Underground Storage Tanks (USTs) may be present in the northern section of the site, associated with a former garage situated in this area. Further, the GPR survey identified a number of potential buried structures, considered likely to be associated with these USTs along the northern boundary of the site. It is understood from information provided by WCC Environmental Health that these USTs are concrete filled. However, it cannot be discounted, that if present removal of them could have an impact upon nearby current structures (e.g. buildings). Furthermore, additional investigation will need to be undertaken to determine their impact, if any, on proposed development structures and would be recommended to confirm the tanks have been decommissioned (concrete filled) as records indicate.

10.1.7 In addition, it is understood that a number of trees and shrubs will be retained on site. Consideration to the root zones of these trees should be given, as appropriate.

10.2 Ground Conditions

Made Ground

10.2.1 Made ground was encountered across the site to a maximum depth of 3.5mbgl (BH02) and was recorded as variable across the site. Notwithstanding this, a previous investigation undertaken by WYGE in 2003 (Ref: REPORT/E3696/JAV/NOV03/GIR/V2) reported made ground comprising decayed organic matter to a depth of 7.3mbgl in a single location located within the centre of the southern Gladstone Street car park. It was considered by WYGE that this may be associated with a possible solution feature in the chalk.

10.2.2 No geotechnical testing was undertaken on samples of the made ground. However, as a part of the geochemical testing undertaken for the site, pH and sulphate testing was undertaken on samples of encountered made ground. The test data indicated sulphate concentrations in the range of 0.0077g/l to 0.18g/l and pH values of 7.9 to 9.8.

10.2.3 The natural ground was encountered from depths between 0.1mbgl and 3.0mbgl to a maximum recorded depth of 25.0mbgl (BH01) and was generally observed to comprise structureless chalk (CIRIA Grade Dm/Dc?) generally recorded as clayey silt and clayey gravel to a maximum depth of 4.5mbgl (BH02). This in turn was recorded to be underlain by very weak to weak, low to medium density chalk becoming weak to moderately weak, medium to high density chalk with depth. Hard bands of flint were reported throughout the borehole. A CIRIA grade could not be attributed to the encountered chalk as a result of the drilling technique used to advance the boreholes.

10.3 Geotechnical Laboratory Data

10.3.1 Geotechnical laboratory analysis was conducted on 6no. samples of the chalk (natural strata). In addition, as part of the geochemical analysis, 2no. samples of the natural strata were tested for pH and water soluble sulphate. The results of these analyses are presented in Table 10.1 below.

10.3.2 Geotechnical test results are discussed below. Geotechnical laboratory test certificates are provided in Appendix H with in-situ tests being presented on the exploratory hole logs in Appendix F of this report.

Table 10.1: Summary of Laboratory Test Results - Natural Strata

Test	Number of Tests	Range of Results
Saturation Moisture Content – Chalk (%)	1	26
Moisture Content (%)	3	26 - 29
Porosity (%)	1	41
Dry Density (Mg/m^3)	1	1.6
Plasticity Index (%)	3	5 - 7
% passing 425µm sieve	3	67 - 89
SPT 'N' Values – Chalk	70	13 - >50
pH Value	6	8.7 - 8.9
SO_4 (g/l in soil)	6	<0.1 - 0.10

Test	Number of Tests	Range of Results
Geochemical Analysis		
pH Value	2	7.9 - 8.2
SO_4 (g/l in soil)	2	0.0077 - 0.13

10.3.3 An intact sample of the encountered chalk material was submitted for laboratory analysis of its Saturation Moisture Content (SMC). The results of single test recorded a dry density value of 1.6Mg/m^3, indicating the chalk to be of medium density. Notwithstanding this, historic testing in the vicinity of the site suggested the chalk to be of variable density with test results indicating low to high density chalk being present.

10.3.4 Cohesive deposits were not encountered at the site, with the exception of a single thin band of gravelly clay (2.3m – 2.5m) recorded overlying the chalk within BH01. Plasticity Indices of the sampled underlying chalk materials ranged between 5% and 7%, suggesting the materials to be non-plastic, as defined by the NHBC (2013). It is noted that the geotechnical laboratory describe the material submitted for testing as sandy chalk putty with some gravel.

10.3.5 Standard Penetration Tests (SPTs) undertaken within the chalk materials recorded 'N' values between 13 and >50. High 'N' values were recorded in a number of locations may be attributed to flint bands encountered across the site.

10.3.6 Both the geotechnical and geochemical testing on the natural ground included the analysis for water soluble sulphate and pH testing within the natural ground. The results indicate sulphate concentrations of between 0.0077g/l 0.13g/l and pH values of between 7.9 and 8.9.

10.4 Foundations

Ground Conditions

10.4.1 The natural ground was encountered from depths between 0.1mbgl and 3.5mbgl and observed to a maximum recorded depth of 25.0mbgl (BH01). The upper natural materials were generally observed to comprise structureless chalk (CIRIA Grade Dm/Dc?) (recorded as clayey silt and clayey gravel to a maximum depth of 4.5mbgl (BH02)). This in turn was recorded to be underlain by very weak to weak, low to medium density chalk becoming weak to moderately weak, medium to high density chalk with depth. Hard bands of flint were reported throughout the borehole. A CIRIA grade could not be attributed to the encountered chalk as a result of the drilling technique used to advance the boreholes.

Records Office Car Park (Area 1)

10.4.2 Chalk was recorded in three of the exploratory holes at depths between 1.3m and 2.5m (BH01) with the other exploratory holes terminated within made ground on brick obstructions. Competent chalk, recorded as very weak to weak and weak low to medium density chalk, was recorded at depths between 2.0m and 5.8m (BH01).

Registry Office Car Park (Area 2)

10.4.3 Chalk was recorded in all three of the exploratory holes at depths between 0.95m and 3.5m (BH02). Competent chalk, recorded as very weak to weak and weak low to medium and medium density chalk, was recorded at depths between 1.5m and

4.5m (BH02) and was recorded directly underlying made ground at a depth of 1.9m in WS06.

Central Section (Area 3)

10.4.4 Chalk was recorded in three of the exploratory holes at depths between 0.1m and 0.3m with WS08 being terminated within made ground on concrete at 0.9m. Competent chalk, recorded as very weak to weak and weak low to medium and medium density chalk, was recorded at depths between 0.3m and 0.6m.

Gladstone Street Car Park - (Area 4)

10.4.5 Chalk was recorded in four of the exploratory holes at depths between 1.0m and 2.95m with the other exploratory holes terminated with made ground on obstructions at depths between 1.9m and 3.0m. Competent chalk, recorded as very weak to weak and weak low to medium and medium density chalk was recorded at depths between 1.0m and 3.5m (BH03).

10.4.6 It should be noted that a previous investigation undertaken by WYGE in 2003 (Ref: REPORT/E3696/JAV/NOV03/GIR/V2) reported made ground comprising decayed organic matter to a depth of 7.3mbgl in a single location located within the centre of the southern Gladstone Street car park. It was considered by WYGE that this may be associated with a possible solution feature in the chalk. Furthermore, a previous ground investigation undertaken for Hampshire County Council (1990) included a radar survey, which identified a number of below ground structures within the car park area. No evidence for the removal of these structures has been obtained and therefore, it should be assumed that these features remain in situ within this area of the site.

Preliminary Ground Engineering Design Recommendations

10.4.7 On the basis of the field observations and ground conditions encountered together with the potential loads associated with the proposed three to four storey buildings, it is considered that conventional foundations may be suitable for relatively light weight structures at the site, founding within competent chalk recorded from depths of 0.3mbgl. Similarly, in some areas it is considered that the use of raft foundations may be appropriate to reduce ground pressures to below the chalk yield stress.

10.4.8 The ground materials have been recorded as non-plastic, in accordance with NHBC (2013) guidance, and therefore as general guidance would require a minimum founding depth of 0.75mbgl to be adopted within the design.

10.4.9 However, a significant thickness of made ground has been recorded at locations across the site. As a result of this, together with the presence of structureless chalk recorded to depths in excess of 5m (BH01) and the anticipated loads likely to be derived from the proposed structures, it is considered that that a piled solution may be the most appropriate founding solution for the proposed three to four storey scheme, founding within competent chalk encountered from depths of 0.3mbgl to 5.8mbgl (BH01).

10.4.10 Further, it should be noted that the Envirocheck© report records a number of man-made mining cavities in proximity to the site, all related to possible voids being encountered during piling operations within the chalk. In addition, a possible solution feature was recorded during previous investigation works by WYGE in the south-east of the site, with infilled ground/ made ground recorded to a depth of 7.3m. Notwithstanding this, while no evidence of solution features was reported

during the recent preliminary investigation works undertaken by TEC, due consideration should be given to the potential presence of voiding within the chalk.

Basement Wall / Pile Design

10.4.11 As a result of the presence of significant thicknesses of made ground across the site, it is considered that a cantilevered or propped/anchored piled wall system may be most suitable to form proposed basements. Further, when choosing the most appropriate pile type, it is suggested that a specialist piling contractor should be consulted regarding the piling options and detailed design of most appropriate option. However, it is assumed that owing to the proximity of adjacent structures and the environmental sensitivity of the site the use of either bored or CFA piles would be most appropriate.

10.4.12 CIRIA C574 recommends that for Upper Chalk, as encountered at the site, typical friction values (φ′) of between 33° and 40° with a cohesion intercept of 20kN/m^2 are typical. Consequently, it is suggested that moderately conservative design parameters of c' = 20kN/m² and φ′ = 39° and worst credible parameters of c' = 0 and φ′ = 34° are likely to be appropriate.

10.4.13 However, it should be noted that chalk generally requires only very small strains for the in situ at-rest pressures to reduce significantly to a value that, in the limit, is a function of strength. For unpropped embedded walls, excavation on one side of the wall will lead to small wall deflections sufficient to reduce earth pressures behind the wall to an overall active state over most of the retained height, whereas earth pressures behind a propped retaining wall after excavation will be dependent on prop stiffness and stress redistribution.

10.4.14 CIRIA C574 recommends that values of K_a should be based on the effective angles of friction, therefore, K_a values would typically range from 0.2 to 0.3. This assumes a worst case of a discontinuity inclined at an angle φ′ behind the back of the wall.

10.4.15 CIRIA Report C574 recommends that the following empirical relationship should be adopted for estimating the ultimate average shaft resistance, T_{sf}, of bored piles in medium density chalk.

$$T_{sf} = 0.8 \times \sigma_v'$$

where σ_v' is the average effective stress resulting from the overlying chalk.

10.4.16 Further, for CFA piles the CIRIA report recommends the ultimate average shaft resistance should be estimated from

$$T_{sf} = 0.45 \times \sigma_v'$$

where σ_v' is the average effective stress resulting from the overlying chalk.

10.4.17 However, it should be noted that the CIRIA report indicates this relationship to be proven where the ultimate average shaft resistance, T_{sf}, is below 110kN/m^2 and the average effective stress, σ_v', is below 200kN/m^2.

10.4.18 CIRIA Report C574 recognises that SPT N value is an imprecise method of measuring the strength of chalk at the base of a pile. However, it also indicates that until a better, more economical method has been found, it is likely to persist. The report recommends that, subject to the limitation of the crushing strength of concrete, the following ultimate base stresses be adopted:

Bored piles - ultimate base stress, q_u = 200 x 'N' kN/m^2

CFA piles - ultimate base stress, q_u = 200 x 'N' kN/m^2

Basement Floor Slabs

10.4.19 Although design details have not been provided, it is assumed that basements will be formed within the underlying low to medium density chalk. CIRIA Report C574 provides correlations between dry density and Secant Modulus. However, owing to the method of investigation it was not possible to reliably determine the chalk grades encountered and, while it is recognised that further investigation may determine more reliable density characteristics for the chalk encountered at the site, it is suggested that a preliminary modulus value of in the order of 1000MN/m^2 for a Grade C, i.e. joints open and less than 3mm, low density chalk, is assumed for design at this stage.

Ground Floor Slabs

10.4.20 Made ground was recorded up to 3.5mbgl below current ground level (BH02) requiring floor slabs to be suspended where at approximate ground level.

10.4.21 Notwithstanding this, where fill material is less than 600mm and the proposed structure is wholly within competent natural ground or following removal of the made ground, a ground bearing slab may be utilised. CIRIA Report C574 suggests that a preliminary modulus value of in the order of 75MN/m2 for a Grade Dc is assumed for design at this stage.

10.5 Preliminary Pavement Design

10.5.1 Five Dynamic Cone Penetrometer (DCP-TRL) tests were undertaken across the site. The results are presented in Appendix J.

10.5.2 Using the UKDCP software package, the results indicated California Bearing Ratio (CBR) values of between 1% and 101% across the site. CBR values of between 11% and 101% were recorded below the assumed formation level (500mmbgl). Based upon the DCP data obtained to-date, an estimated CBR value of >10% is suggested for preliminary design purposes where within natural ground.

10.5.3 Notwithstanding this, given the significant thickness of made ground encountered across the site (greater than 600mm), a CBR value of <2.5% would be recommended for preliminary design purposes where road formation is proven to be within potential made ground deposits owing to the inherent variability of this material.

10.5.4 It should be noted that all road formations should be proof rolled and soft spots removed and replaced with selected granular fill and, where adoptable, a pavement of sufficient thickness (>450mm) to prevent the penetration of frost should be employed.

10.6 Excavations

10.6.1 Excavation of the materials immediately beneath the site should be achievable using conventional excavation plant.

10.6.2 Based on the observations made during the recent intrusive works, groundwater ingress is unlikely to be a significant issue within excavations. Therefore, significant dewatering works are unlikely to be required during excavation and formation works.

10.6.3 Consideration should be given to the utilisation of appropriate temporary works during any excavation works within the made ground recorded at the site.

10.6.4 Where excavations extend beyond 1.2m depth and are within soils, it is recommended that appropriate shoring/temporary works is used i.e. in accordance with current Health and Safety requirements where access for personnel is required.

10.7 Protection of Buried Concrete

10.7.1 In accordance with BRE Special Digest 1, the made ground sampled yielded an Aggressive Chemical Environment Class (ACEC) of AC-1. The results of the water soluble sulphate content and pH testing carried out on the samples of the made ground showed the materials to fall into Class DS-1.

10.7.2 In addition, the results of the water soluble sulphate content and pH testing carried out on the samples of the natural ground yield an Aggressive Chemical Environment Class (ACEC) of AC-1 requiring Design Sulphate Class DS-1.

10.7.3 Consequently, following the recommendations of BRE SD1:2005, it is recommended that a Design Sulphate Class DS-1 is utilised.

11 CONCLUSIONS & RECOMMENDATIONS

11.1 Conclusions

11.1.1 Tweedie Evans Consulting Ltd (TEC) has been appointed by Winchester City Council to undertake a geo-environmental and geotechnical assessment for the Carfax site, Winchester in accordance with our proposal letter dated 06 September 2013 and referenced 1308015.001_006.bidlet.

11.1.2 The site is bounded by three roads; Station Road along the northern and western boundary, Gladstone Street along the southern boundary and Sussex Street along the eastern boundary. The site covers an area of approximately 0.77Ha with the centre of the site located at National Grid Reference 447800, 129900. The nearest postcode is SO23 8TJ.

11.1.3 The site currently comprises an irregular shaped parcel of land, which can be divided into four sections is used primarily for a range of car parks with associated soft landscaping whilst the County Council Registry Office is present in the north-western corner of the site. Adjacent to the eastern boundary of the site is the County Council Records Office and further car parking to the south-west of the site.

11.1.4 Although full details of the proposed development have not been made available to TEC, it is understood the redevelopment is to comprise a mixed use site comprising a combination of three to four storey office space, commercial properties, residential buildings, soft landscaped areas and car parking.

11.1.5 The site is considered to be of moderate to high environmental sensitivity, primarily due to the underlying Upper Chalk Formation classified as a Principal Aquifer and the close proximity of Source Protection Zones I, II and III, understood to be associated with an abstraction borehole located ~495m south-west of the site.

11.1.6 The northern site area is shown on historical maps to have previously been occupied by an engineering works and a former garage. WCC report records of historical USTs and evidence of fuel pumps associated with the former garage. In addition, a brewery is shown on historical maps in the southern site area.

11.1.7 A previous phase of assessment works by WYGE reported that no visual or olfactory evidence of contamination was observed on the site during the works (and therefore no geochemical analysis was reported to have been undertaken).

11.1.8 In addition, no evidence of significant contamination was recorded at the site during the recent works by TEC. Laboratory analysis of soils from varying depths across the site and a single groundwater sample (BH01) confirms these observations.

11.1.9 Made ground was encountered across the site to a maximum observed depth of 3.0mbgl. Notwithstanding this, previous investigations undertaken at the site by WYGE in 2003 reported made ground up to 7.3mbgl in a single location in the southern car park. Concentrations of lead were recorded within the sampled made ground in exceedance of the SSV deemed protective of human health for a commercial site end use. Furthermore, marginal exceedances of benzo(a)pyrene were reported in a number of locations across the site when considering a residential site end use.

11.1.10 Initial ground gas monitoring undertaken at the site following the intrusive site works would place the underlying ground materials into Characteristic Situation 1 (<0.07l/hr), in accordance with the Revised Wilson and Card Classification detailed within CIRIA C665. Notwithstanding this, a localised risk from the recorded deeper organic material reported by WYGE within the southern car part cannot be

discounted. No ground gas monitoring was reported to have been undertaken as part of the assessment works by WYGE and similar ground conditions were not encountered during the recent phase of works by TEC. No radon protective measures are reported as necessary.

11.1.11 Based upon our current conceptual understanding of the site and the proposed end use, the main potential Significant Pollutant Linkages identified are considered to be:

- Human health (including future site end users) - exposure to potential contaminants (PAHs and lead) within made ground encountered at the site through the ingestion, inhalation and dermal contact pathways;

- Human Health and Proposed Development Structures – A potential localised risk from migration, ingress and inhalation of ground gasses from reported localised deep organic made ground materials (reported by WYGE in 2003). Notwithstanding this, three rounds of monitoring have been undertaken at the site by TEC to date, which have not identified significantly elevated levels of ground gases, indicating there to be no evidence of lateral migration of ground gas from this reported feature;

- Historical storage of hydrocarbons – information provided by Winchester City Council indicates that a number of tanks were previously located along the northern boundary of the site. It is understood these tanks have been concrete filled although there is no available information as to whether these tanks and associated infrastructure (e.g. fuel lines) have been removed from site. A GPR survey undertaken within the area recorded a ground anomaly, considered likely to be associated with these features. It is therefore considered likely that historical USTs are still present at the site. Limited investigations in the area of the historical tanks did not identify concentrations of TPH or VOCs to be present within the sampled material. However, it is acknowledged that the extent of investigations in this area was limited by the presence of below ground structures preventing the advancement of boreholes and the potential for historical USTs to be present. The status of these USTs is currently unknown and the potential for the presence of hydrocarbon contamination directly beneath remaining in-situ USTs cannot be discounted at this stage.

11.2 Geo-Environmental Risk Management Recommendations

Identification of Feasible Remediation Options

11.2.1 Significant risks identified within the conceptual model can be mitigated through the breaking of the significant pollution linkage by the removal of at least the source, receptor or pathway. Within reference to the site's conceptual models the following preliminary remediation approach has been prepared. This preliminary remediation approach will need to be presented in more detail within a Remediation Strategy, the content of which will require agreement in writing of the Regulatory Authorities prior to commencing any remediation on site.

Human Health

11.2.2 A single exceedance for lead was recorded within the sampled near surface material within the Registry office car park in the western section of the site, in relation to generic commercial SSVs. Furthermore, a number of marginal exceedances of benzo(a)pyrene were recorded in a number of near surface samples across the site with regards to a residential site end use.

11.2.3 It is understood that much of the site is to be within the proposed building footprint, or laid to hardstanding. Therefore, where present, the presence of hardstanding or buildings would likely mitigate the risk to human health from any further potential made ground.

11.2.4 However, where the soft landscaping is proposed and where made ground remains in such areas after finish site levels have been achieved, exposure to potential contaminants cannot be discounted. Therefore, it would be recommended that a suitable cover system be provided within such areas. Given the levels identified, this clean cover system will likely comprise a thickness of imported clean cover material. Notwithstanding this, it cannot be discounted that further analysis and assessment of the made ground in the areas where soft landscaping is proposed could be undertaken further assess the need / scope for these remedial measures on site.

11.2.5 A number of potential historical USTs have been identified in the northern section of the site that are considered likely to still be present based on information provided by WCC and from a GPR survey undertaken, which identified an anomaly in this area of the site. WCC report the tanks to have been concrete filled in 1977, although this has not been confirmed as part of these assessment works.

11.2.6 It is considered that the potential presence of tanks on site requires further investigation to determine the number and status of any tanks currently left in situ. Any remaining tanks may present a potential risk to human health and controlled waters and future structures and therefore will require further assessment prior to development works commencing.

11.2.7 Good brownfield site working practices should be adopted by construction workers to mitigate against the identified potential risks.

11.2.8 Should water supply pipes be placed within the made ground encountered at the site, due consideration would need to be given to the UK Water Industry Research Ltd (UKWIR) guidance.

11.2.9 Based on our conceptual understanding of the site to date, it would be anticipated that a similar ground profile to those encountered within this assessment are present across the site area. However, should a greater thickness of made ground or visual or olfactory evidence of potentially significant contamination be identified during the development works, further investigation and assessment may be required.

Controlled Waters

11.2.10 The risk to controlled waters from identified historical processes at the site is considered to be low owing to the laboratory analysis of groundwater recording concentrations of organic and inorganic determinands to be below the Tier 2 screening value deemed protective of controlled water receptors. In addition, no Volatile Organic Compounds (VOCs) or Semi-Volatile Organic Compounds (SVOCs) were recorded above the laboratory limits of detection.

11.2.11 Furthermore, the analytical results recorded concentrations of leachable contaminants of potential concern within made ground materials to be below the relevant Level 1 SSV. Concentrations of organic contaminants (i.e. PAHS) were recorded below the laboratory limit of detect in all samples analysed.

Ground Gas

11.2.12 Initial ground gas monitoring undertaken at the site following the intrusive site works would place the underlying ground materials into Characteristic Situation 1

(<0.07l/hr), in accordance with the Revised Wilson and Card Classification detailed within CIRIA C665. Therefore, it is considered that specific gas protection measures are unlikely to be required as part of the development. Notwithstanding this, it would be recommended that further assessment of the ground gas regime within the location of reported deeper organic material (WYGE borehole BH103) is undertaken prior to potential development works in this area.

11.2.13 No radon protective measures are reported as necessary.

11.3 Ground Engineering

Preliminary Design Recommendations

11.3.1 On the basis of the field observations and ground conditions encountered together with the potential loads associated with the proposed three to four storey buildings, it is considered that conventional foundations may be suitable for relatively light weight structures at the site, founding within competent chalk recorded from depths of 0.3mbgl. Similarly, in some areas it is considered that the use of raft foundations may be appropriate to reduce ground pressures to below the chalk yield stress.

11.3.2 The ground materials have been recorded as non-plastic, in accordance with NHBC (2013) guidance, and therefore as general guidance would require a minimum founding depth of 0.75mbgl to be adopted within the design.

11.3.3 However, it is considered that that a piled solution may be the most appropriate founding solution for the proposed three to four storey scheme, founding within competent chalk encountered from depths of 0.3mbgl to 5.8mbgl.

11.3.4 Further, it should be noted that, while no evidence of solution features/voiding was reported during the recent preliminary investigation works undertaken by TEC, there is evidence of voiding within the chalk in the vicinity of the site and therefore due consideration should be given this within the design.

Basement Wall / Pile Design

11.3.5 As a result of the presence of significant thicknesses of made ground across the site, it is considered that a cantilevered or propped/anchored piled wall system may be most suitable to form proposed basements and for the purpose of this assessment. it is assumed that owing to the proximity of adjacent structures and the environmental sensitivity of the site the use of either bored or CFA piles would be most appropriate.

11.3.6 CIRIA C574 recommends appropriate deign parameters based on the observations made during the recent ground investigation and suggests that moderately conservative design parameters of c' = 20kN/m² and φ′ = 39° and worst credible parameters of c' = 0 and φ′ = 34° are likely to be appropriate.

11.3.7 CIRIA Report C574 recommends that the following empirical relationship should be adopted for estimating the ultimate average shaft resistance, T_{sf}, of bored piles in medium density chalk.

$$T_{sf} = 0.8 \times \sigma_v'$$

where σ_v' is the average effective stress resulting from the overlying chalk.

11.3.8 Further, for CFA piles the CIRIA report recommends the ultimate average shaft resistance should be estimated from

$$T_{sf} = 0.45 \times \sigma_v'$$

where σ_v' is the average effective stress resulting from the overlying chalk.

11.3.9 CIRIA Report C574 recommends that, subject to the limitation of the crushing strength of concrete, the following ultimate base stresses be adopted:

Bored piles - ultimate base stress, q_u = 200 x 'N' kN/m^2

CFA piles - ultimate base stress, q_u = 200 x 'N' kN/m^2

Basement Floor Slabs

11.3.10 Although design details have not been provided, it is assumed that basements will be formed within the underlying low to medium density chalk recorded at the site and therefore a preliminary modulus value of in the order of 1000MN/m^2 for a Grade C, i.e. joints open and less than 3mm, low density chalk, may be assumed for design at this stage.

Ground Floor Slabs

11.3.11 Made ground was recorded up to 3.5mbgl below current ground level (BH02) requiring floor slabs to be suspended where at approximate ground level.

11.3.12 Notwithstanding this, where the proposed structure is wholly within competent natural ground a ground bearing slab may be utilised. CIRIA Report C574 suggests that a preliminary modulus value of in the order of 75MN/m^2 for a Grade Dc may be assumed for design at this stage.

Preliminary Pavement Design

11.3.13 The results of the in situ dynamic cone penetration (DCP) undertaken within the area of the proposed access road across the site indicates CBR values to be between 1% and 101% for the underlying materials. Therefore, a CBR of >10% should be used for preliminary pavement design for any potential future development works.

11.3.14 Notwithstanding this, given the significant thickness of made ground encountered across the site (greater than 600mm), a CBR value of <2.5% would be recommended for preliminary design purposes where road formation is proven to be within potential made ground deposits owing to the inherent variability of this material.

Protection of Buried Concrete

11.3.15 In accordance with BRE Special Digest 1, the made ground sampled yielded an Aggressive Chemical Environment Class (ACEC) of AC-1. The results of the water soluble sulphate content and pH testing carried out on the samples of the made ground showed the materials to fall into Class DS-1.

11.3.16 In addition, the results of the water soluble sulphate content and pH testing carried out on the samples of the natural ground yield an Aggressive Chemical Environment Class (ACEC) of AC-1 requiring Design Sulphate Class DS-1.

11.3.17 Consequently, following the recommendations of BRE SD1:2005, it is recommended that a Design Sulphate Class DS-1 is utilised.

Recommended Further Works

11.3.18 Given the assessment presented within this report, the following additional works would be recommended to fully define the geo-environmental and geotechnical issues associated with the site.

- Trial pitting investigation within the northern area of the site after removal of the identified USTs to confirm the current conclusions that gross contamination is absent in this area.

- Additional investigation in the area of the probable solution feature in the Gladstone Street car park area to better constrain the extent of this feature as well as allowing localised ground gas monitoring.

- To enable detailed design of the proposed structures to be undertaken, it will be necessary to complete a more detailed ground investigation to provide confidence in the selected design parameters.

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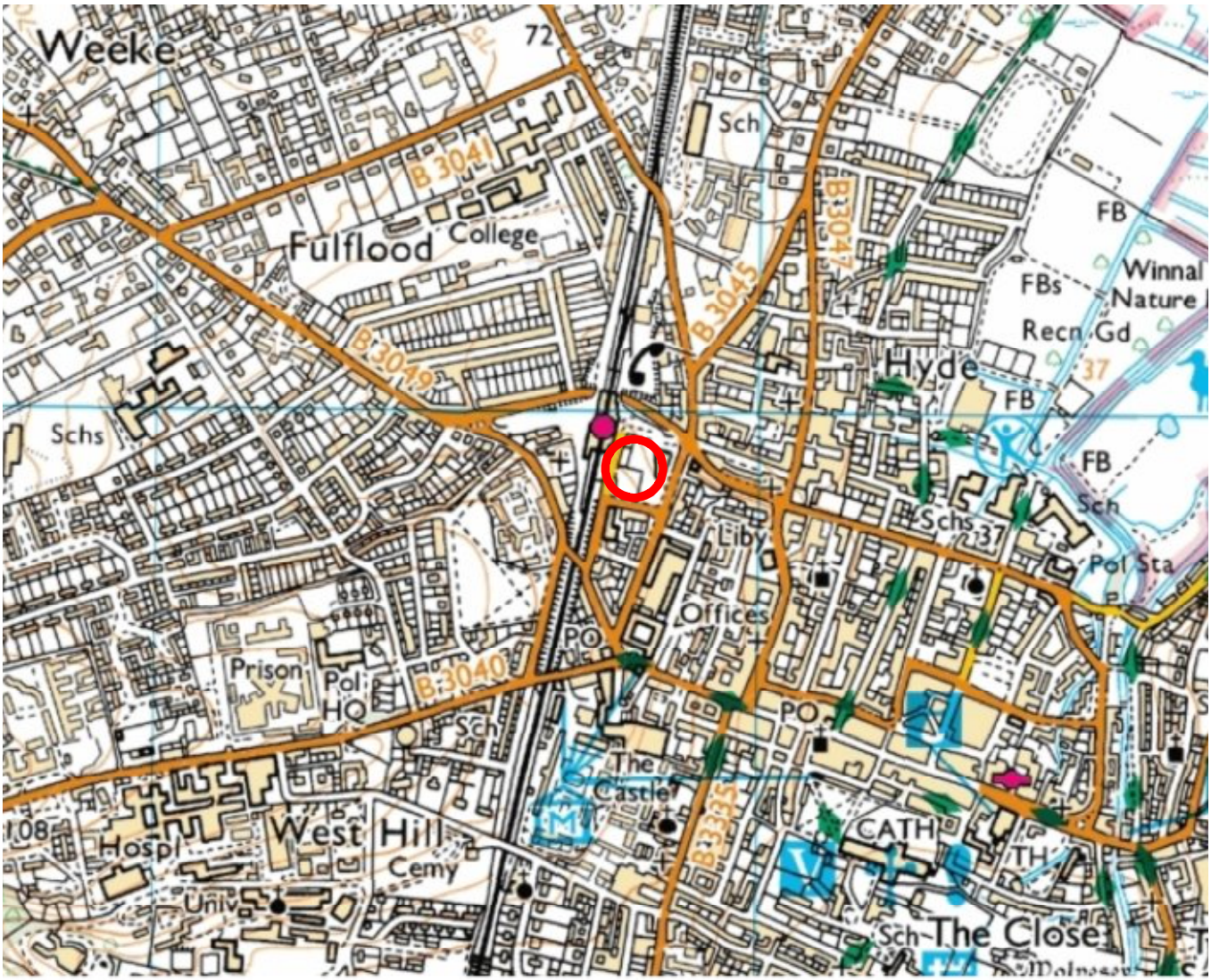
FIGURES

N (Indicative)

Approximate Site Boundary



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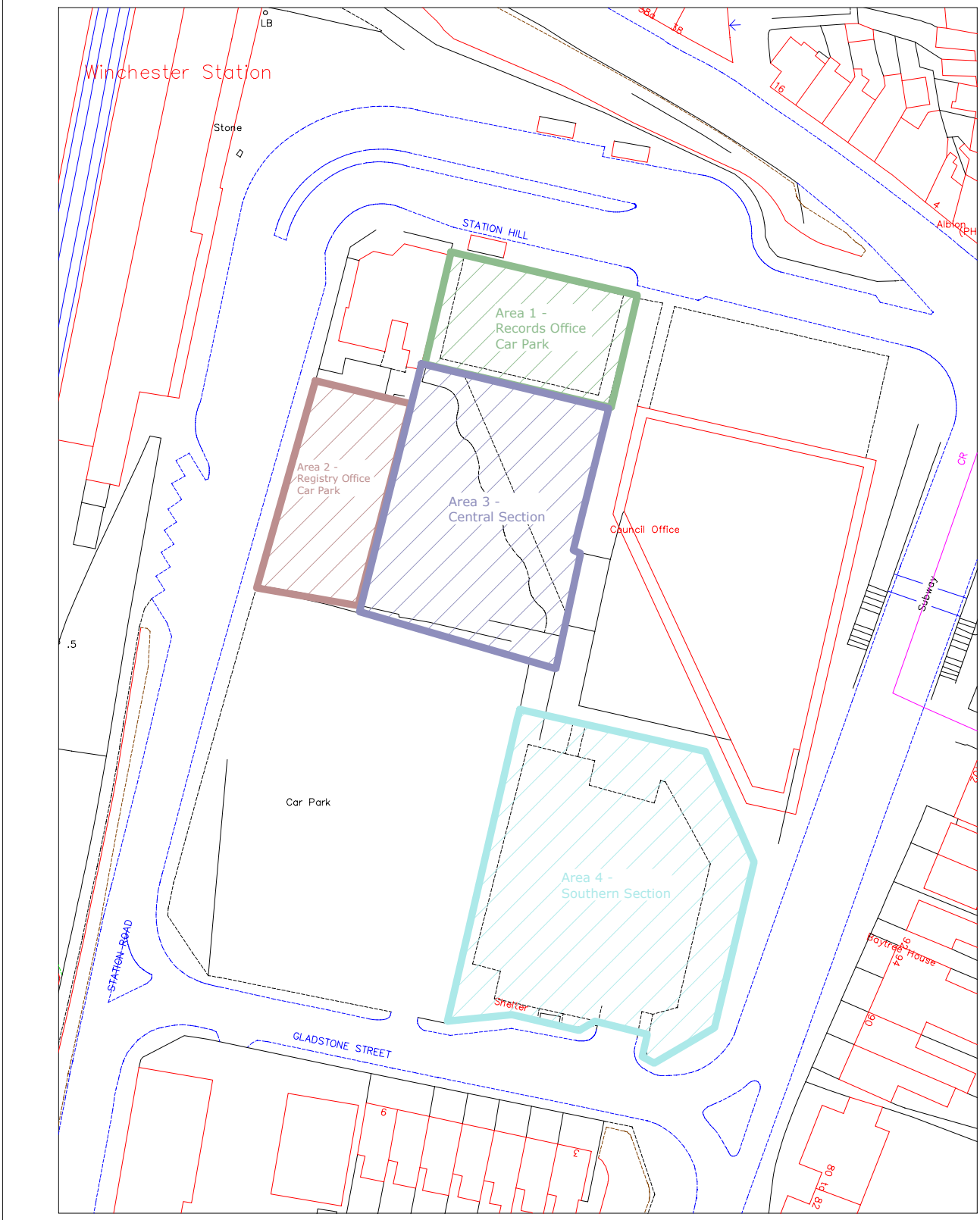
Drawing Name: Site Location Plan			Client Name: Winchester City Council	Project No: 1308015.001	Date: November 2013	Figure No: 1



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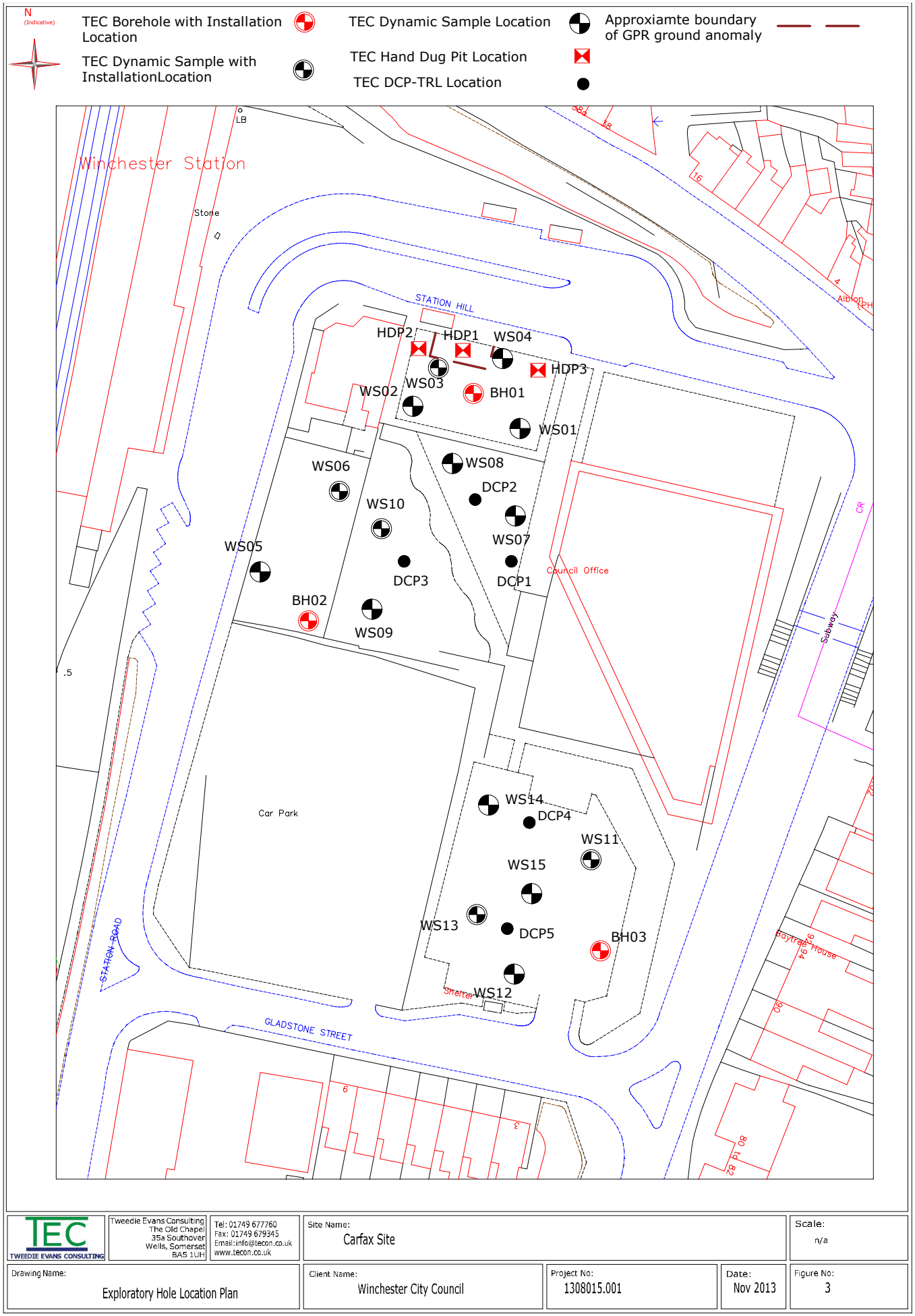
Drawing Name: Areas of Investigation		Client Name: Winchester City Council		Project No: 1308015.001	Date: Nov 2013	Figure No: 2



TWEEDIE EVANS CONSULTING	Tweedie Evans Consulting The Old Chapel 35a Southover Wells, Somerset BA5 1UH	Tel: 01749 677760 Fax: 01749 679345 Email:info@tecon.co.uk www.tecon.co.uk	Site Name: Carfax Site		Scale: n/a
Drawing Name: Exploratory Hole Location Plan		Client Name: Winchester City Council	Project No: 1308015.001	Date: Nov 2013	Figure No: 3

APPENDIX A

Site Photographs

Photograph 1: View of Area 3 – facing south.

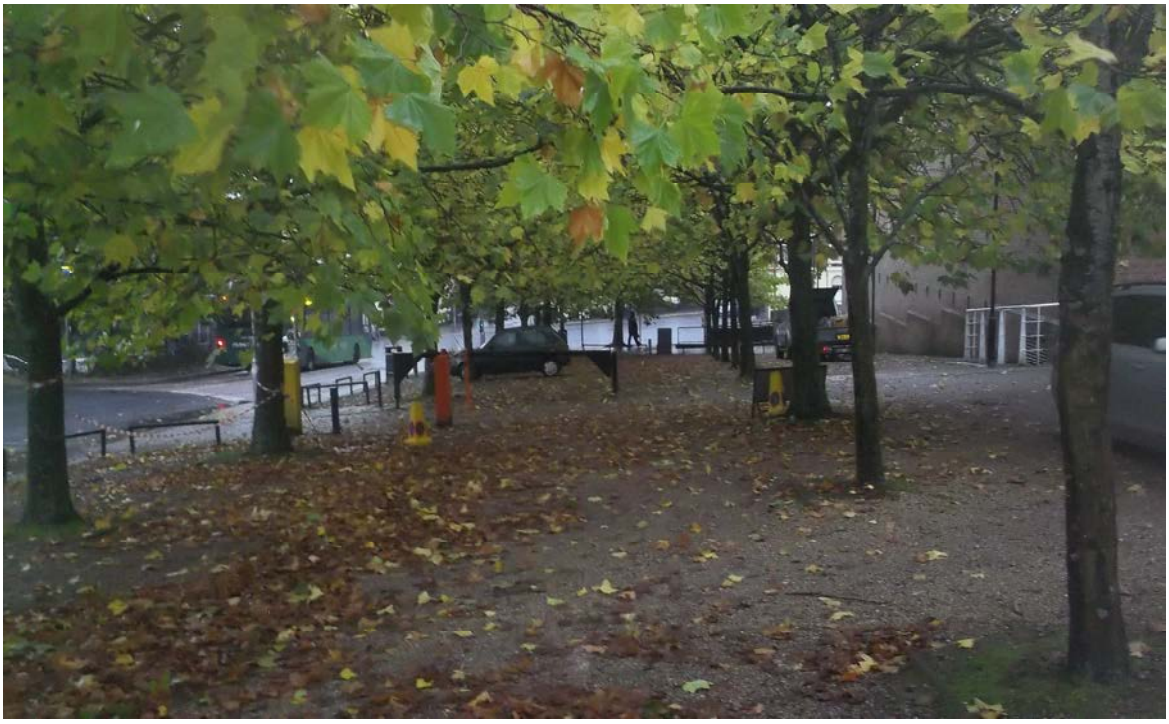
Photograph 2: View of Area 3 – facing west.

Photograph 3: View of Area 3 – facing north-west.

Photograph 4: View of Area 4 – facing south-west.

Photograph 5: View of Area 4 entrance – facing south.

Photograph 6: View of Area 4 – facing north.



Photograph 7: View of Are 1 facing east.

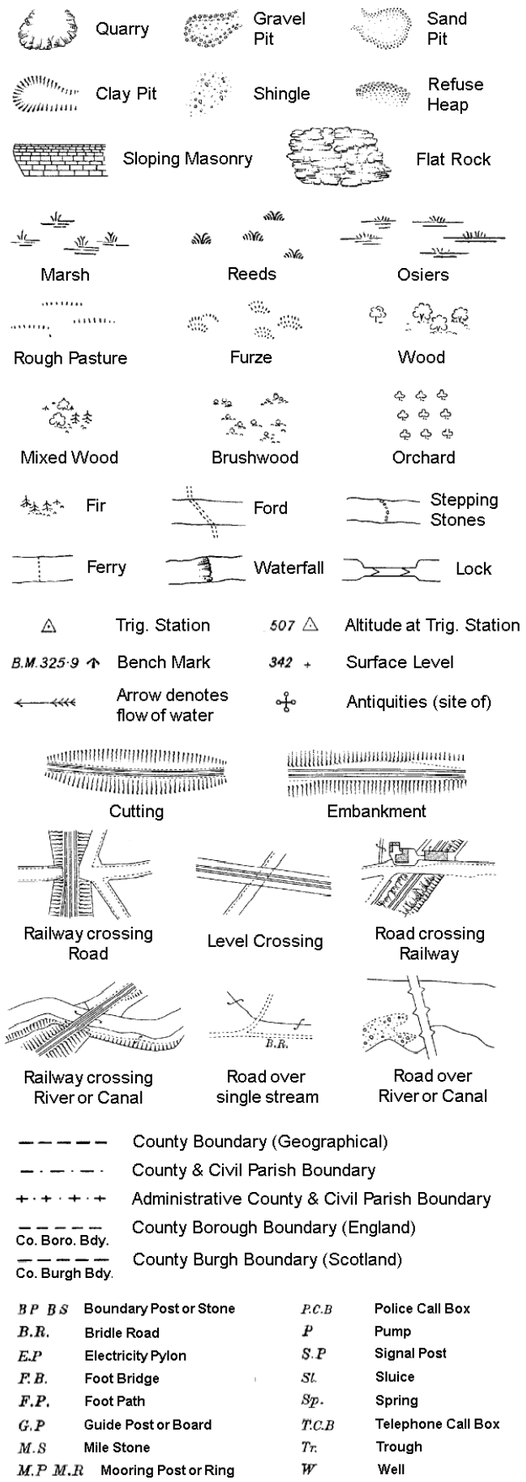
Photograph 8: View of Area 2 – facing south.

APPENDIX B

Historical Maps

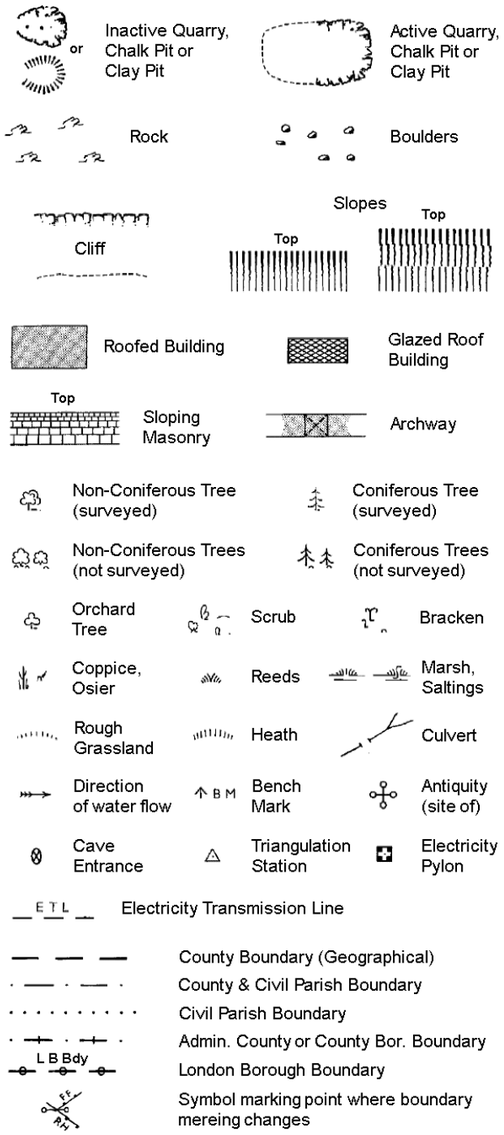
Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



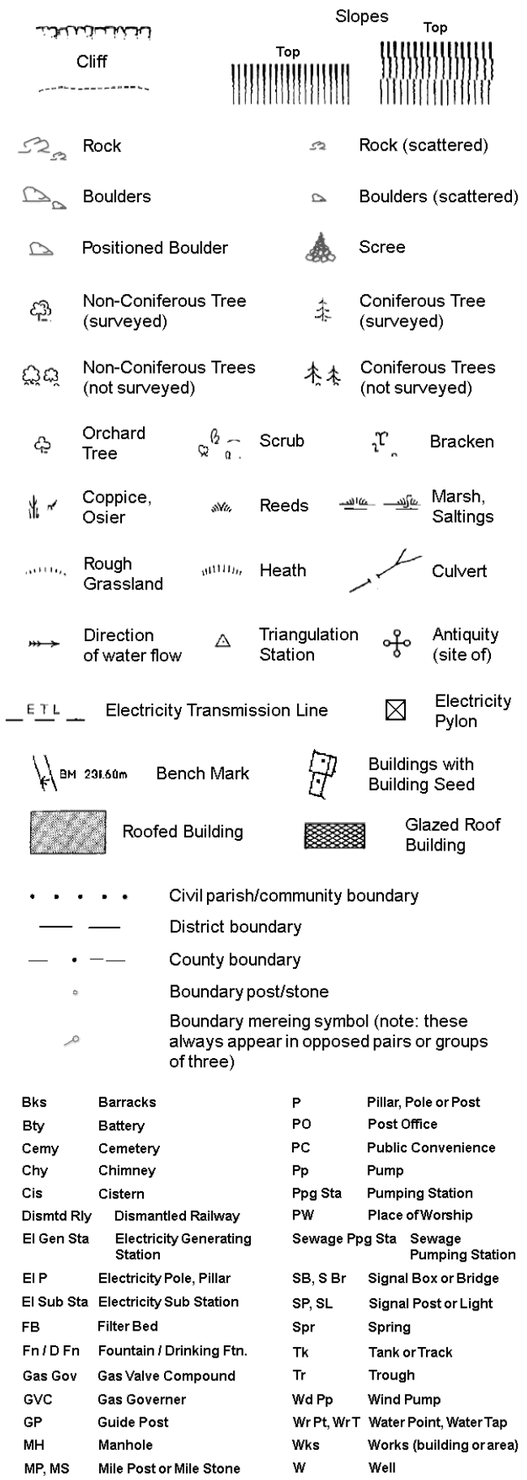
B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
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Hampshire & Isle Of Wight	1:2,500	1897	3
Hampshire & Isle Of Wight	1:2,500	1909	4
Hampshire & Isle Of Wight	1:2,500	1932	5
Ordnance Survey Plan	1:1,250	1952 - 1953	6
Ordnance Survey Plan	1:2,500	1953 - 1954	7
Ordnance Survey Plan	1:1,250	1965 - 1970	8
Ordnance Survey Plan	1:2,500	1967 - 1971	9
Ordnance Survey Plan	1:2,500	1969	10
Ordnance Survey Plan	1:1,250	1974 - 1991	11
Supply of Unpublished Survey Information	1:1,250	1975	12
Additional SIMs	1:1,250	1985 - 1991	13
Additional SIMs	1:1,250	1988	14
Additional SIMs	1:1,250	1991	15
Large-Scale National Grid Data	1:1,250	1993	16
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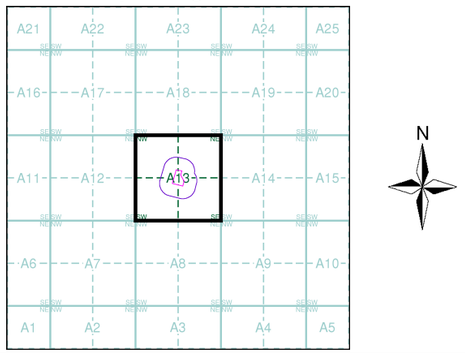
Historical Map - Segment A13



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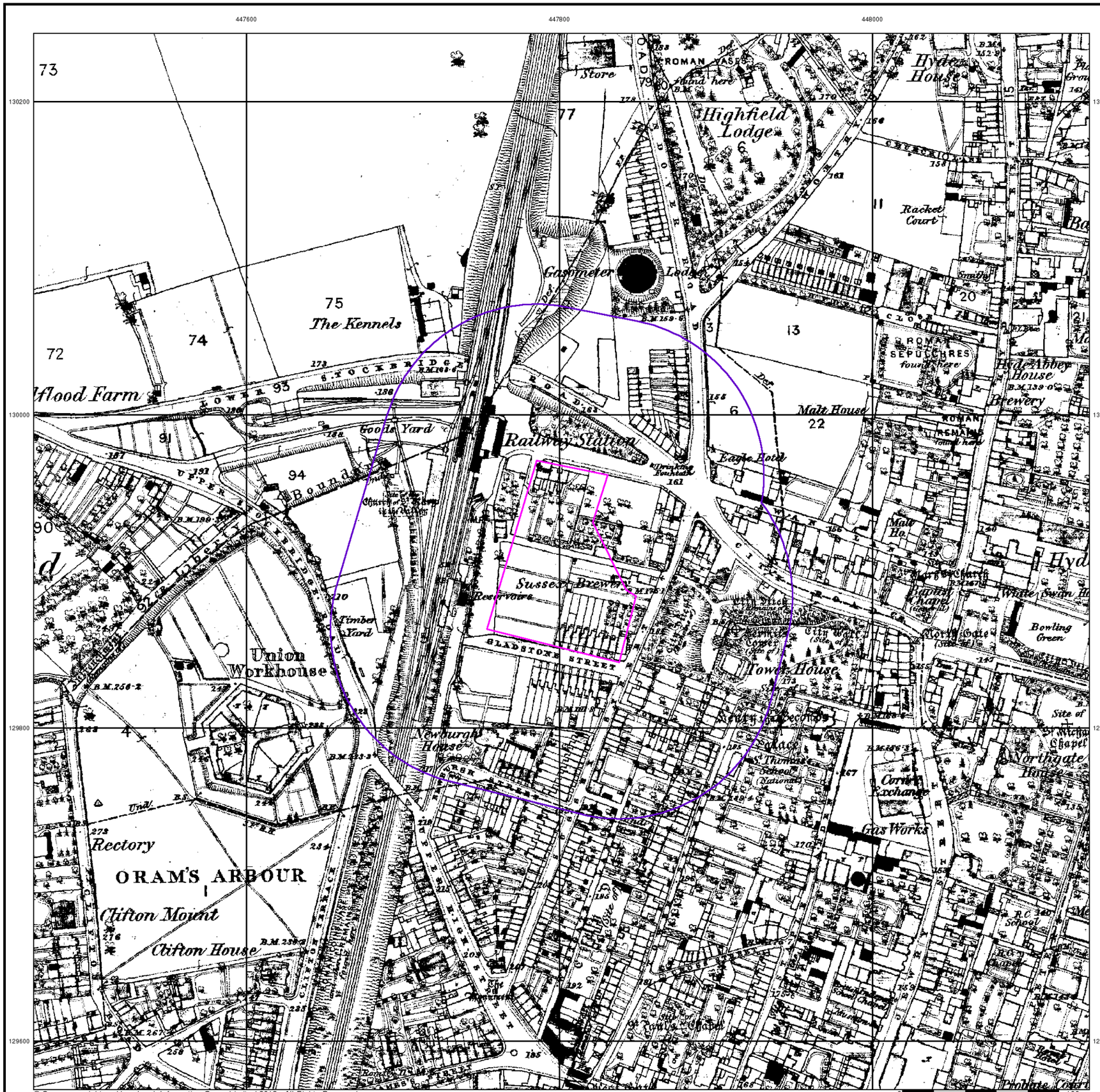

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Hampshire & Isle Of Wight

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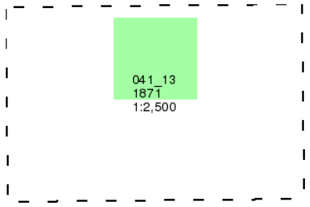

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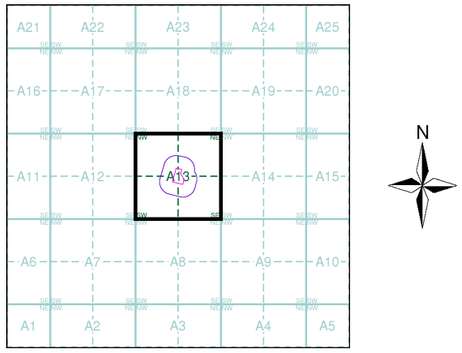

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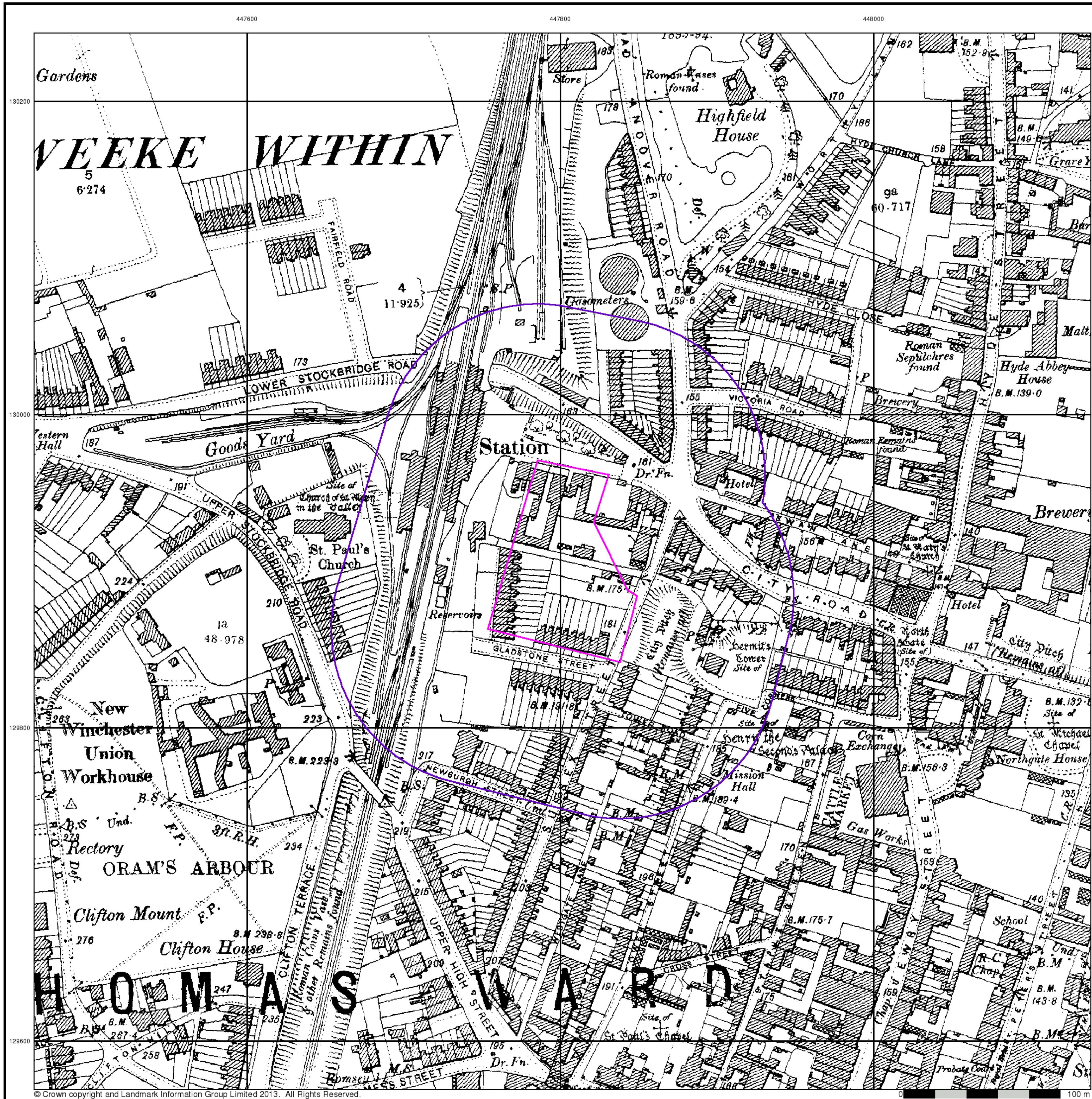

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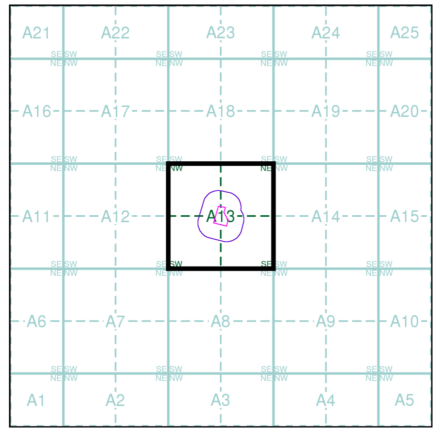

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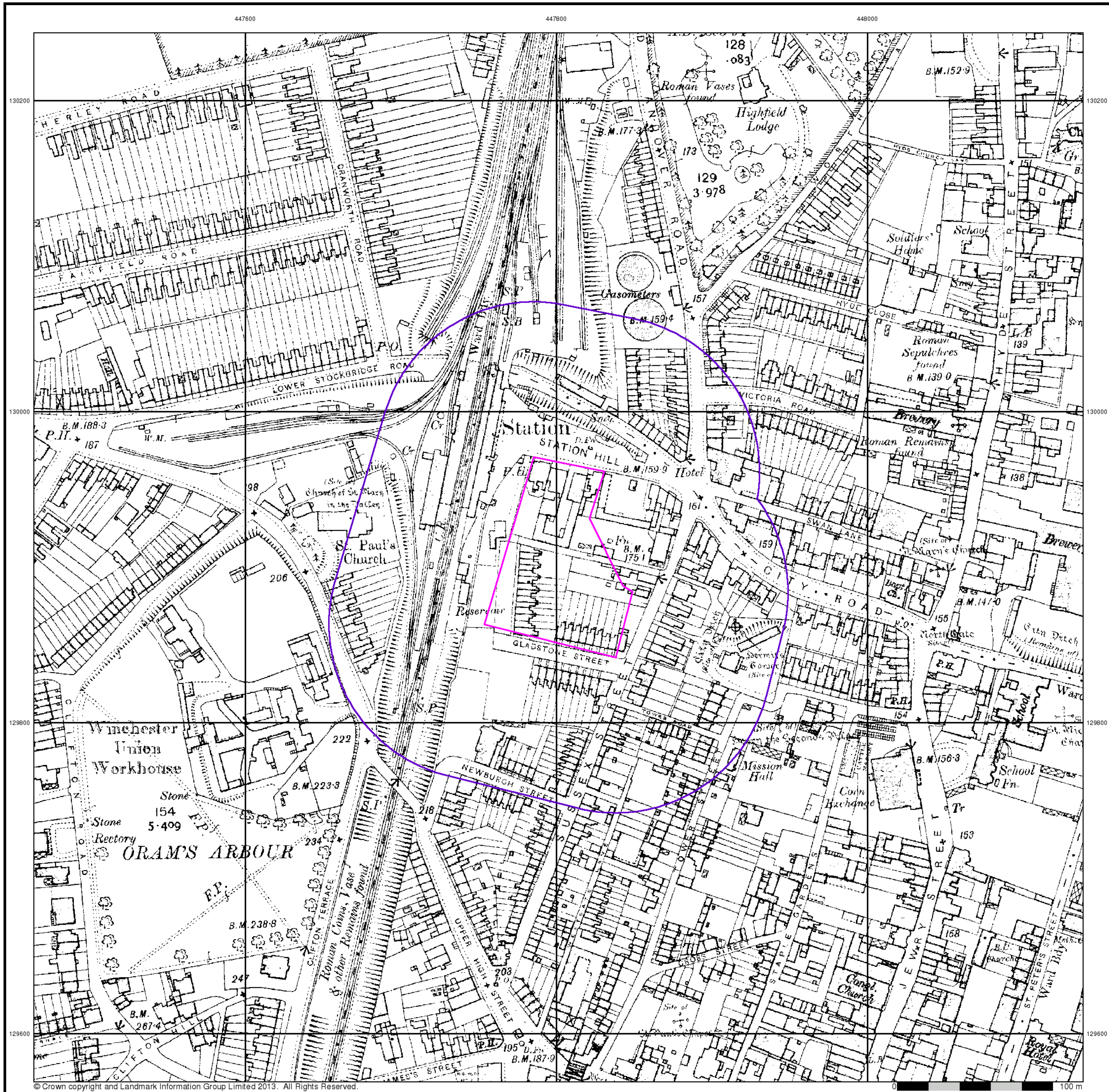

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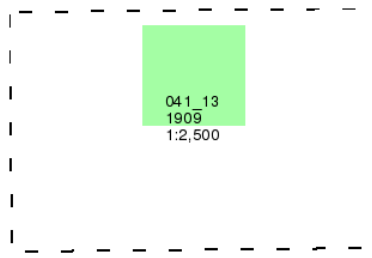

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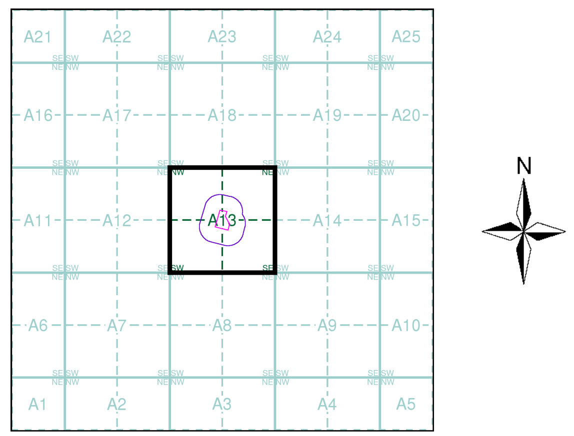

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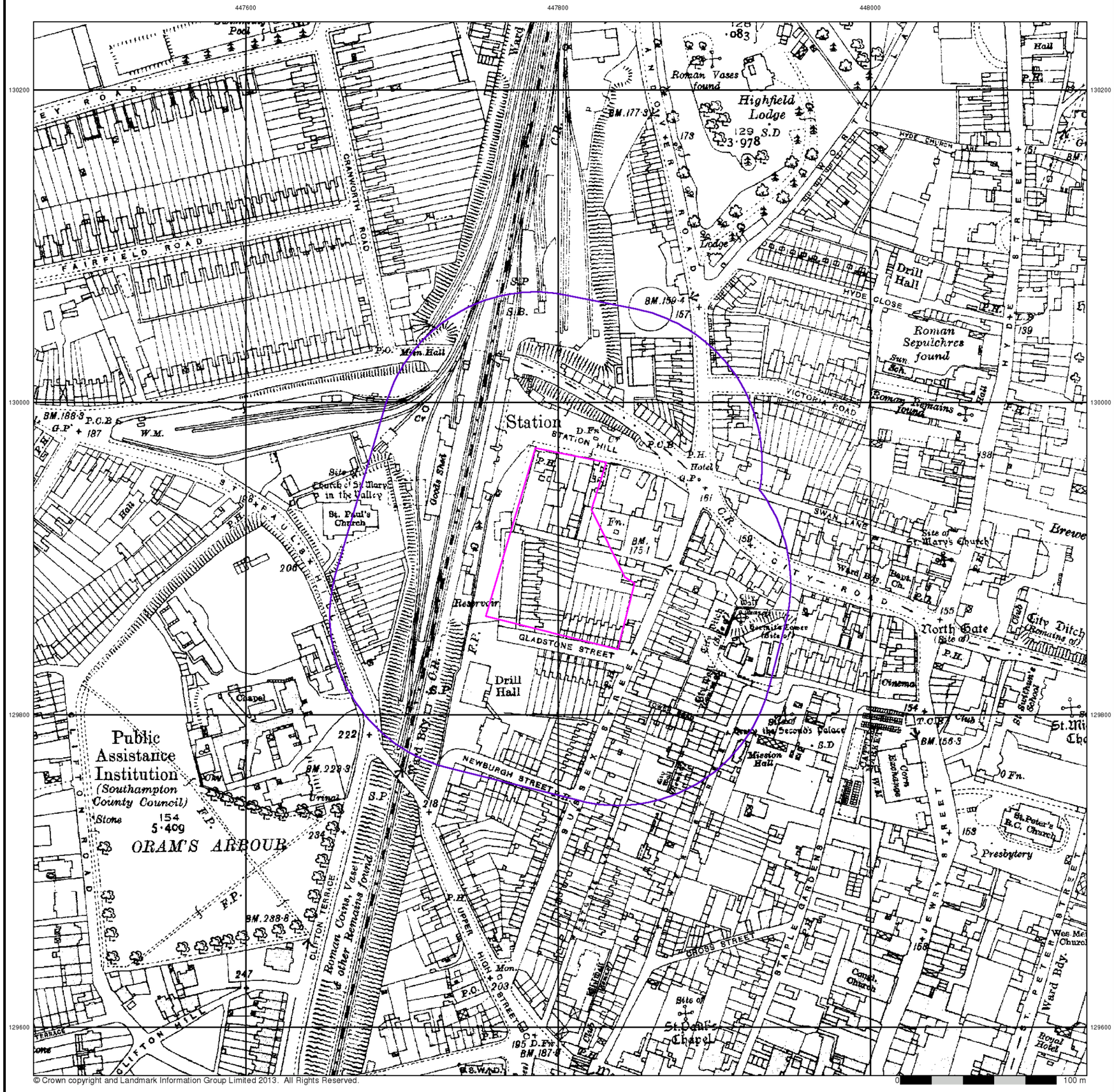

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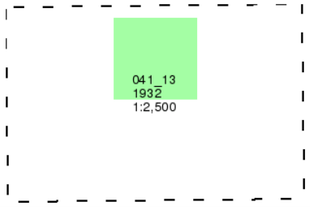

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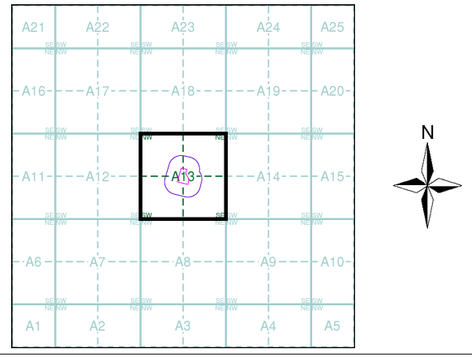

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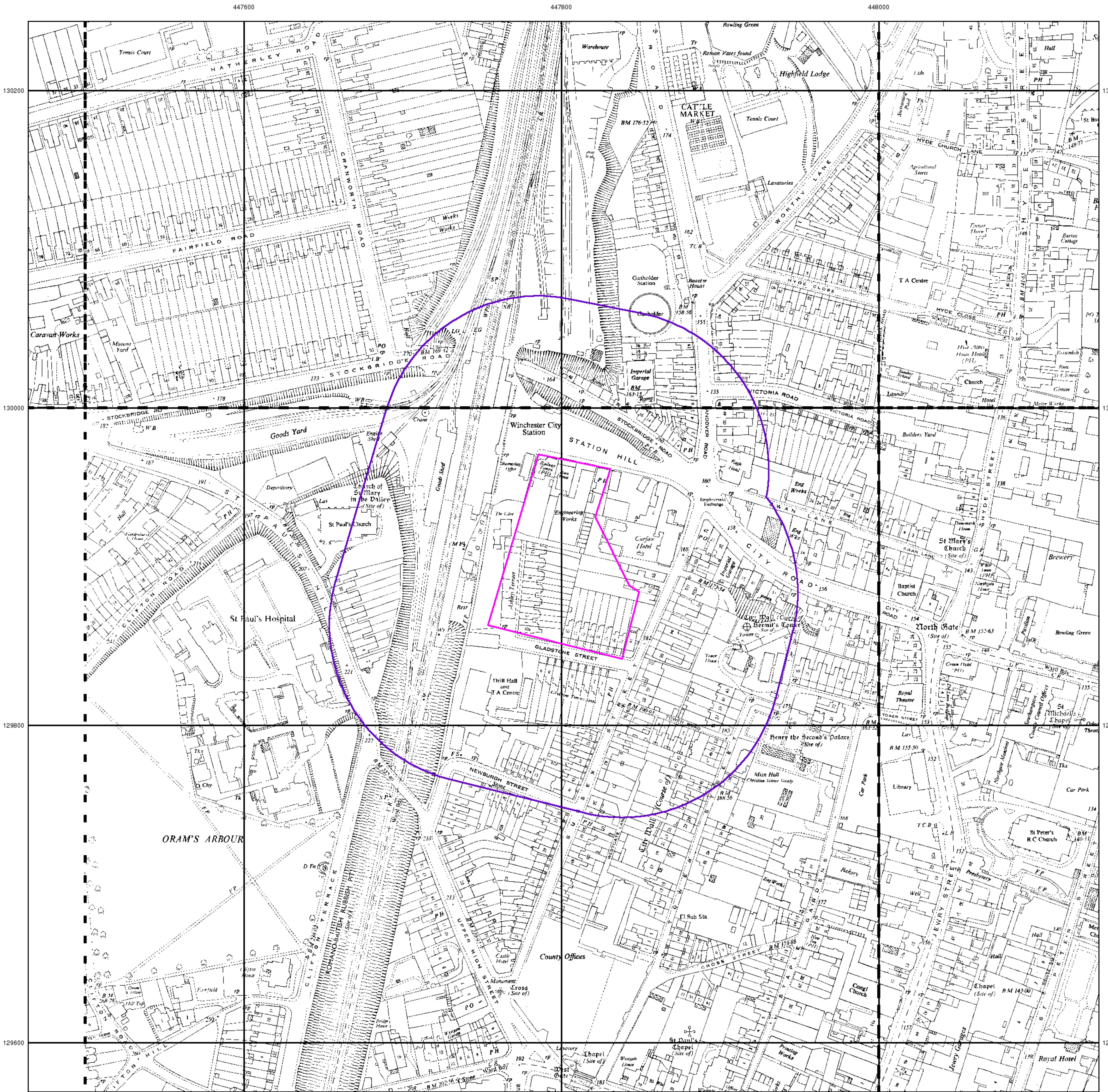

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Ordnance Survey Plan

Published 1952 - 1953

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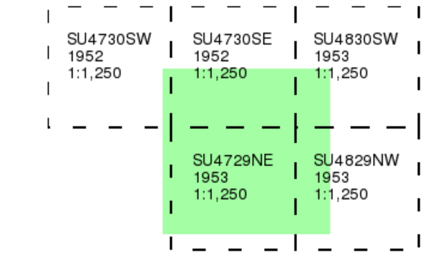

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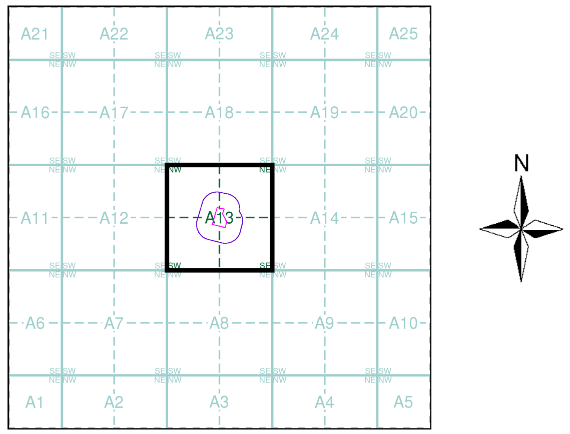

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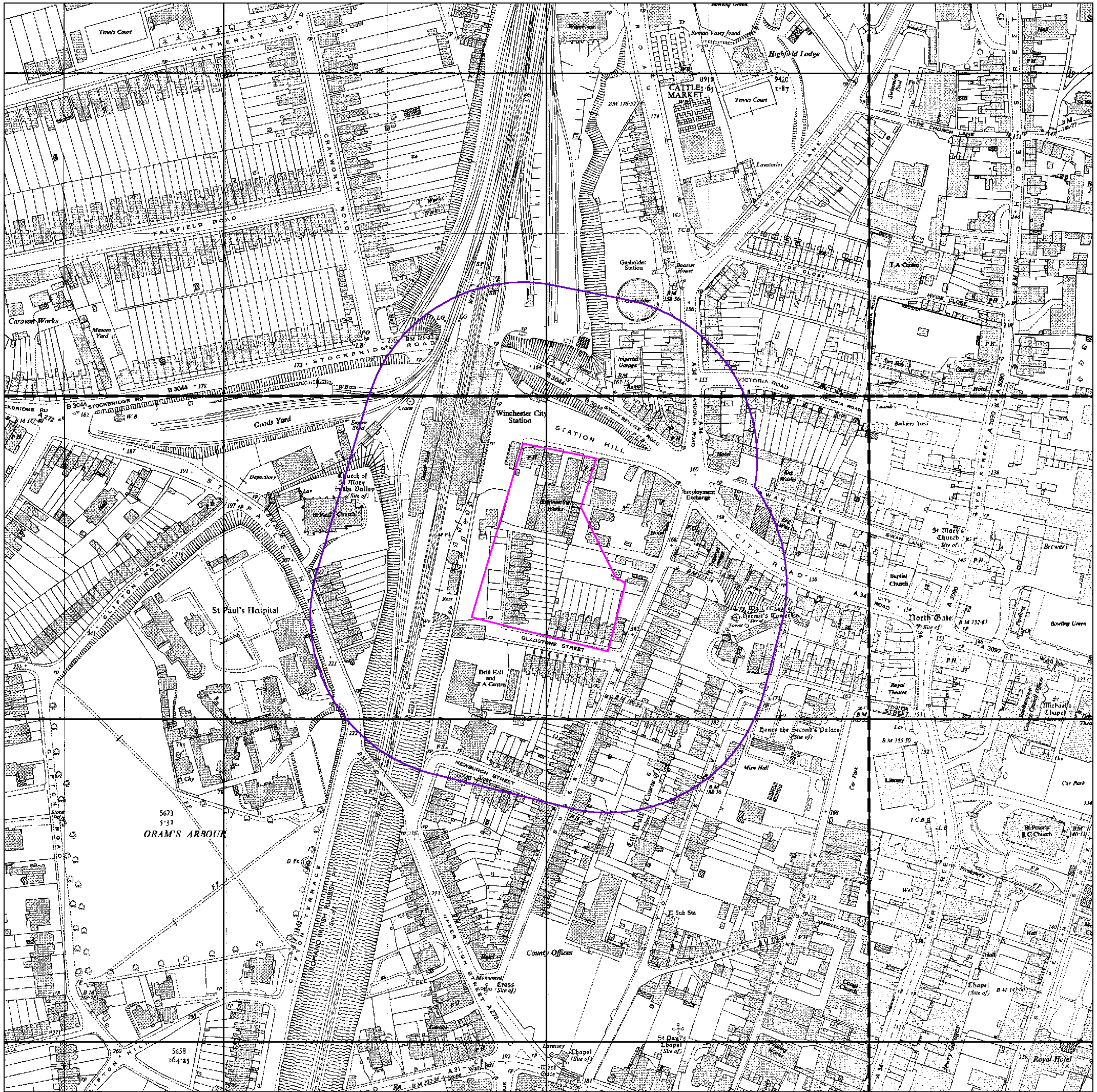
National Grid Reference: 447800, 129900
Slice: A
Site Area (Ha): 0.77
Search Buffer (m): 100

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



TWEEDIE EVANS CONSULTING

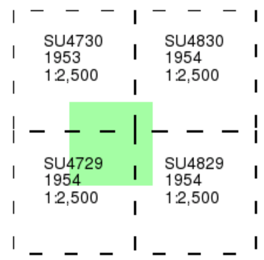
Ordnance Survey Plan

Published 1953 - 1954

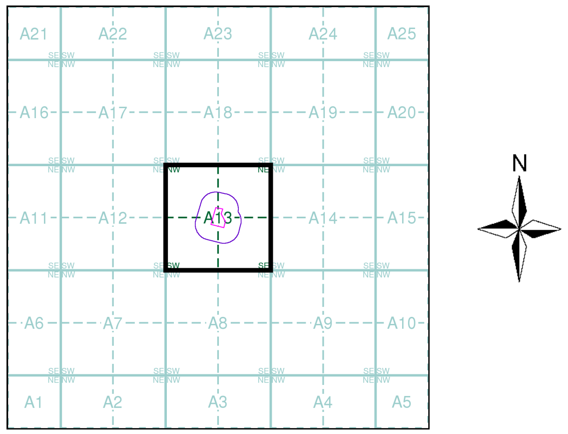
Source map scale - 1:2,500

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 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 50116218_1_1
Customer Ref: 1308015.001
National Grid Reference: 447800, 129900
Slice: A
Site Area (Ha): 0.77
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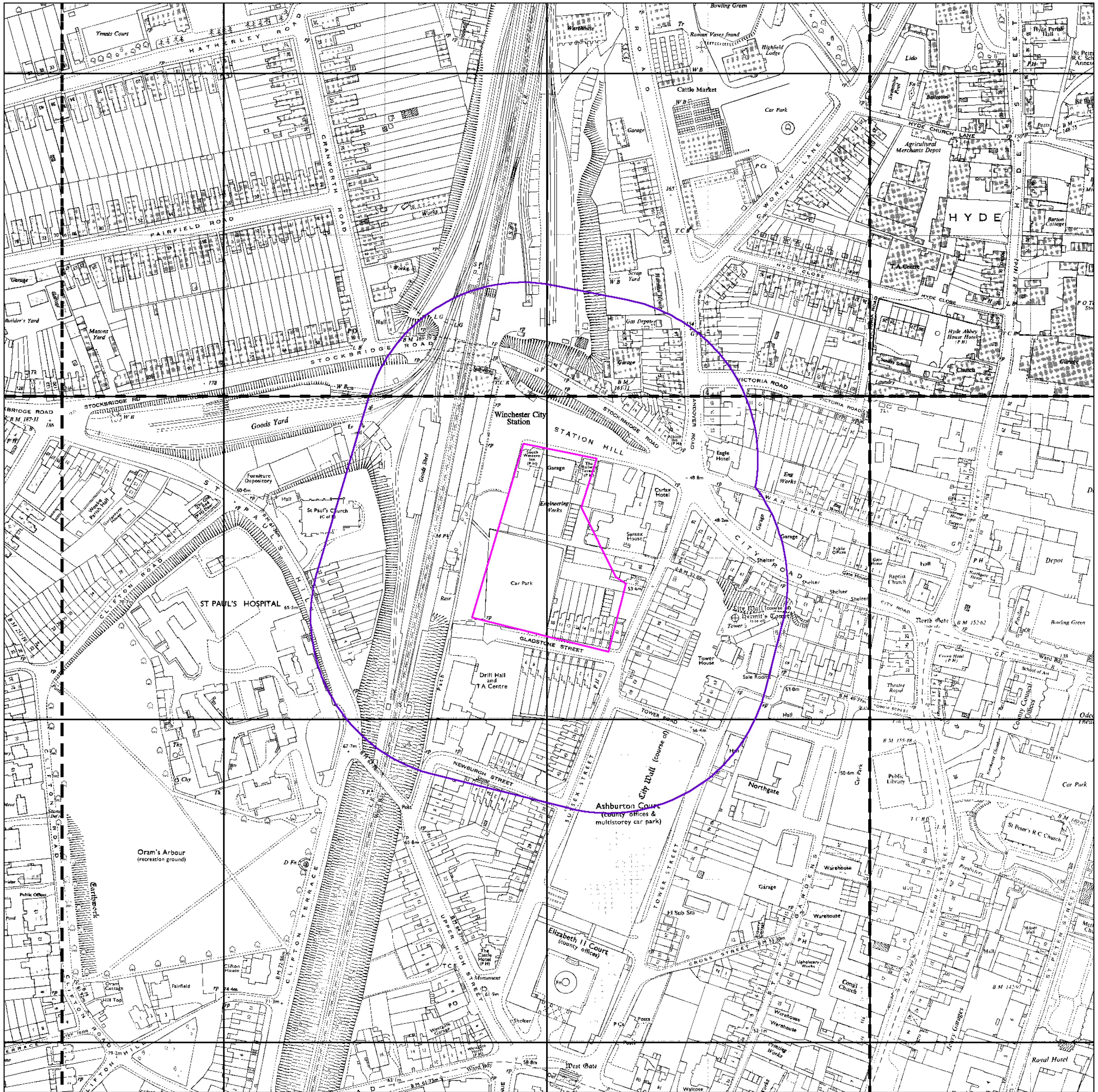


TWEEDIE EVANS CONSULTING

Ordnance Survey Plan

Published 1965 - 1970

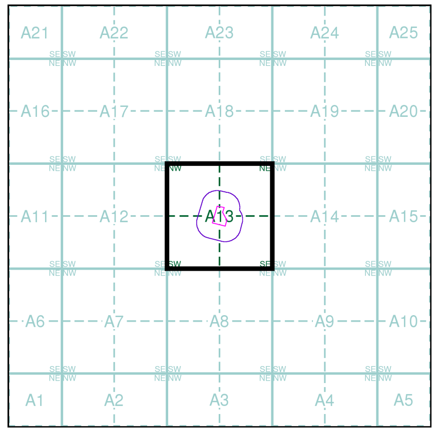
Source map scale - 1:1,250

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 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

Map Name(s) and Date(s)

SU4730SW 1967 1:1,250	SU4730SE 1966 1:1,250	SU4830SW 1967 1:1,250
SU4729NW 1966 1:1,250	SU4729NE 1970 1:1,250	SU4829NW 1965 1:1,250

Historical Map - Segment A13



Order Details

Order Number: 50116218_1_1
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National Grid Reference: 447800, 129900
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Site Area (Ha): 0.77
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Site Details

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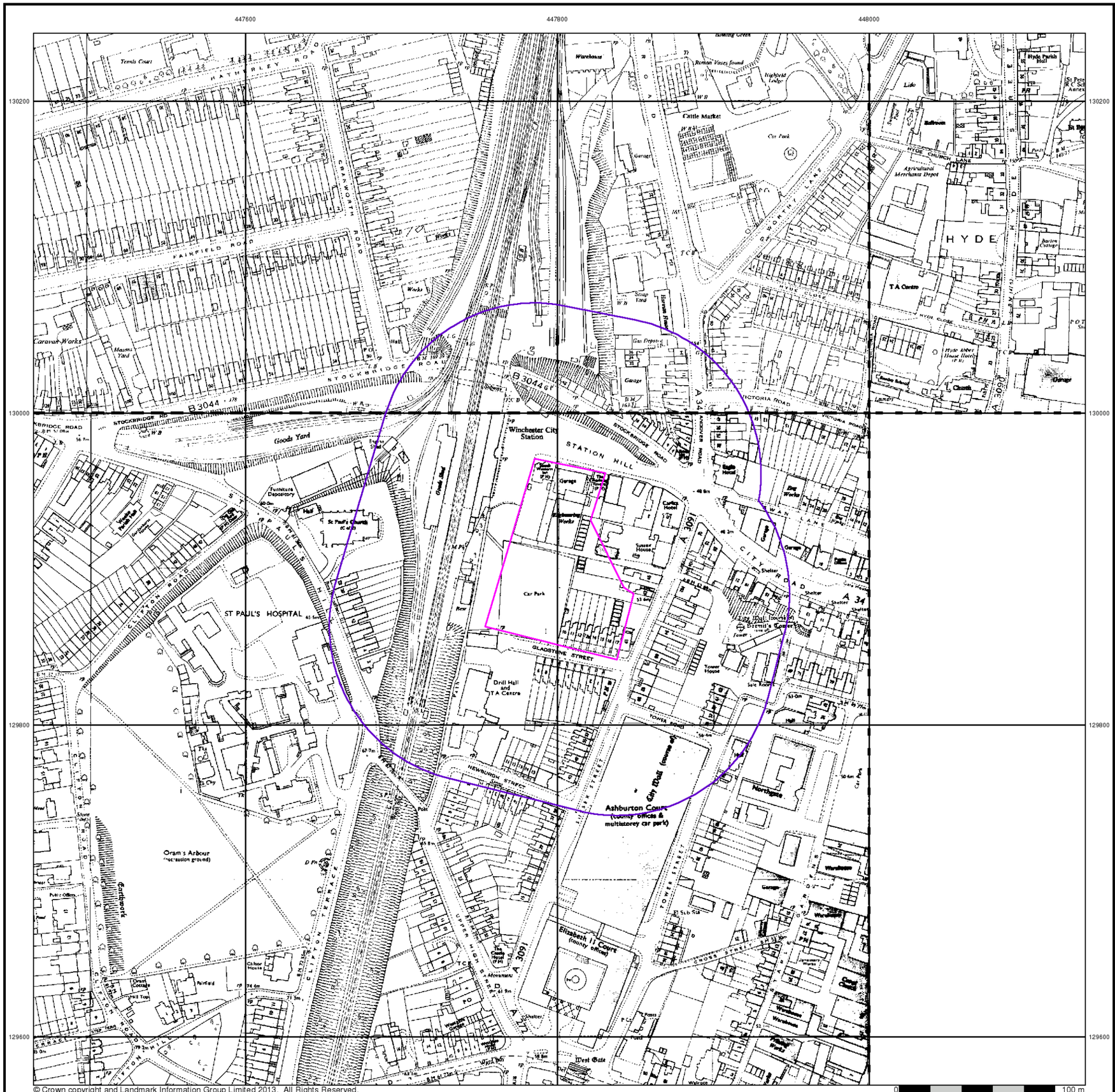


TWEEDIE EVANS CONSULTING

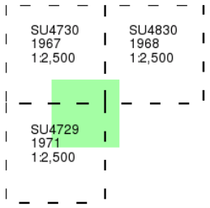
Ordnance Survey Plan

Published 1967 - 1971

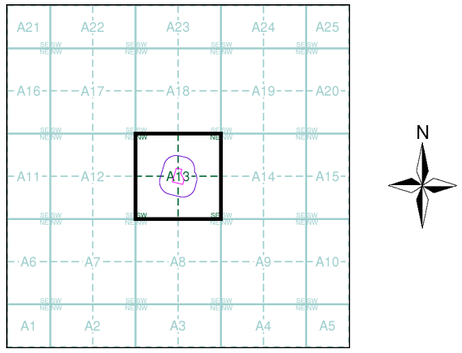
Source map scale - 1:2,500

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 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	100

Site Details

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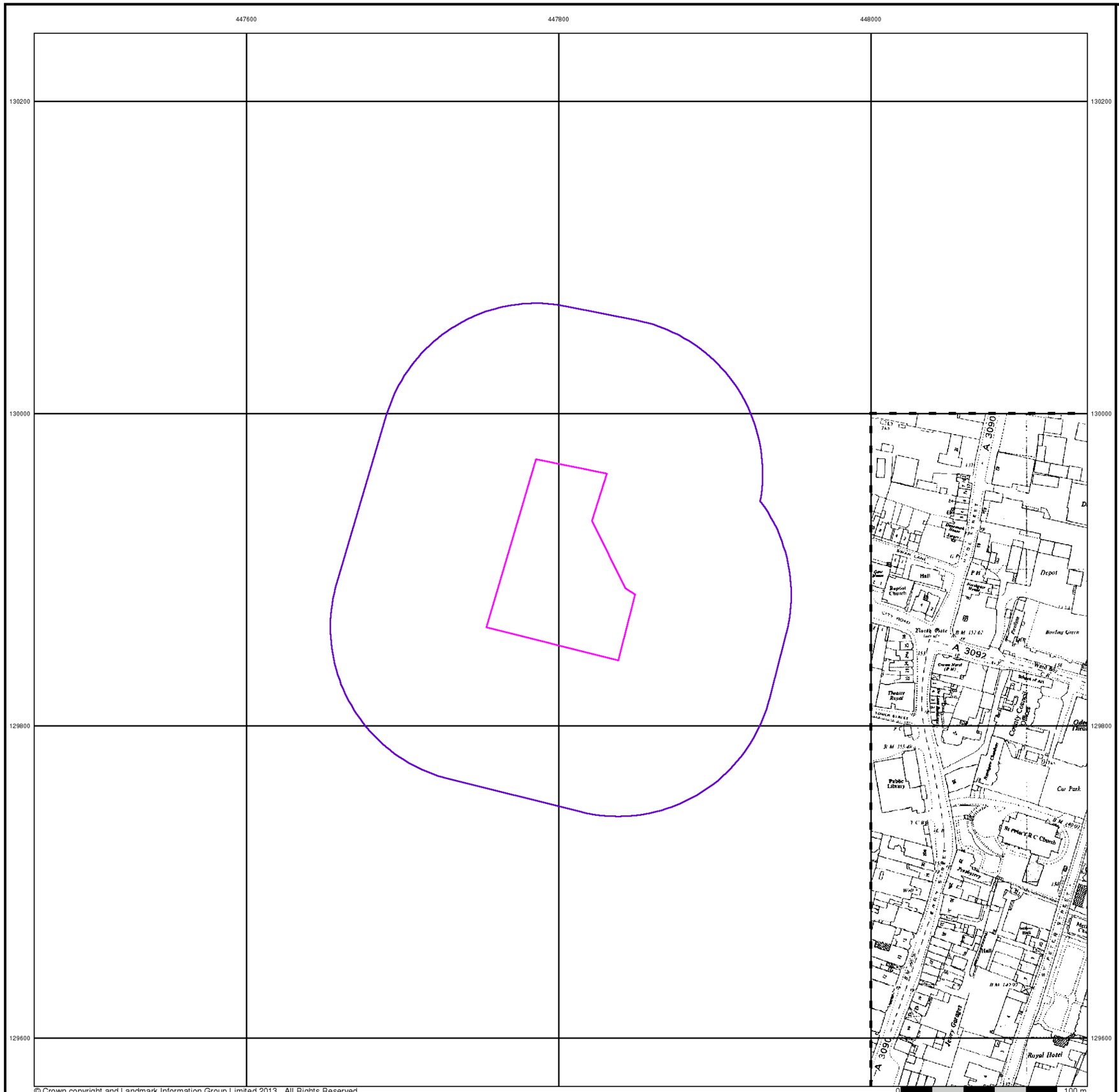


TWEEDIE EVANS CONSULTING

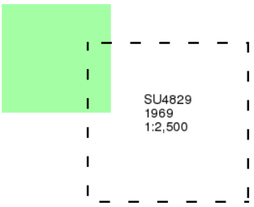
Ordnance Survey Plan

Published 1969

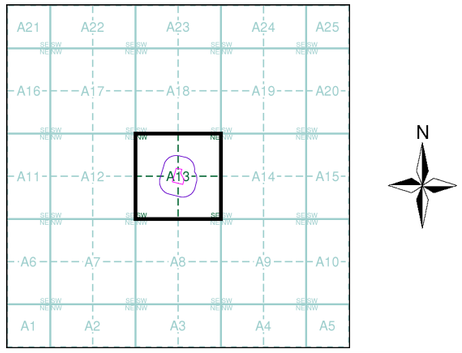
Source map scale - 1:2,500

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 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	100

Site Details

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0 100 m

TWEEDIE EVANS CONSULTING

Ordnance Survey Plan

Published 1974 - 1991

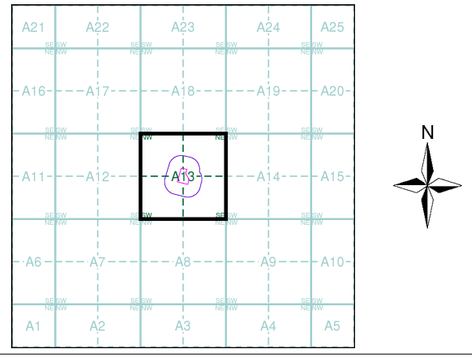
Source map scale - 1:1,250

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 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below 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.

Map Name(s) and Date(s)

SU4730SW 1979 1:1,250	SU4730SE 1979 1:1,250	SU4830SW 1984 1:1,250
SU4729NW 1981 1:1,250	SU4729NE 1991 1:1,250	SU4829NW 1974 1:1,250

Historical Map - Segment A13



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
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Search Buffer (m):	100

Site Details

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TWEEDIE EVANS CONSULTING

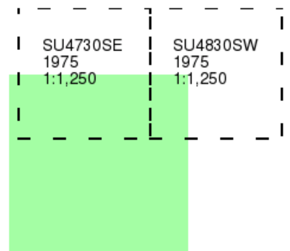
Supply of Unpublished Survey Information

Published 1975

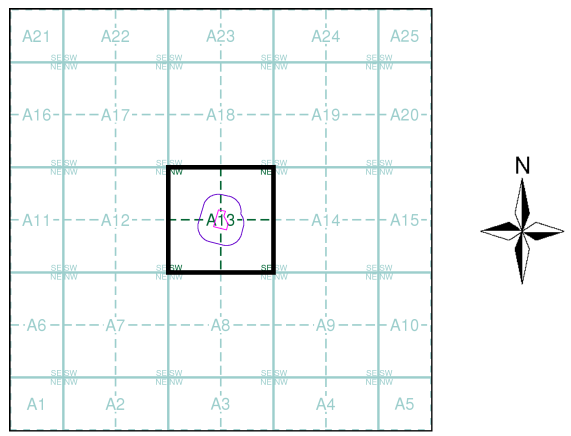
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 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.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 50116218_1_1
Customer Ref: 1308015.001
National Grid Reference: 447800, 129900
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Site Area (Ha): 0.77
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Site Details

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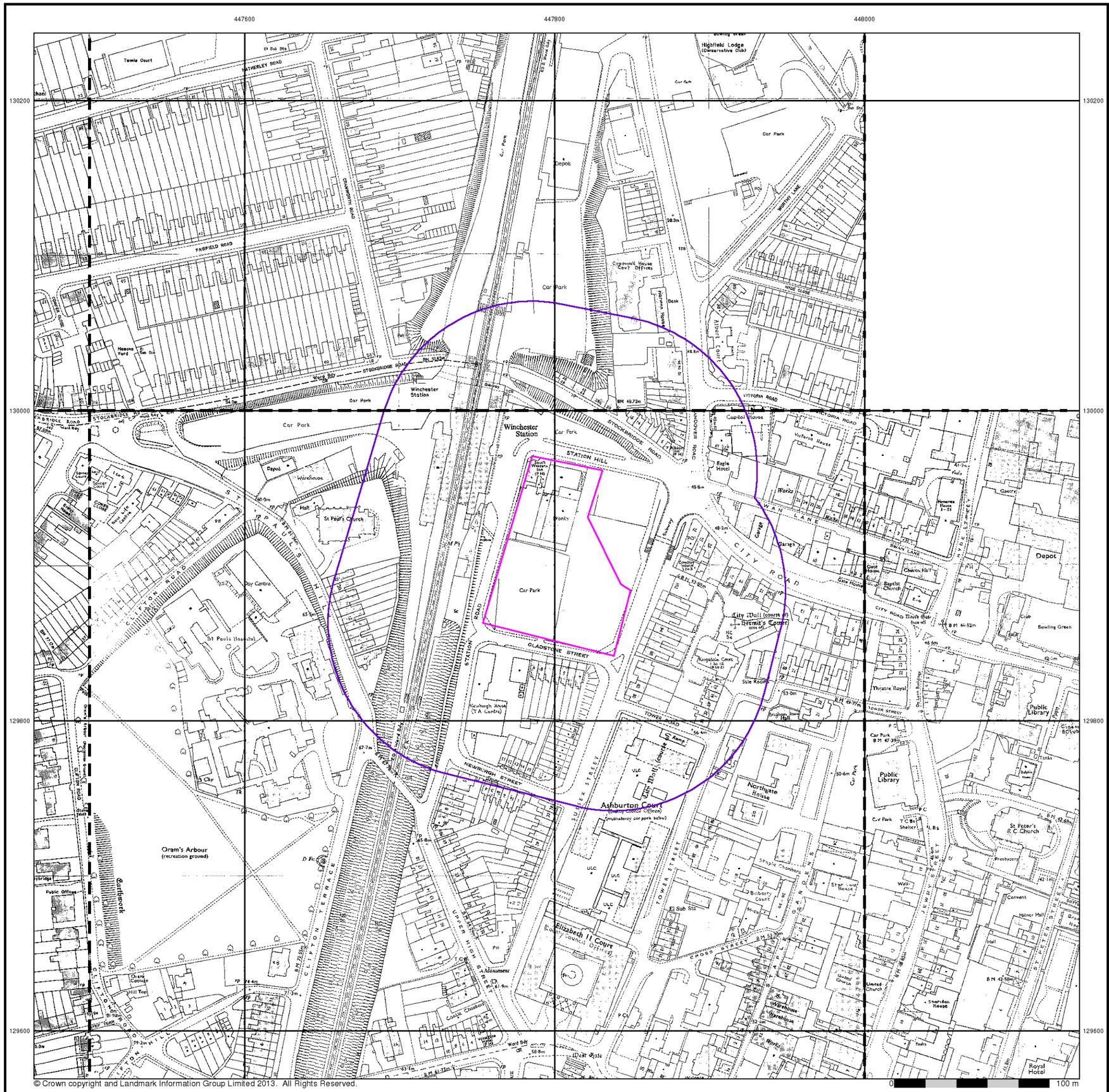


TWEEDIE EVANS CONSULTING

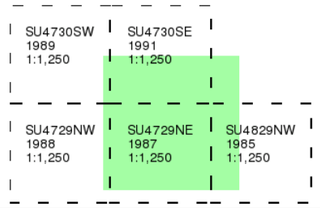
Additional SIMs

Published 1985 - 1991

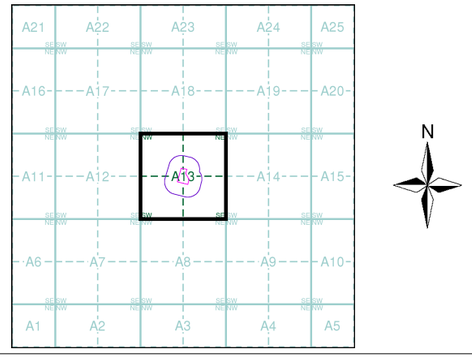
Source map scale - 1:1,250

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 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	100

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group
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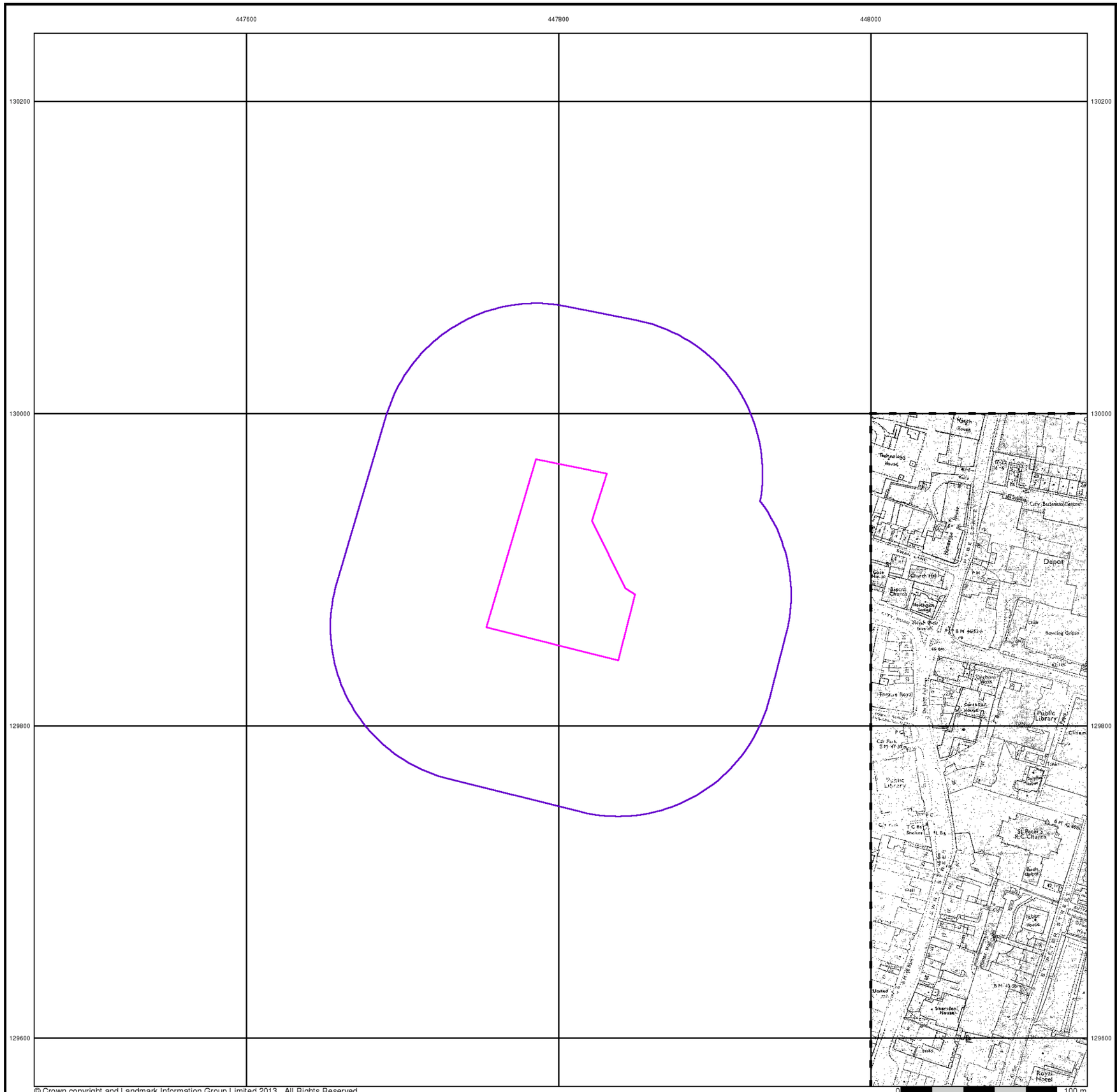


TWEEDIE EVANS CONSULTING

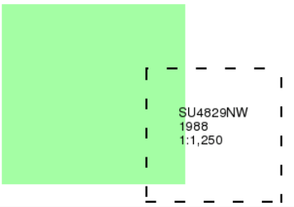
Additional SIMs

Published 1988

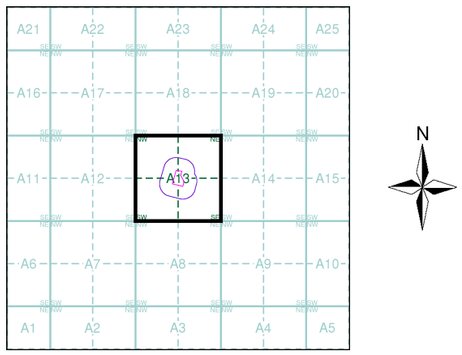
Source map scale - 1:1,250

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 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
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Site Details

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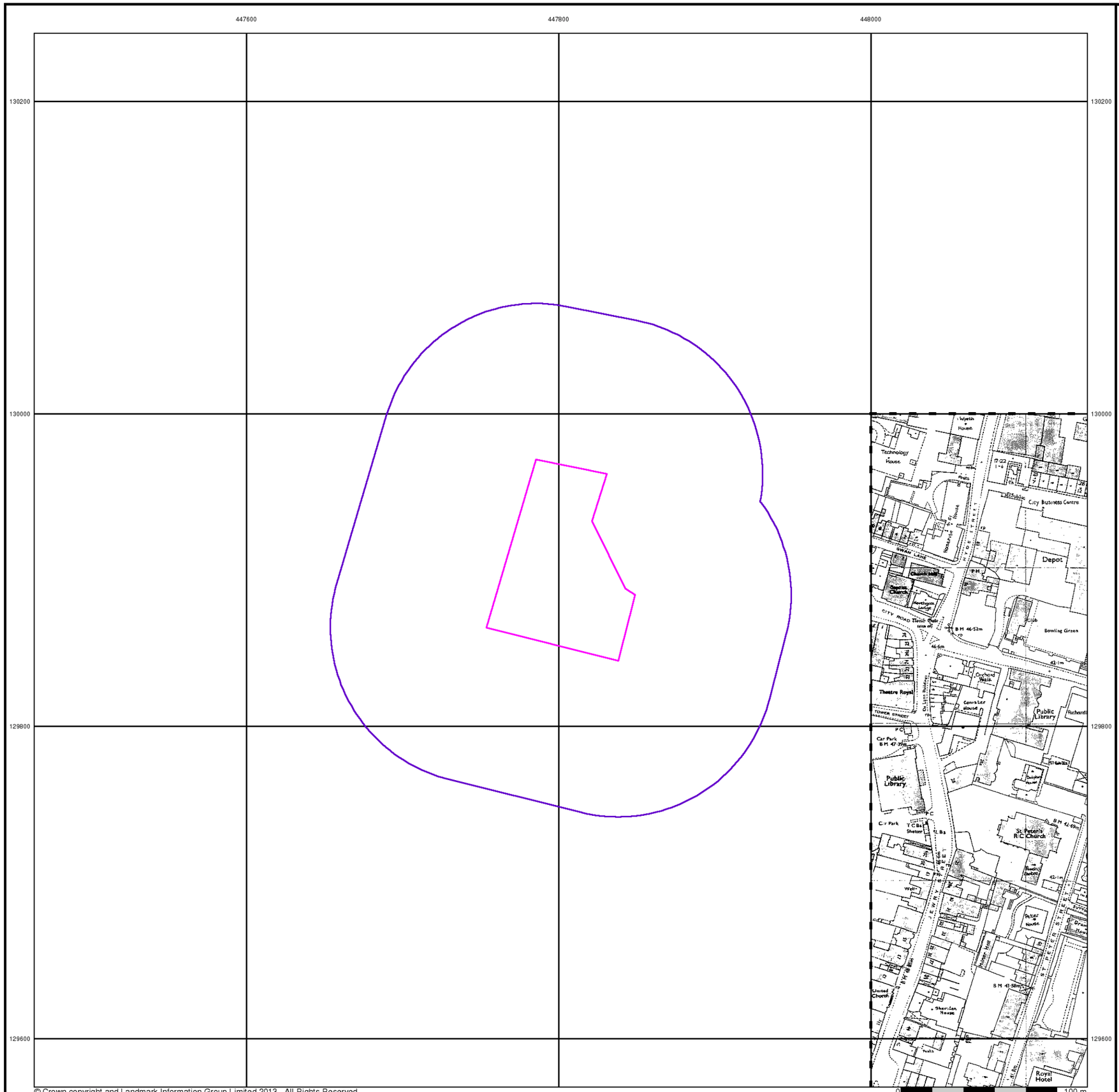


TWEEDIE EVANS CONSULTING

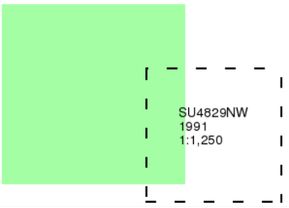
Additional SIMs

Published 1991

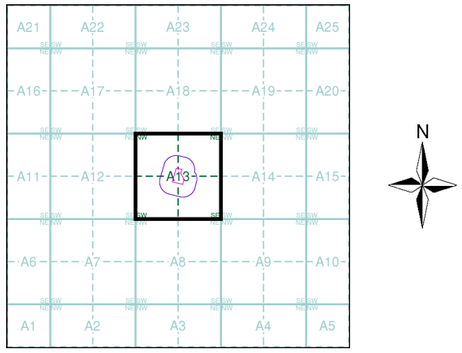
Source map scale - 1:1,250

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 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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Order Number:	50116218_1_1
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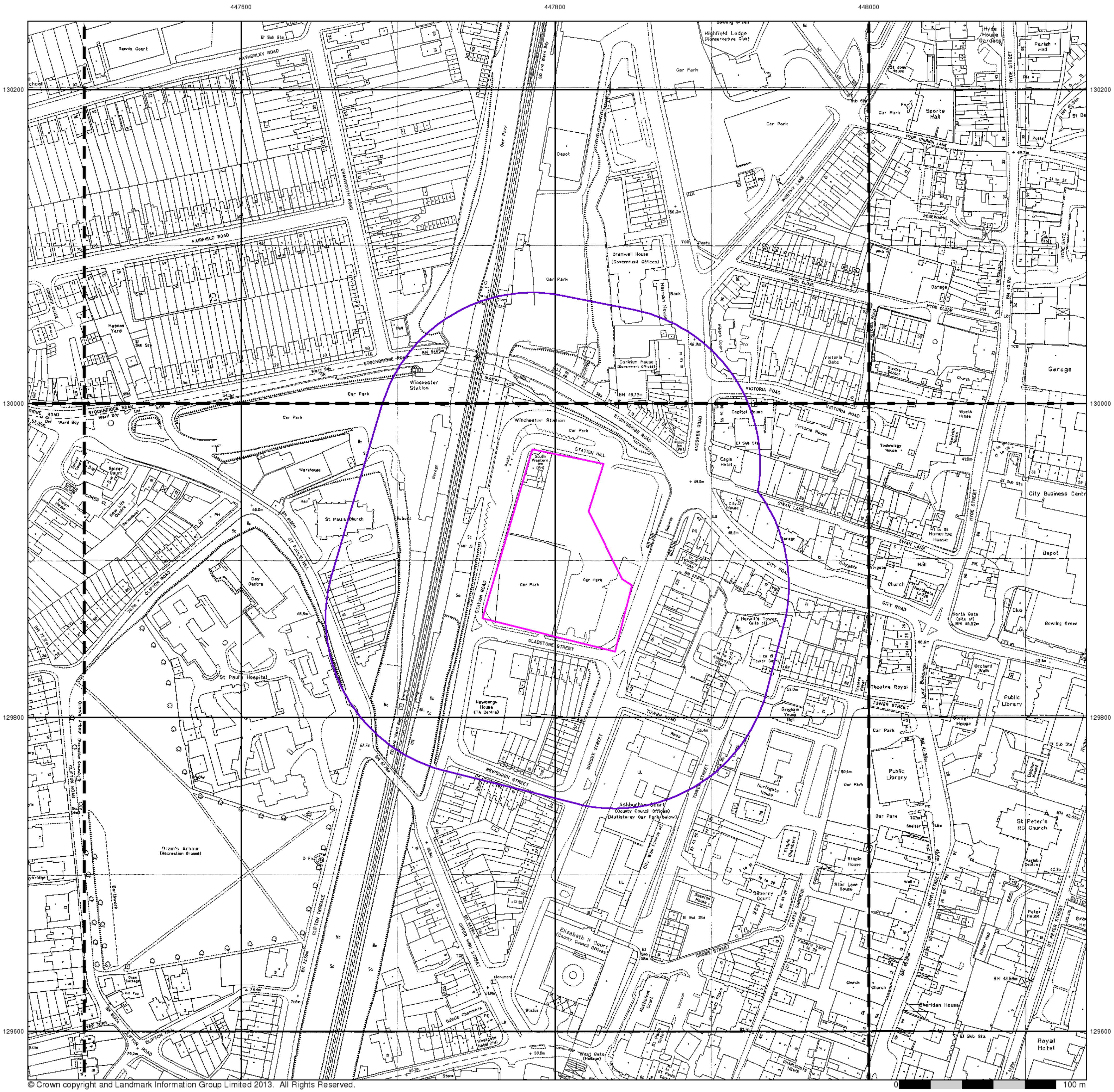


TWEEDIE EVANS CONSULTING

Large-Scale National Grid Data

Published 1993

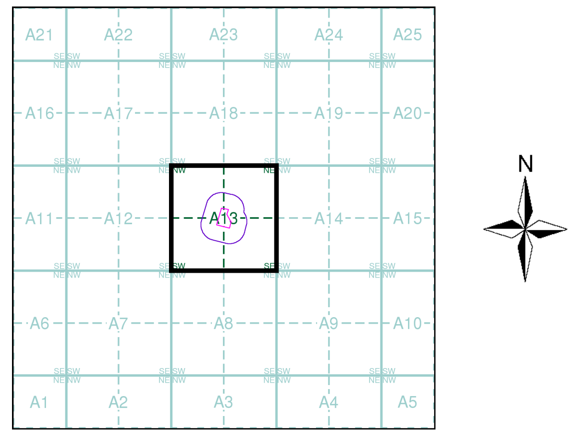
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-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.

Map Name(s) and Date(s)

SU4730SW 1993 1:1,250	SU4730SE 1993 1:1,250	SU4830SW 1993 1:1,250
SU4729NW 1993 1:1,250	SU4729NE 1993 1:1,250	SU4829NW 1993 1:1,250

Historical Map - Segment A13



Order Details

Order Number: 50116218_1_1
Customer Ref: 1308015.001
National Grid Reference: 447800, 129900
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Site Details

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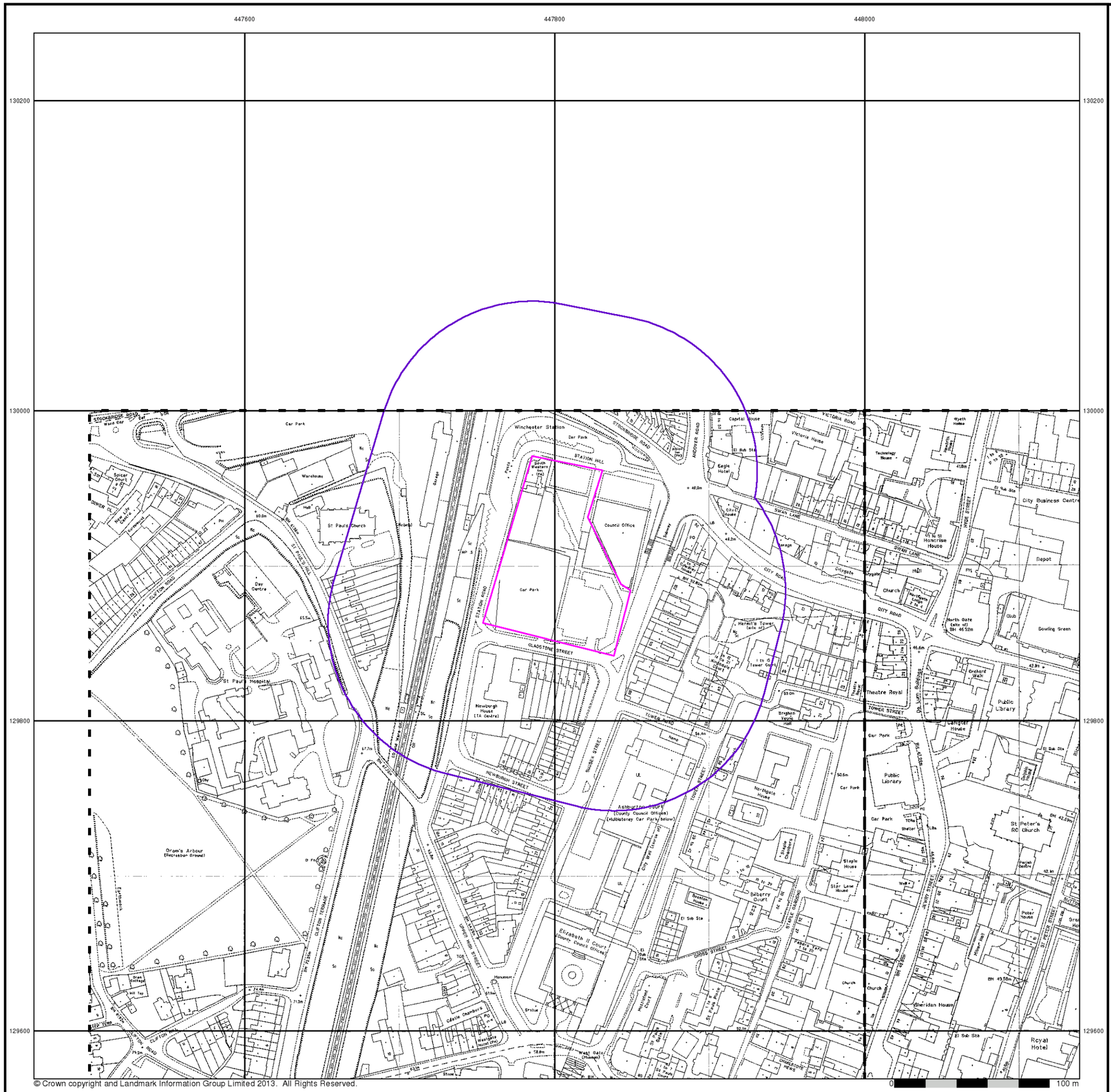


TWEEDIE EVANS CONSULTING

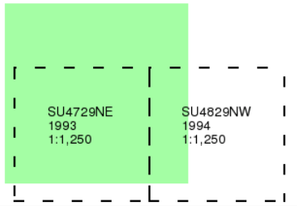
Large-Scale National Grid Data

Published 1993 - 1994

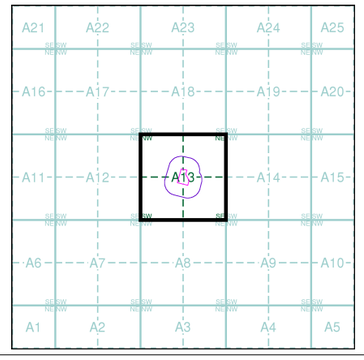
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-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.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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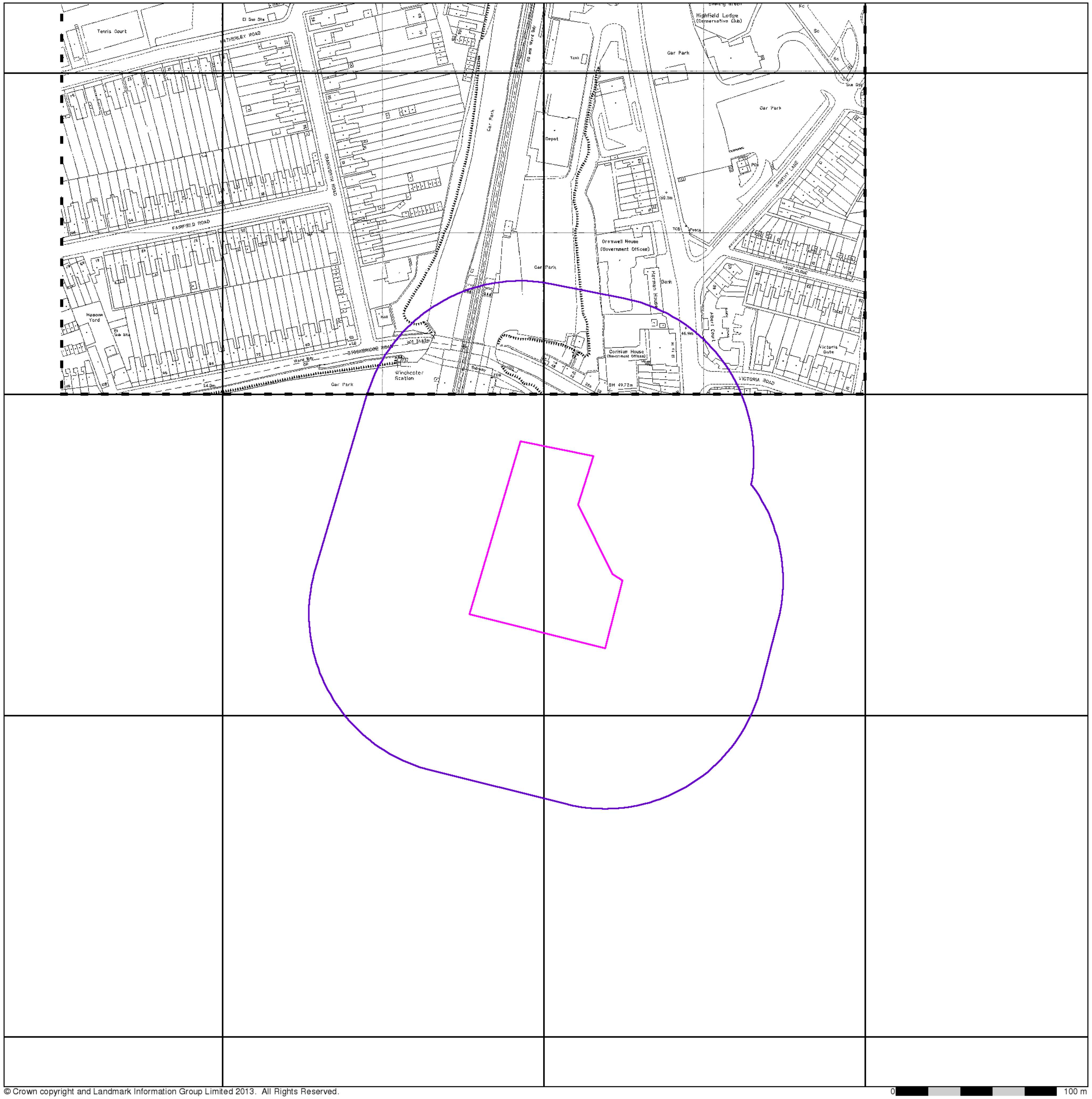


TWEEDIE EVANS CONSULTING

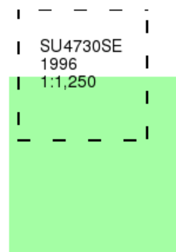
Large-Scale National Grid Data

Published 1996

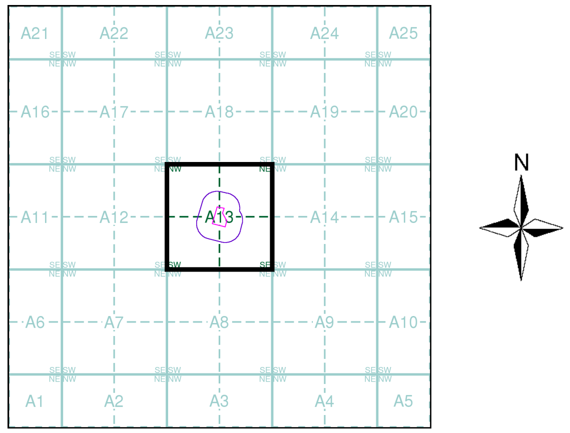
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-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.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
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
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

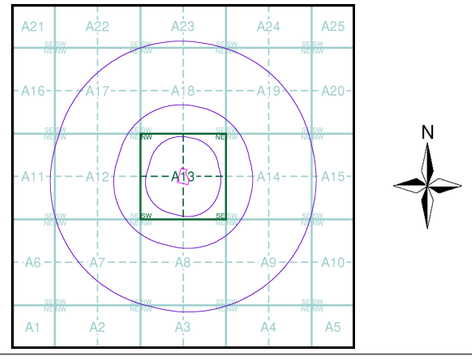
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

TWEEDIE EVANS CONSULTING

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Hampshire & Isle Of Wight	1:10,560	1873 - 1874	2
Hampshire & Isle Of Wight	1:10,560	1897 - 1898	3
Hampshire & Isle Of Wight	1:10,560	1910 - 1911	4
Hampshire & Isle Of Wight	1:10,560	1930 - 1932	5
Hampshire & Isle Of Wight	1:10,560	1931 - 1932	6
Hampshire & Isle Of Wight	1:10,560	1938 - 1940	7
Historical Aerial Photography	1:10,560	1947	8
Ordnance Survey Plan	1:10,000	1962	9
Ordnance Survey Plan	1:10,000	1966 - 1968	10
Ordnance Survey Plan	1:10,000	1969	11
Ordnance Survey Plan	1:10,000	1977	12
Ordnance Survey Plan	1:10,000	1983 - 1989	13
Ordnance Survey Plan	1:10,000	1990	14
10K Raster Mapping	1:10,000	2013	15

Historical Map - Slice A



Order Details

Order Number: 50116218_1_1
Customer Ref: 1308015.001
National Grid Reference: 447800, 129900
Slice: A
Site Area (Ha): 0.77
Search Buffer (m): 1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

TWEEDIE EVANS CONSULTING

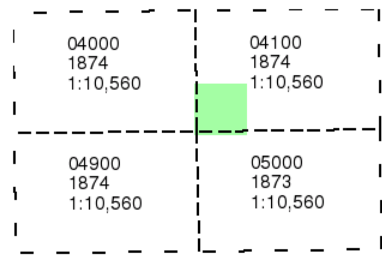
Hampshire & Isle Of Wight

Published 1873 - 1874

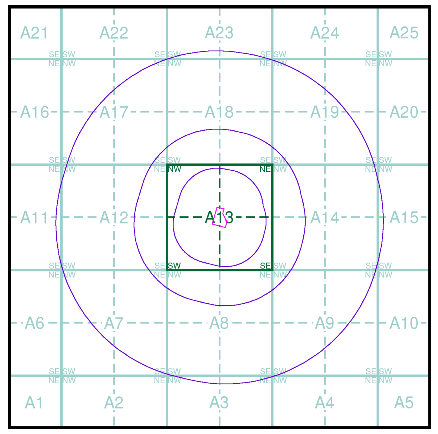
Source map scale - 1:10,560

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 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.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
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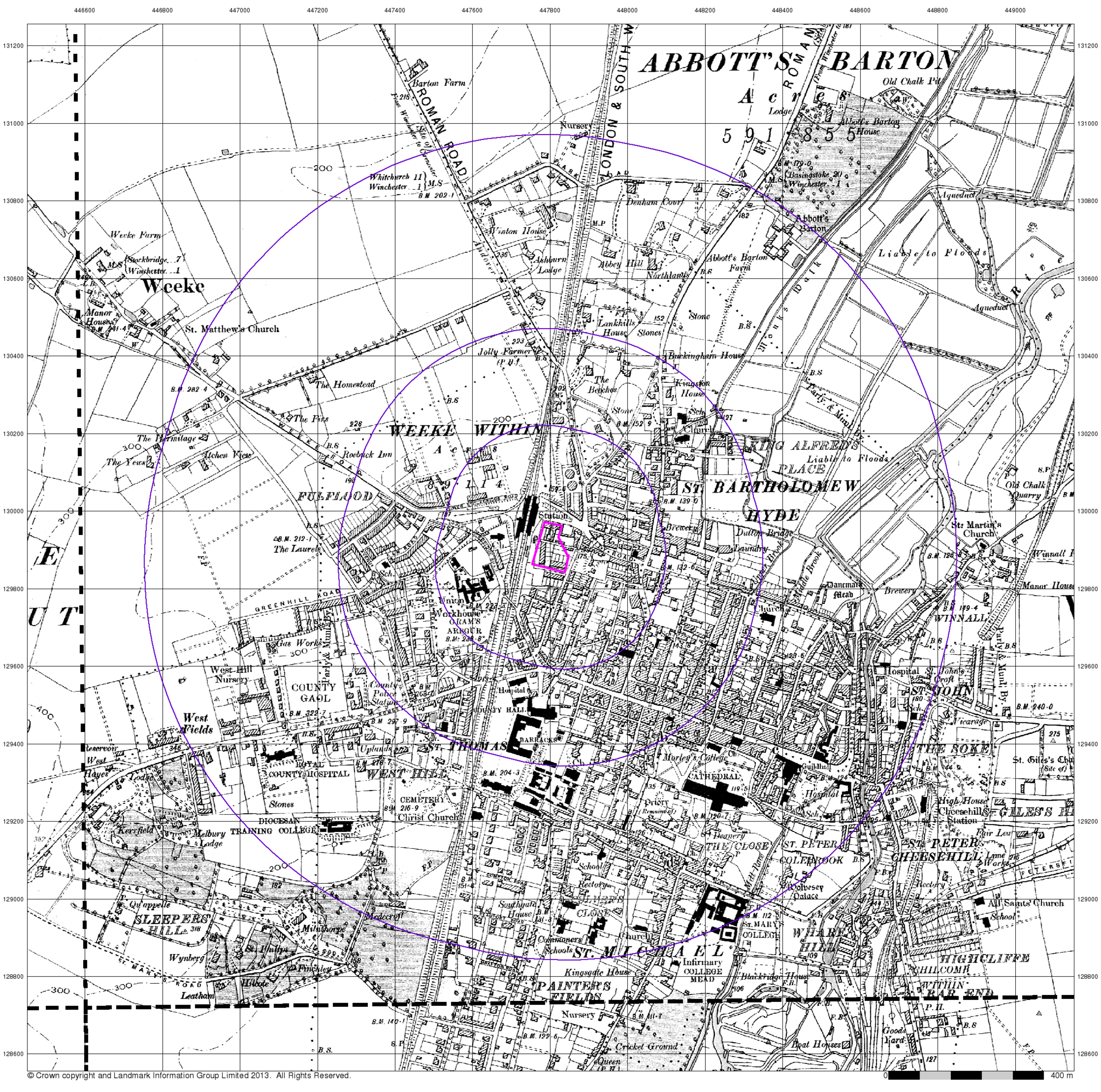


TWEEDIE EVANS CONSULTING

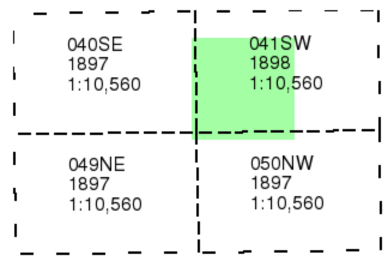
Hampshire & Isle Of Wight

Published 1897 - 1898

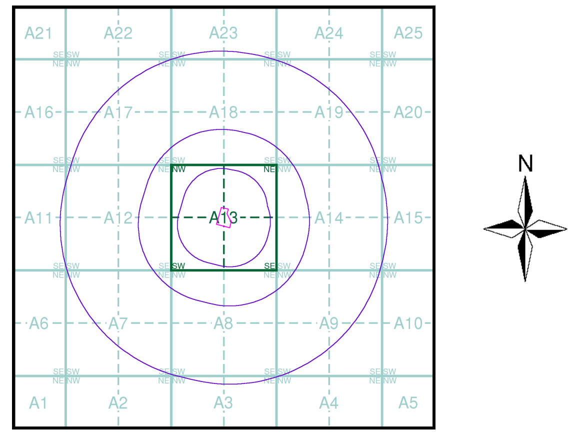
Source map scale - 1:10,560

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 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.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 50116218_1_1
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Slice: A
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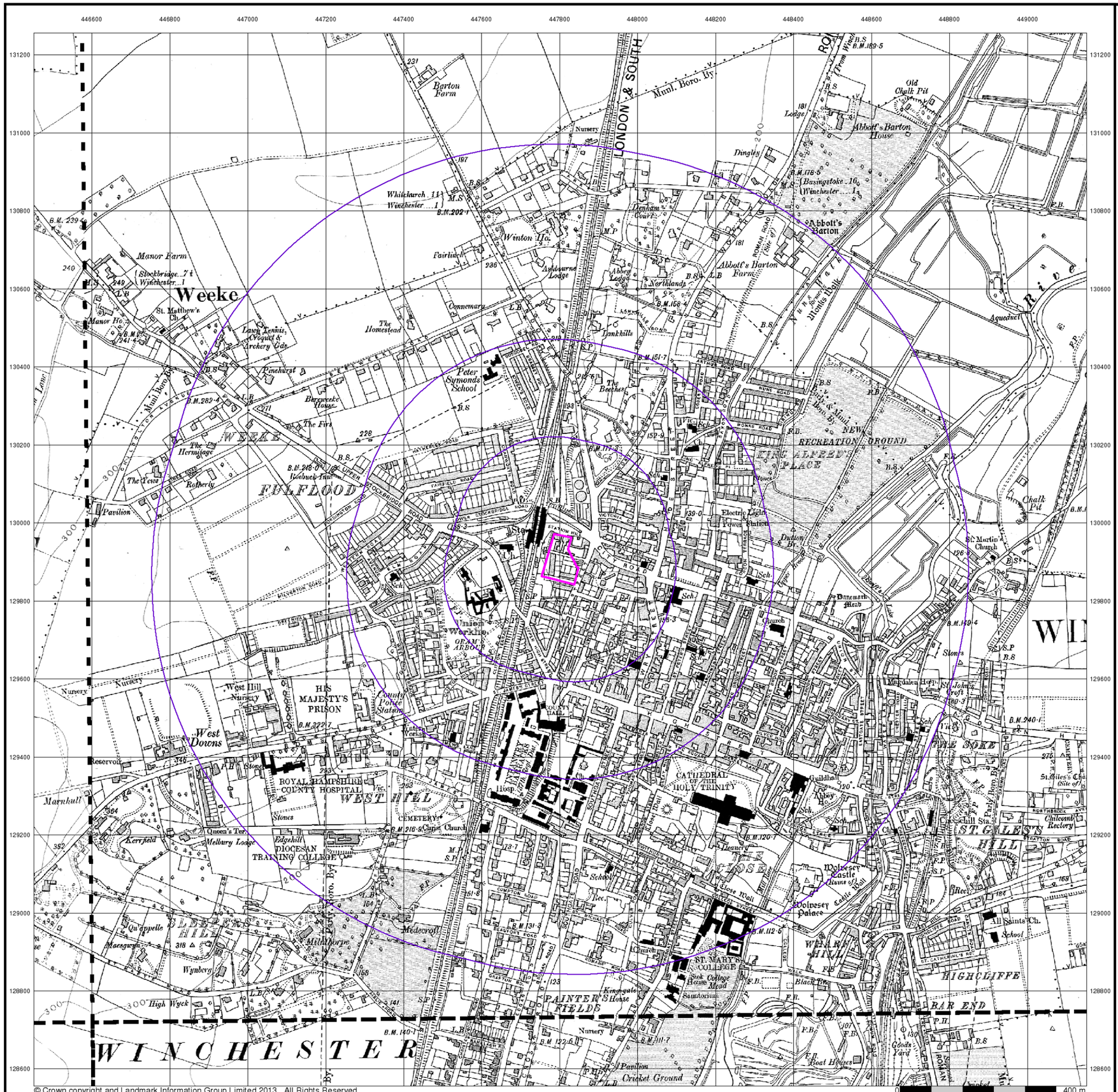


TWEEDIE EVANS CONSULTING

Hampshire & Isle Of Wight

Published 1910 - 1911

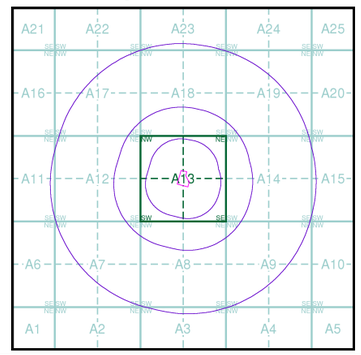
Source map scale - 1:10,560

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 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.

Map Name(s) and Date(s)

040SE 1910 1:10,560	041SW 1910 1:10,560
049NE 1910 1:10,560	050NW 1911 1:10,560

Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
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Slice:	A
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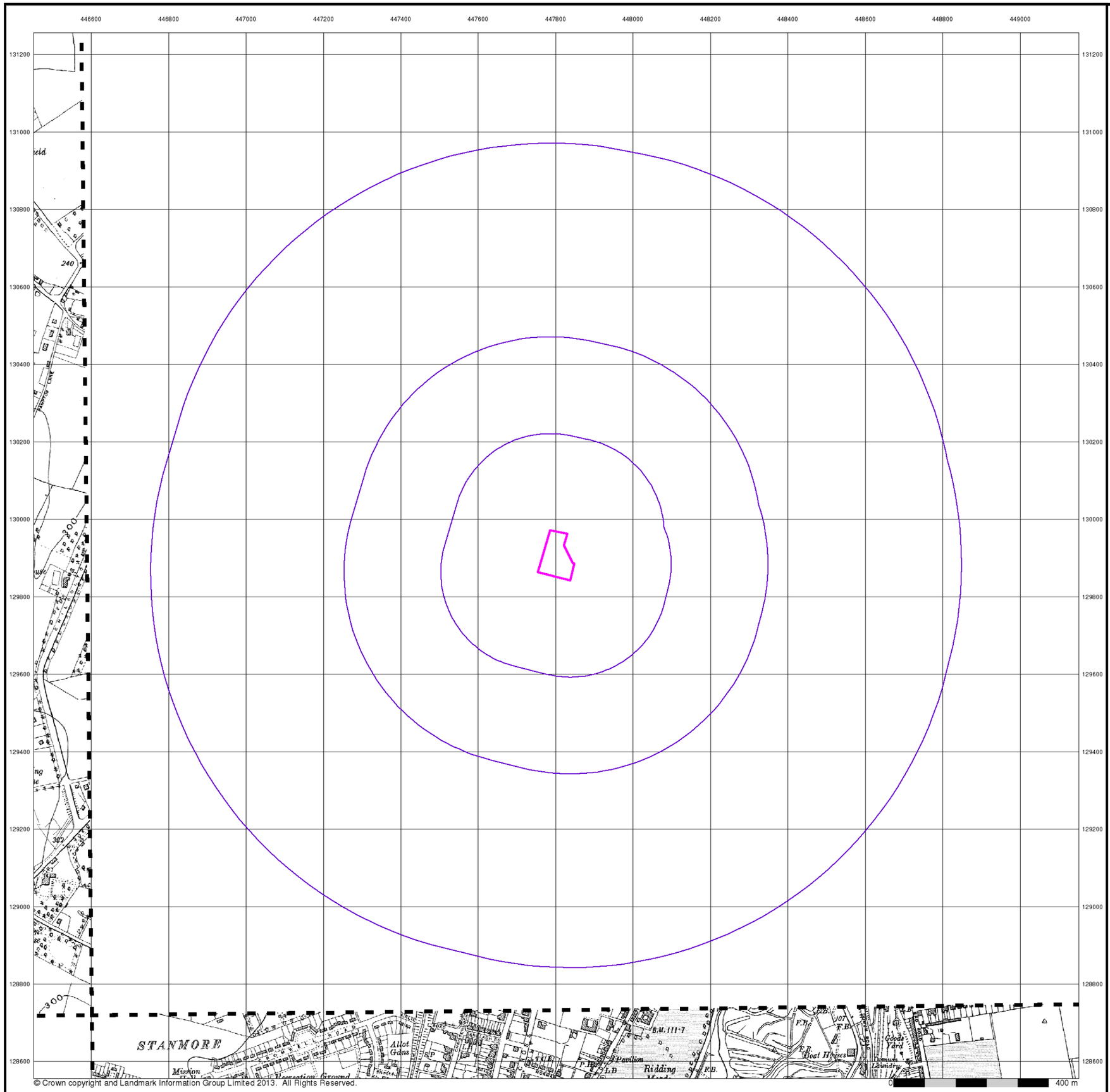


TWEEDIE EVANS CONSULTING

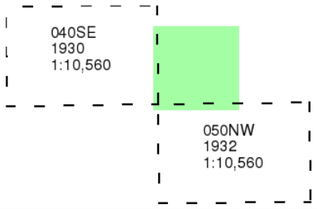
Hampshire & Isle Of Wight

Published 1930 - 1932

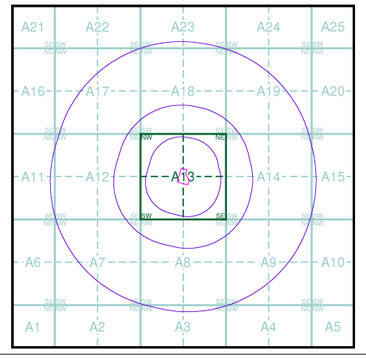
Source map scale - 1:10,560

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 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.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
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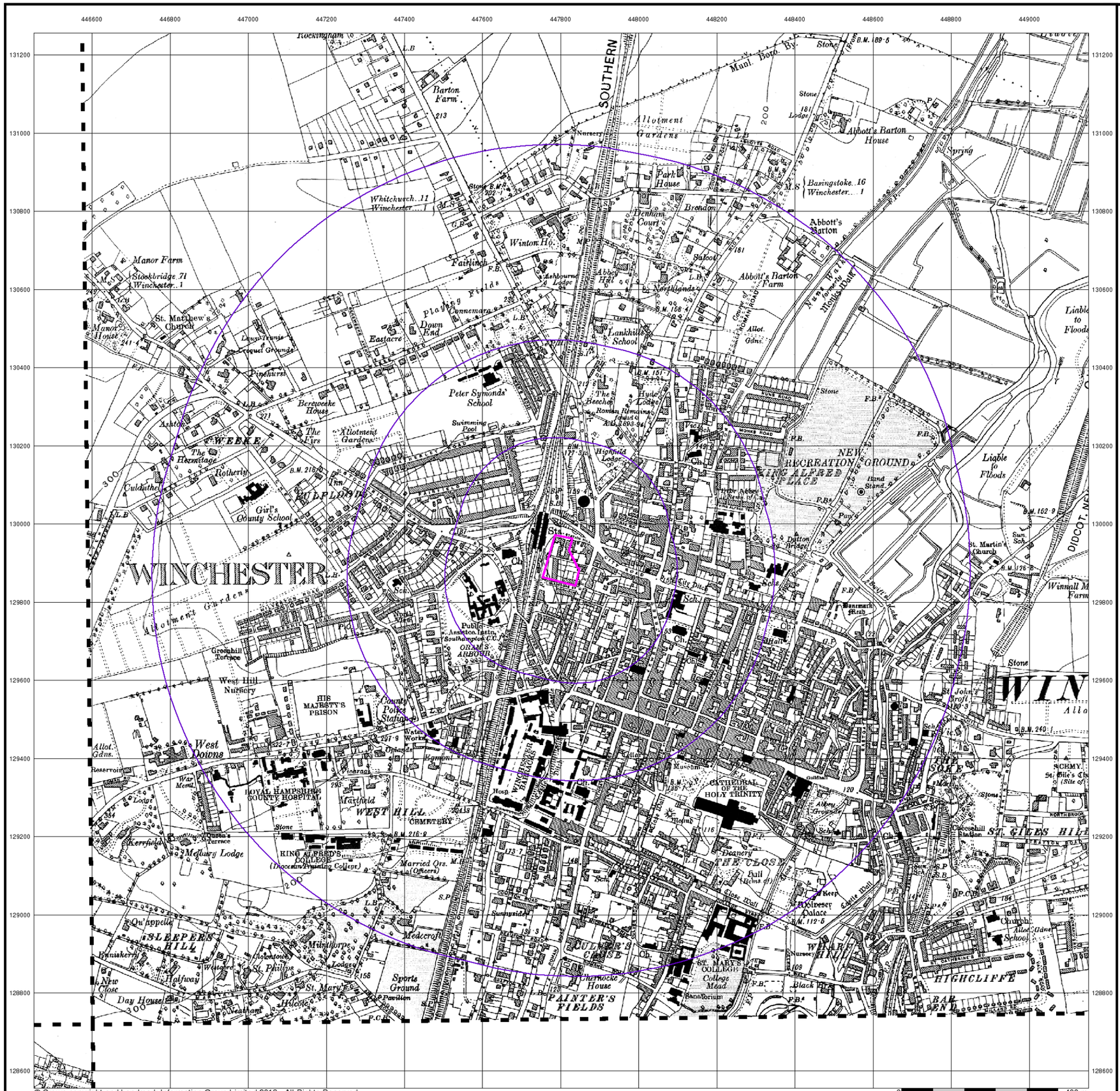


TWEEDIE EVANS CONSULTING

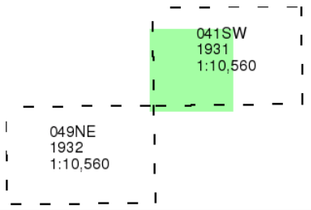
Hampshire & Isle Of Wight

Published 1931 - 1932

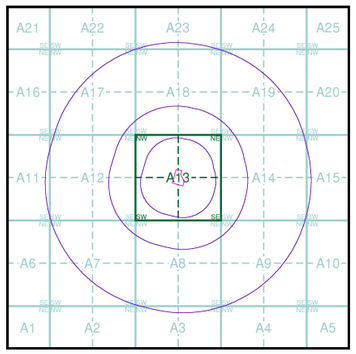
Source map scale - 1:10,560

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 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.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
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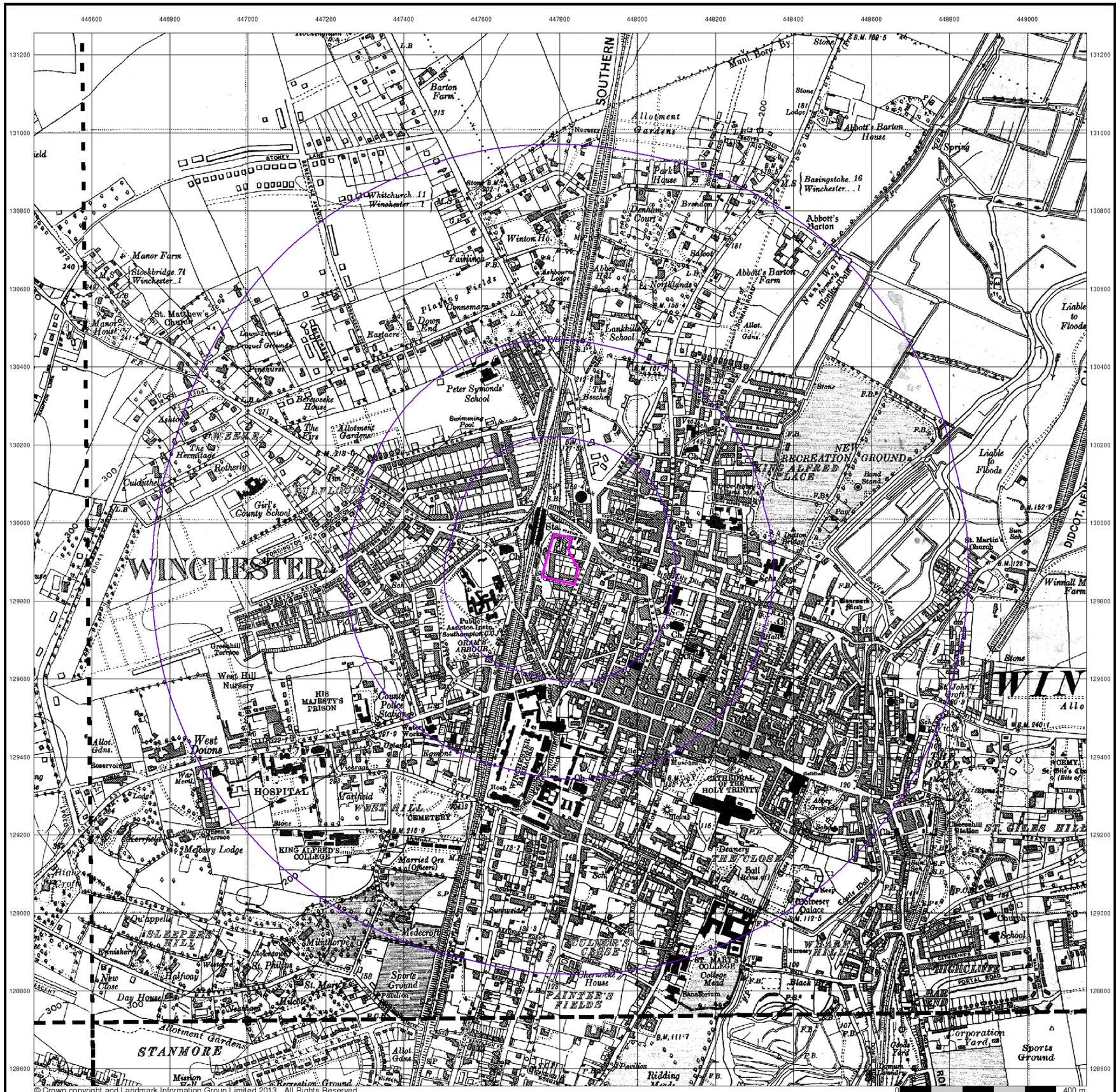


TWEEDIE EVANS CONSULTING

Hampshire & Isle Of Wight

Published 1938 - 1940

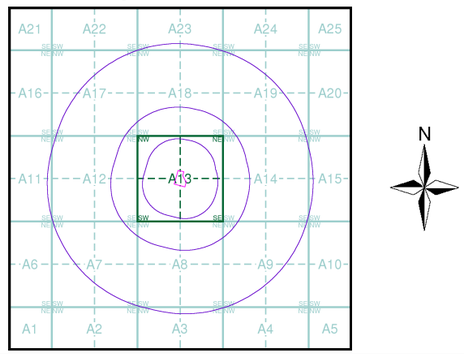
Source map scale - 1:10,560

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 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.

Map Name(s) and Date(s)

040SE 1938 1:10,560	041SW 1938 1:10,560
049NE 1938 1:10,560	050NW 1940 1:10,560

Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

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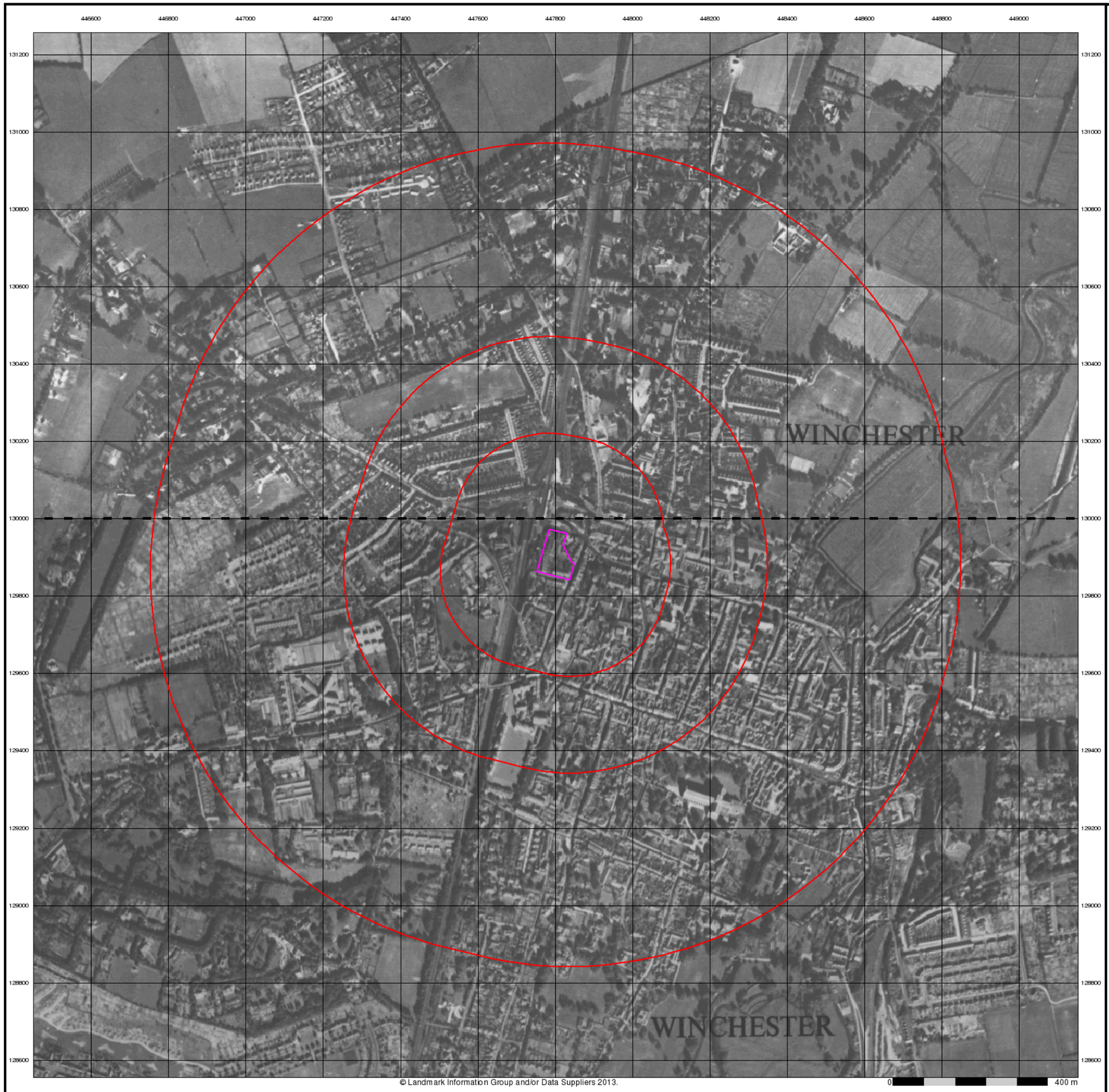


TWEEDIE EVANS CONSULTING

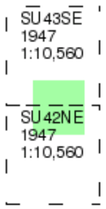
Historical Aerial Photography

Published 1947

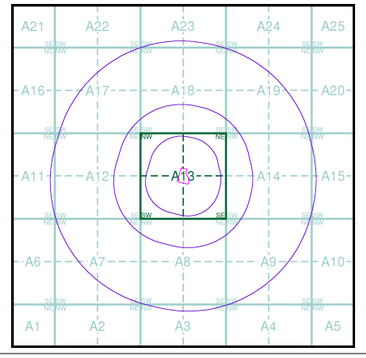
Source map scale - 1:10,560

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



BRITISH LIBRARY

Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
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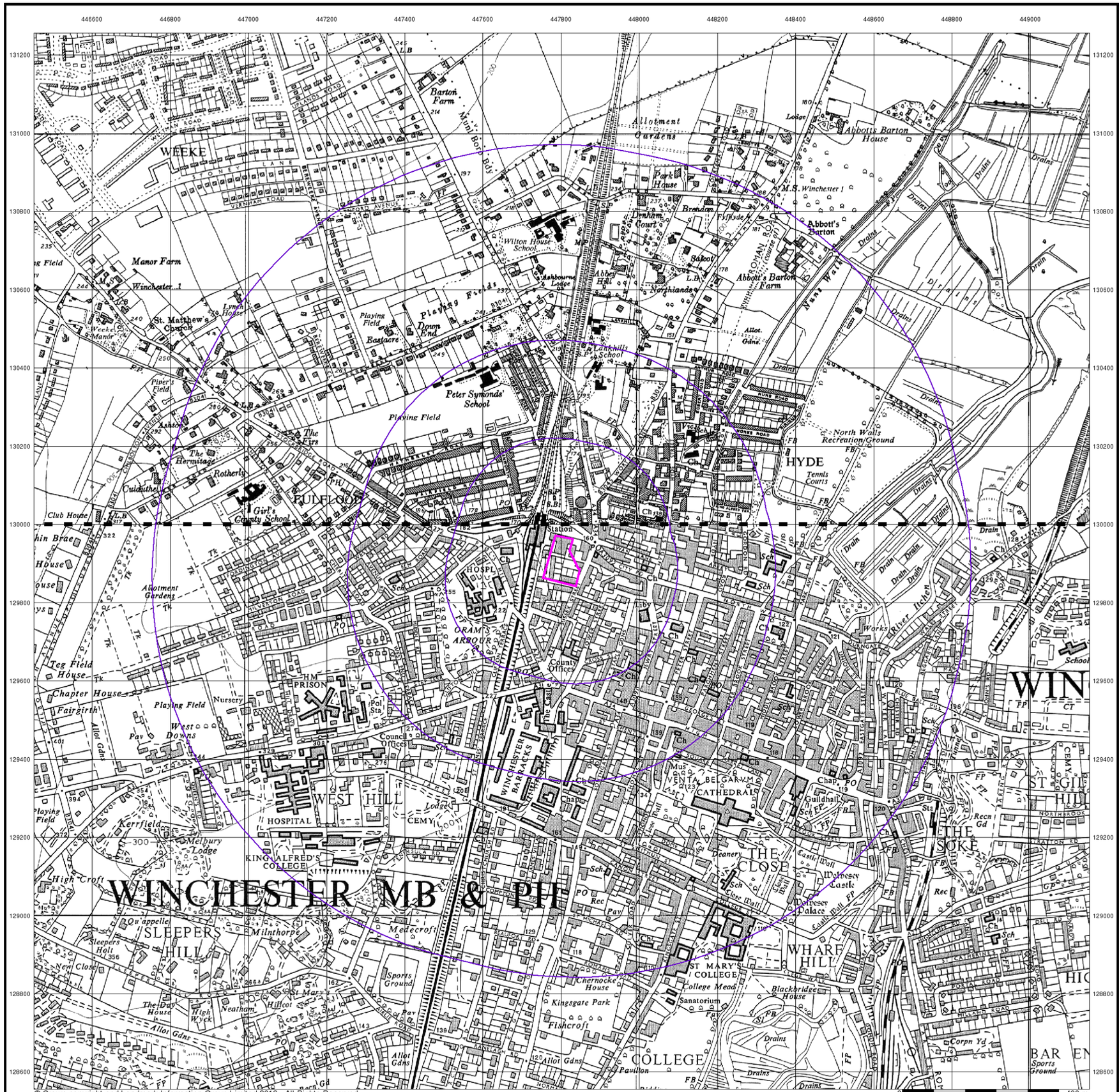


TWEEDIE EVANS CONSULTING

Ordnance Survey Plan

Published 1962

Source map scale - 1:10,000

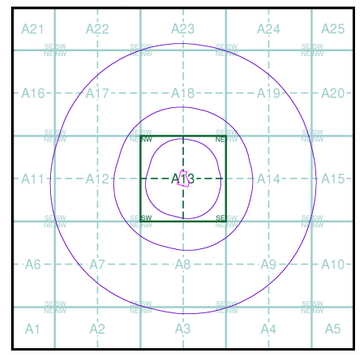
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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.

Map Name(s) and Date(s)

SU43SE
1962
1:10,560

SU42NE
1962
1:10,560

Historical Map - Slice A



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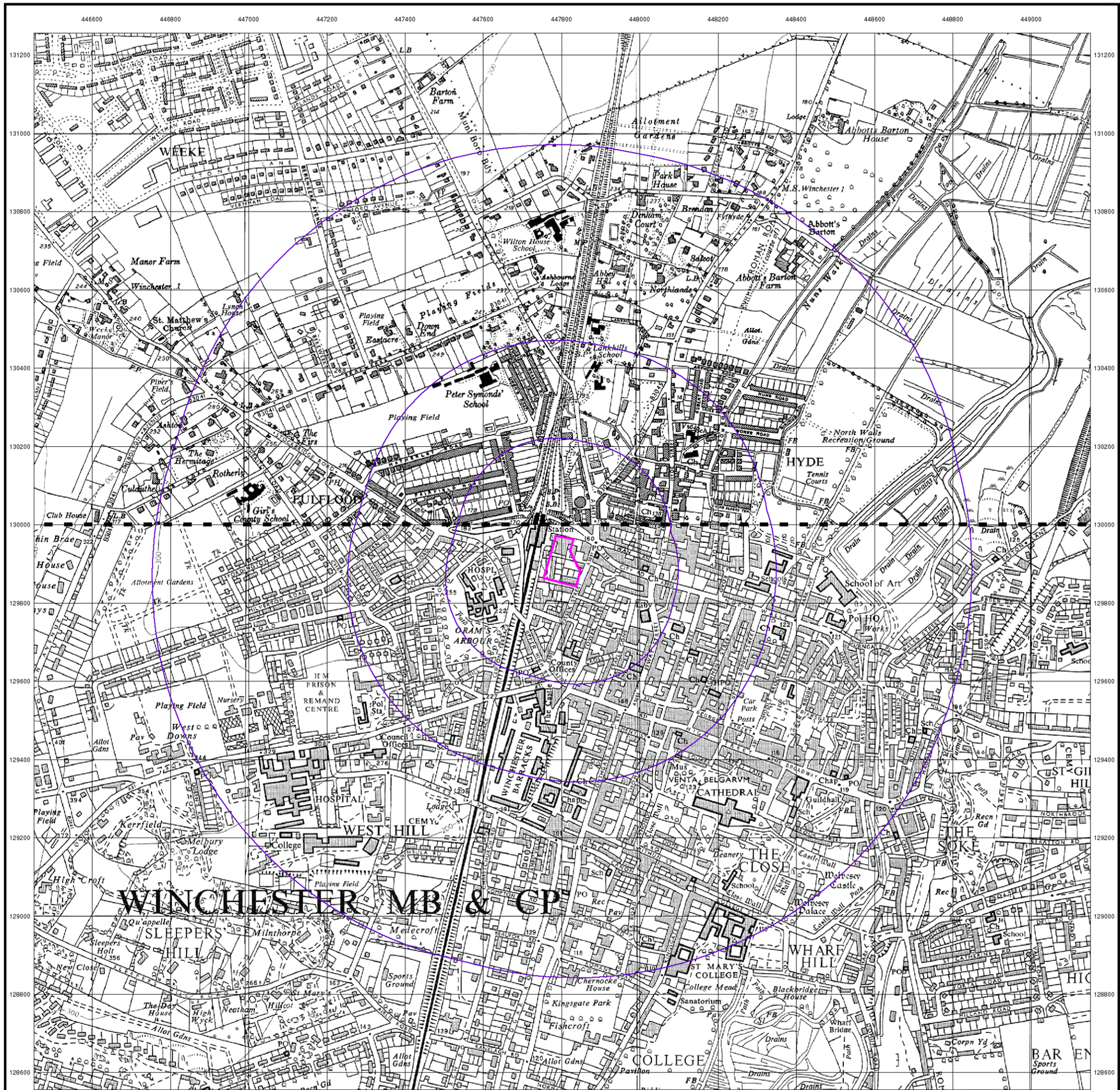


TWEEDIE EVANS CONSULTING

Ordnance Survey Plan

Published 1966 - 1968

Source map scale - 1:10,000

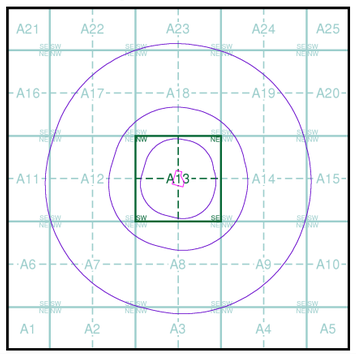
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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.

Map Name(s) and Date(s)

SU43SE
1966
1:10,560

SU42NE
1968
1:10,560

Historical Map - Slice A



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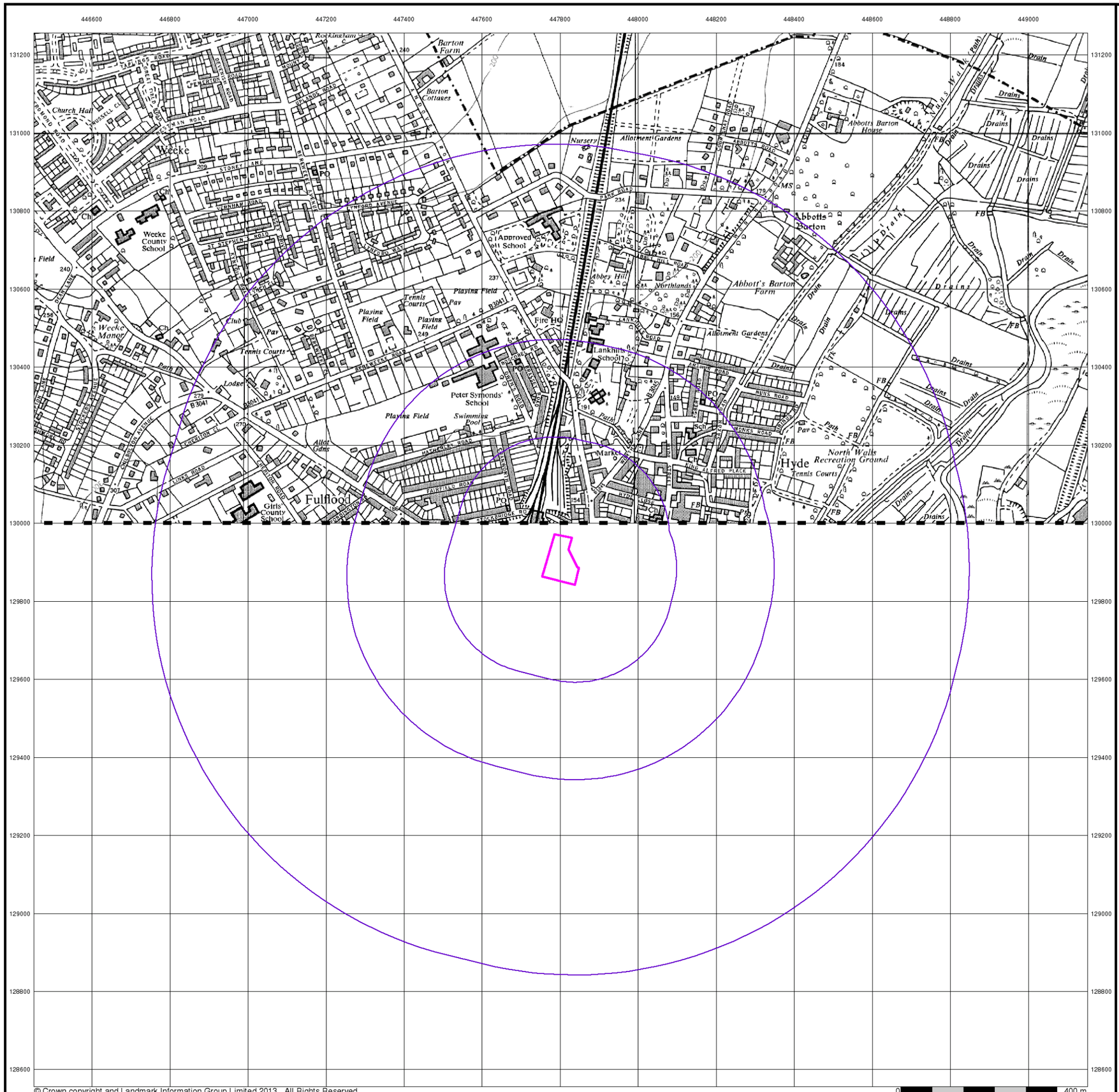

TWEEDIE EVANS CONSULTING

Ordnance Survey Plan

Published 1969

Source map scale - 1:10,000

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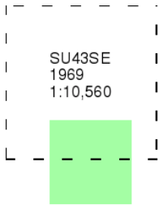
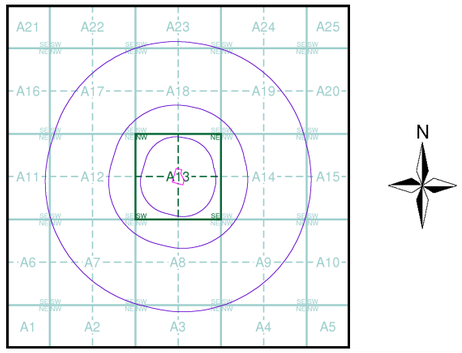
Map Name(s) and Date(s)



Historical Map - Slice A



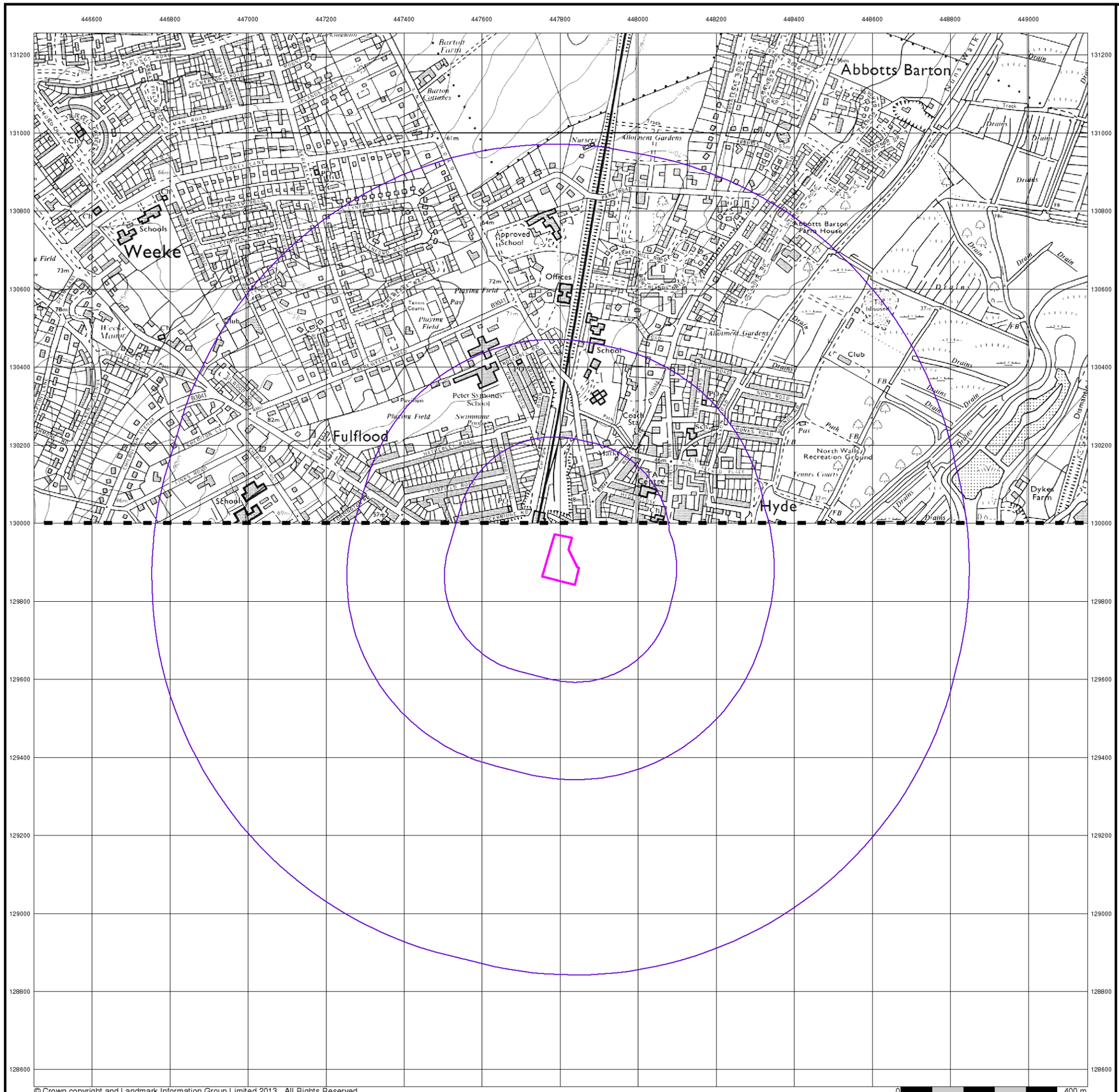
Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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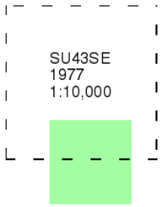
Ordnance Survey Plan

Published 1977

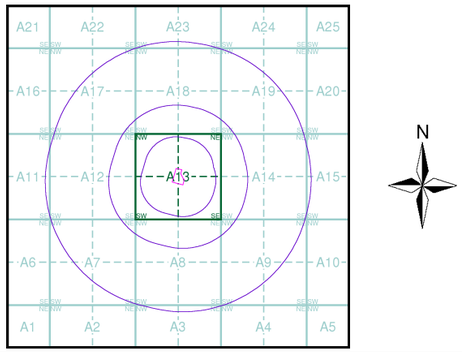
Source map scale - 1:10,000

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 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.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group

Tel: 0844 844 9952
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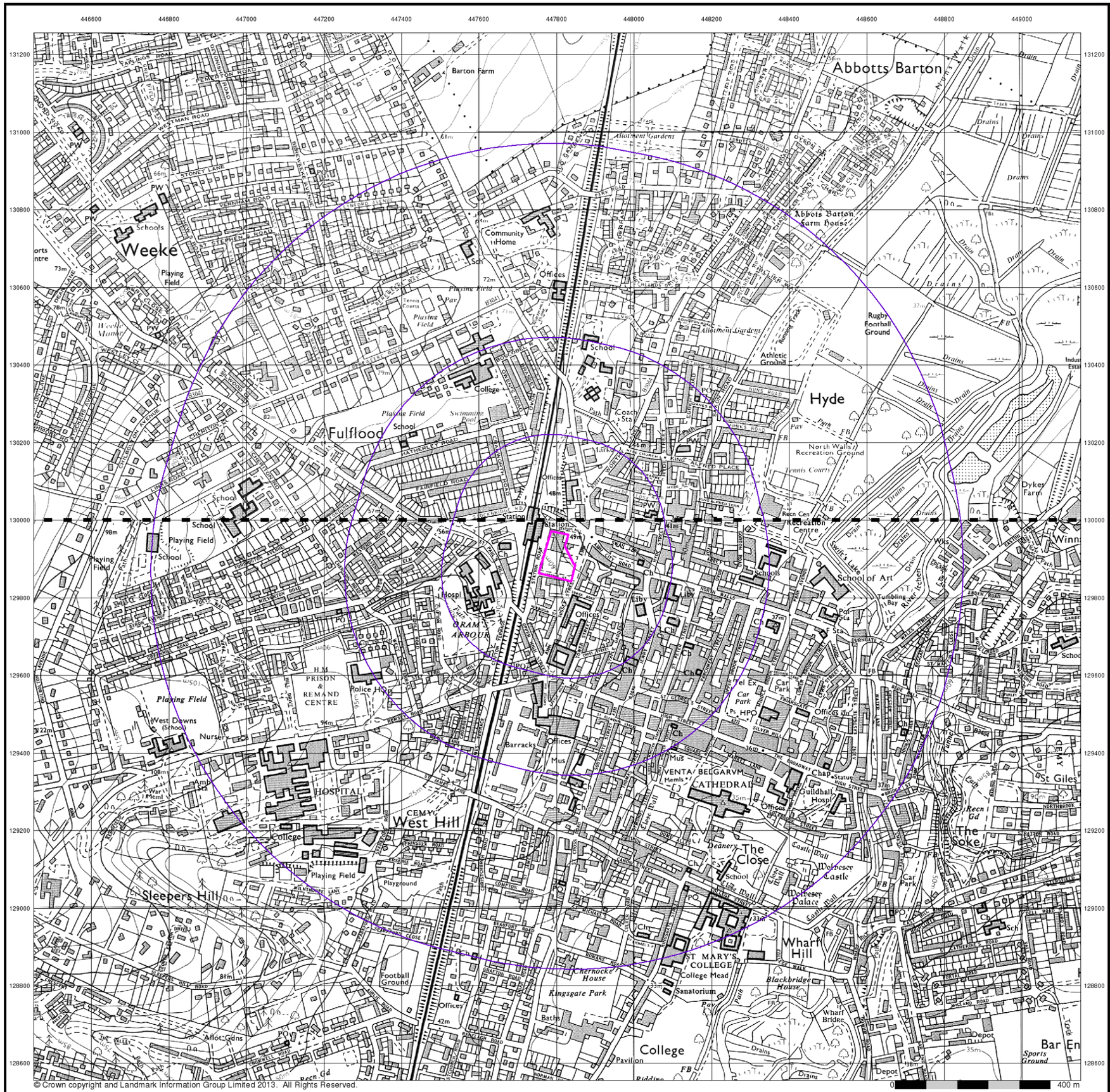


TWEEDIE EVANS CONSULTING

Ordnance Survey Plan

Published 1983 - 1989

Source map scale - 1:10,000

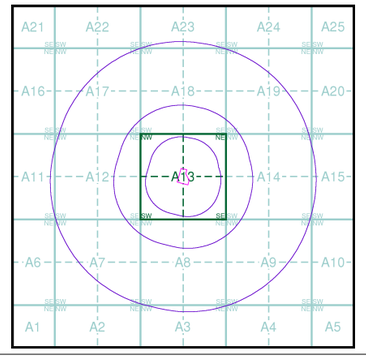
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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.

Map Name(s) and Date(s)

SU43SE
1989
1:10,000

SU42NE
1983
1:10,000

Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group

Tel: 0844 844 9952
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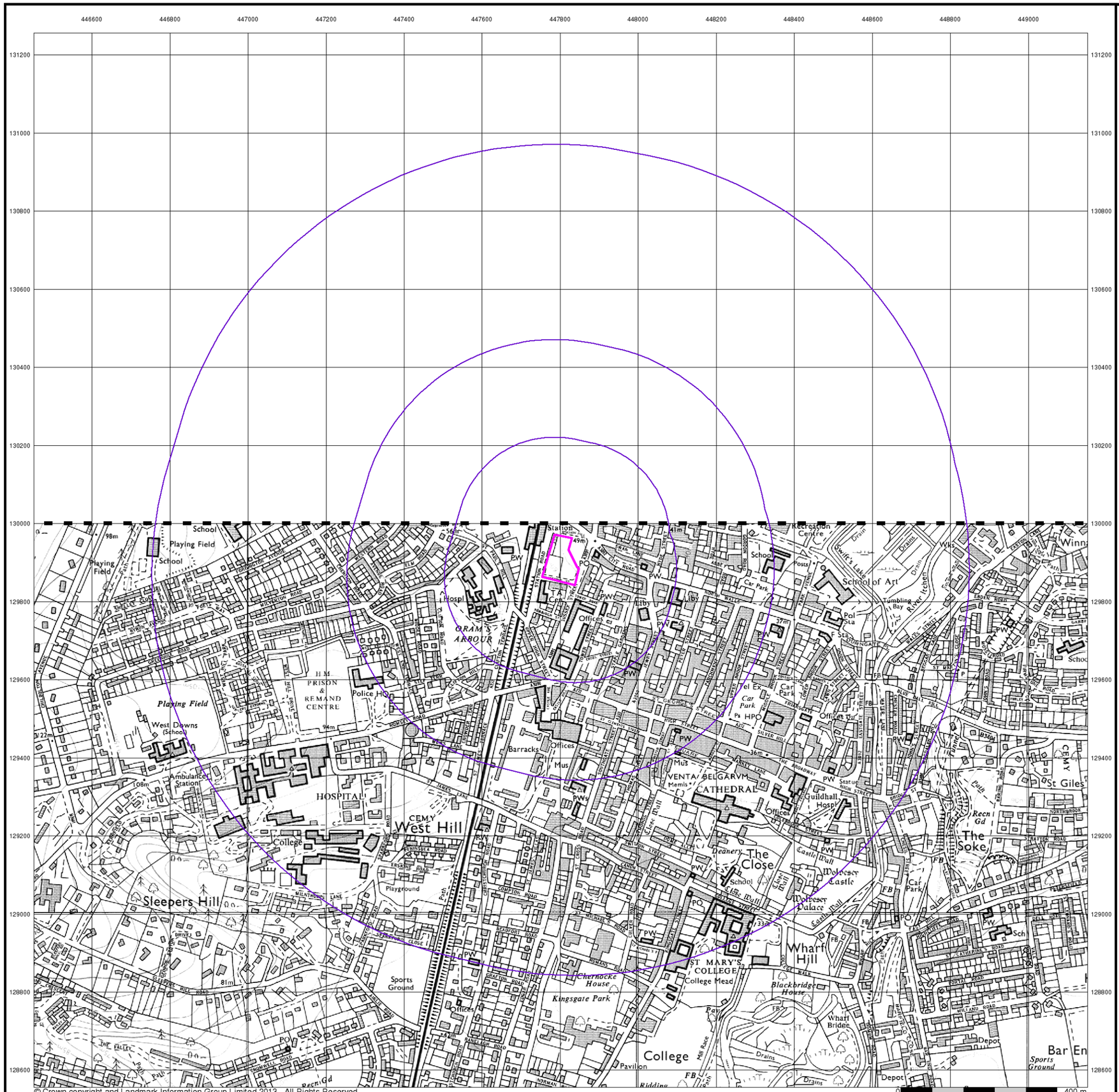


TWEEDIE EVANS CONSULTING

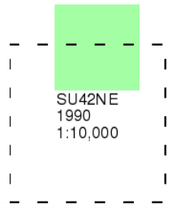
Ordnance Survey Plan

Published 1990

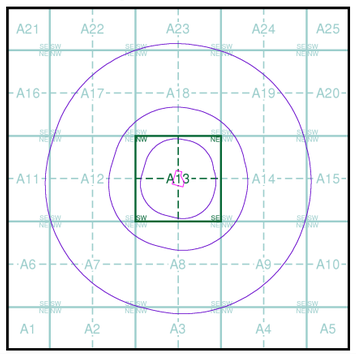
Source map scale - 1:10,000

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 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.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

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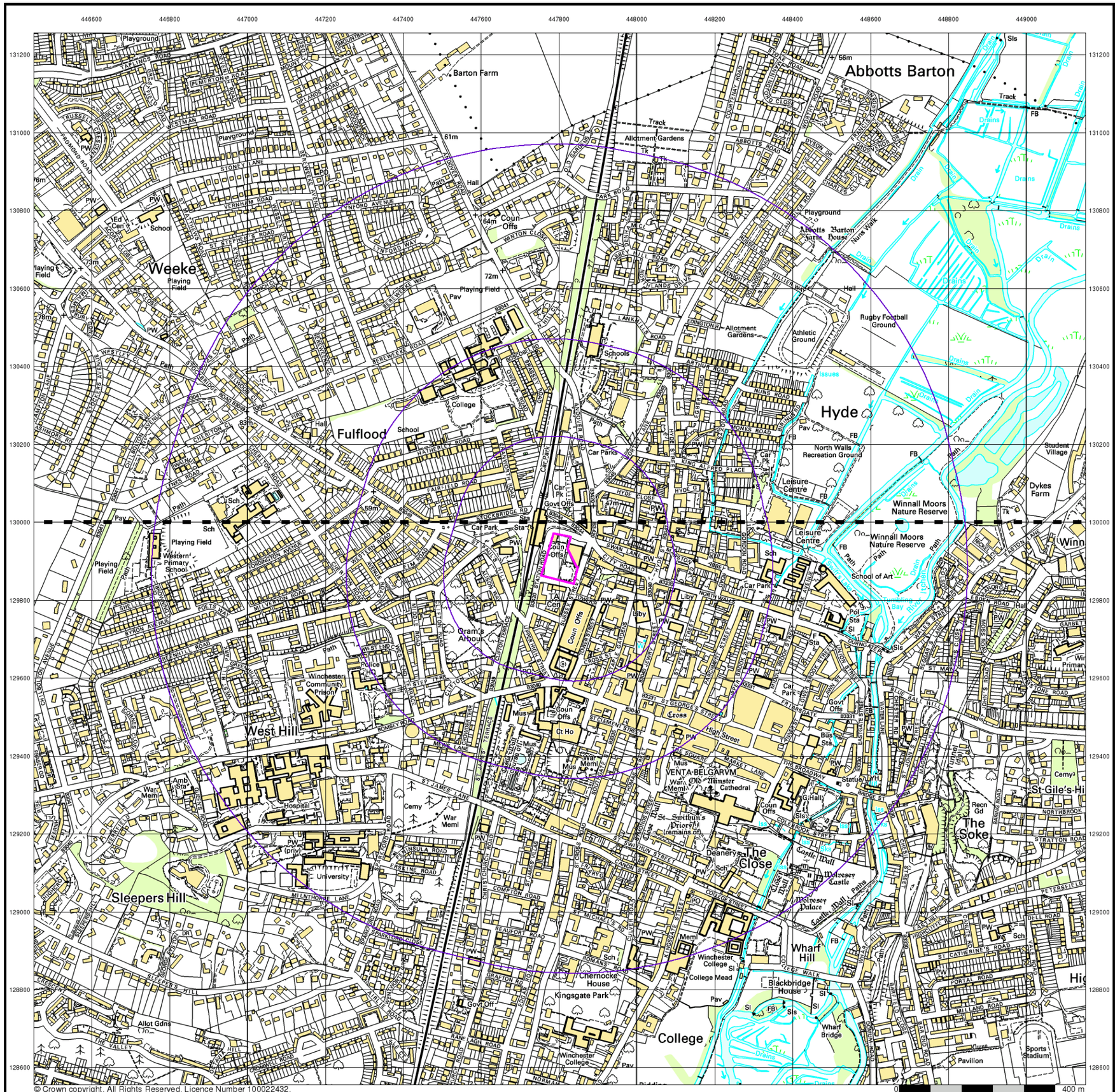

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10k Raster Mapping

Published 2013

Source map scale - 1:10,000

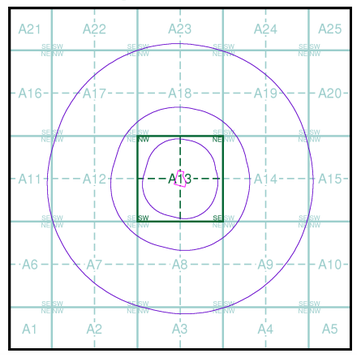
The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SU43SE
2013
1:10,000

SU42NE
2013
1:10,000

Historical Map - Slice A



Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

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Tel: 0844 844 9952
Fax: 0844 844 9951
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APPENDIX C

Envirocheck®

TWEEDIE EVANS CONSULTING

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
50116218_1_1

Customer Reference:
1308015.001

National Grid Reference:
447800, 129900

Slice:
A

Site Area (Ha):
0.77

Search Buffer (m):
1000

Site Details:

Hampshire Register Office
Station Hill
WINCHESTER
Hampshire
SO23 8TJ

Client Details:

Mr E Tweedie
Tweedie Evans Consulting Ltd
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

TWEEDIE EVANS CONSULTING

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Copyright Notice

Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v47.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1			5	23
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 7		2	2	1
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 8			Yes	
Pollution Incidents to Controlled Waters	pg 8			5	18
Prosecutions Relating to Authorised Processes					
Prosecutions Relating to Controlled Waters	pg 12			1	
Registered Radioactive Substances	pg 12				1
River Quality	pg 12				3
River Quality Biology Sampling Points	pg 13				1
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 13			1	2 (*9)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 16	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 16	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones	pg 16		3	1	
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Waste					
BGS Recorded Landfill Sites	pg 18				1
Historical Landfill Sites	pg 18				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Recorded Landfill Sites					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 19	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 19	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities	pg 28		2	1	
Natural Cavities	pg 29				1
Non Coal Mining Areas of Great Britain	pg 29	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 29	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 29		Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 29	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 29		Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 30		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 30		Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 31		20	45	24
Fuel Station Entries	pg 38		2		1

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks	pg 39				1
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 39	1			
Ramsar Sites					
Sites of Special Scientific Interest	pg 39				1
Special Areas of Conservation	pg 39				1
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Health Computing Ltd Property Type: Not Given Location: Premises Behind, No44 Jewry Street, WINCHESTER Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: UV63/2647 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 8th April 1980 Revocation Date: Not Supplied Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	323	1	448040 129590
2	**Discharge Consents** Operator: The Chief Housing Officer Property Type: Undefined Or Other Location: King Alfred Place, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01992 Permit Version: 1 Effective Date: 26th October 1988 Issued Date: 26th October 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	425	1	448200 130170
2	**Discharge Consents** Operator: The Chief Housing Officer Property Type: Undefined Or Other Location: King Alfred Place, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01992 Permit Version: 1 Effective Date: 26th October 1988 Issued Date: 26th October 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	438	1	448210 130180
2	**Discharge Consents** Operator: The Chief Housing Officer Property Type: Undefined Or Other Location: King Alfred Place, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01992 Permit Version: 1 Effective Date: 26th October 1988 Issued Date: 26th October 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	452	1	448220 130190

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: L.C.C. (Winchester) Ltd. Property Type: Undefined Or Other Location: The Brooks, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01961 Permit Version: 1 Effective Date: 14th October 1988 Issued Date: 14th October 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A14SW (SE)	489	1	448250 129580
4	**Discharge Consents** Operator: L.C.C. (Winchester) Ltd. Property Type: Undefined Or Other Location: The Brooks, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01961 Permit Version: 1 Effective Date: 14th October 1988 Issued Date: 14th October 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	514	1	448230 129510
5	**Discharge Consents** Operator: L.C.C. (Winchester) Ltd. Property Type: Undefined Or Other Location: The Brooks, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01961 Permit Version: 1 Effective Date: 14th October 1988 Issued Date: 14th October 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	578	1	448330 129540
6	**Discharge Consents** Operator: P R Keeley Esq Property Type: Domestic Property (Single) Location: Mault-Ley, Hillside Close, Winchester, Hampshire, So22 5lw Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: N02532 Permit Version: 1 Effective Date: 31st March 1977 Issued Date: 31st March 1977 Revocation Date: 31st March 1997 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Into Land Receiving Water: Into Land **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	641	1	448220 130470

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**Discharge Consents** Operator: The Chief Housing Officer Property Type: Undefined Or Other Location: 36-39 Union Street, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01876 Permit Version: 1 Effective Date: 28th September 1988 Issued Date: 28th September 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A14SE (E)	757	1	448570 129650
8	**Discharge Consents** Operator: The Chief Engineer Property Type: Undefined Or Other Location: Omnibus Station, Broadway, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: H01253 Permit Version: 1 Effective Date: 12th January 1967 Issued Date: 12th January 1967 Revocation Date: 8th March 1996 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	777	1	448490 129420
9	**Discharge Consents** Operator: Bendall Developments Limited Property Type: Undefined Or Other Location: 62 & 63 Eastgate Street, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: N01229 Permit Version: 1 Effective Date: 23rd November 1979 Issued Date: 23rd November 1979 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	836	1	448600 129500
9	**Discharge Consents** Operator: Bendall Developments Limited Property Type: Undefined Or Other Location: 62 & 63 Eastgate Street, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: N01229 Permit Version: 1 Effective Date: 23rd November 1979 Issued Date: 23rd November 1979 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	844	1	448600 129480

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Discharge Consents** Operator: Bendall Developments Limited Property Type: Undefined Or Other Location: 62 & 63 Eastgate Street, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: N01229 Permit Version: 1 Effective Date: 23rd November 1979 Issued Date: 23rd November 1979 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	853	1	448600 129460
10	**Discharge Consents** Operator: Winchester City Council Property Type: Sewerage Network - Sewers - Others Location: Wales St & Colson Rd, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: P01867 Permit Version: 1 Effective Date: 28th September 1988 Issued Date: 28th September 1988 Revocation Date: 31st March 1997 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A14SE (E)	856	1	448690 129730
11	**Discharge Consents** Operator: Bendall Developments Limited Property Type: Undefined Or Other Location: 62 & 63 Eastgate Street, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: N01229 Permit Version: 1 Effective Date: 23rd November 1979 Issued Date: 23rd November 1979 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	862	1	448600 129440
11	**Discharge Consents** Operator: A.J. Dunning & Sons Ltd. Property Type: Undefined Or Other Location: Chester Road, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: N01169 Permit Version: 1 Effective Date: 22nd July 1982 Issued Date: 22nd July 1982 Revocation Date: 31st March 1997 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	899	1	448620 129400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Discharge Consents** Operator: The Chief Housing Officer Property Type: Water Treatment Works Location: 7-13 Water Lane, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Supplied Reference: P01875 Permit Version: 1 Effective Date: 28th September 1988 Issued Date: 28th September 1988 Revocation Date: 1st July 1991 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	924	1	448620 129350
12	**Discharge Consents** Operator: Carpenter Turner,Burford & Marlow Property Type: Education Location: The Pilgrims' School, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: H02615 Permit Version: 1 Effective Date: 23rd August 1966 Issued Date: 23rd August 1966 Revocation Date: 31st March 1997 Discharge Type: Discharge Of Other Matter-Swimming Pool Contents Discharge Environment: Into Land Receiving Water: Into Land **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	894	1	448270 129060
12	**Discharge Consents** Operator: The Headmaster Property Type: Recreational & Cultural Location: The Pilgrims School - Swimming Pool The Pilgrims School, The Close, Winchester, Hampshire, So23 9lt Authority: Environment Agency, Southern Region Catchment Area: River Itchen Reference: H01088 Permit Version: 2 Effective Date: 6th February 2007 Issued Date: 6th February 2007 Revocation Date: Not Supplied Discharge Type: Discharge Of Other Matter-Swimming Pool Contents Discharge Environment: Freshwater Stream/River Receiving Water: River Itchen **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	931	1	448310 129040
12	**Discharge Consents** Operator: The Headmaster Property Type: Recreational & Cultural Location: The Pilgrims School - Swimming Pool The Pilgrims School, The Close, Winchester, Hampshire, So23 9lt Authority: Environment Agency, Southern Region Catchment Area: River Itchen Reference: H01088 Permit Version: 1 Effective Date: 14th April 1966 Issued Date: 14th April 1966 Revocation Date: 5th February 2007 Discharge Type: Non Water Company (Private) Sewage Discharge Environment: Freshwater Stream/River Receiving Water: River Itchen **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	931	1	448310 129040

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**Discharge Consents** Operator: Winchester City Council Property Type: Sewerage Network - Sewers - Others Location: Wales St & Colson Rd, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: P01867 Permit Version: 1 Effective Date: 28th September 1988 Issued Date: 28th September 1988 Revocation Date: 31st March 1997 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A14SE (E)	908	1	448750 129780
14	**Discharge Consents** Operator: Winchester City Council Property Type: Sewerage Network - Sewers - Others Location: Wales St & Colson Rd, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: P01867 Permit Version: 1 Effective Date: 28th September 1988 Issued Date: 28th September 1988 Revocation Date: 31st March 1997 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A14SE (E)	923	1	448770 129840
15	**Discharge Consents** Operator: Winchester City Council Property Type: Sewerage Network - Sewers - Others Location: Wales St & Colson Rd, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: P01867 Permit Version: 1 Effective Date: 28th September 1988 Issued Date: 28th September 1988 Revocation Date: 31st March 1997 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A14SE (E)	932	1	448780 129890
15	**Discharge Consents** Operator: Winchester City Council Property Type: Sewerage Network - Sewers - Others Location: Wales St & Colson Rd, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: P01867 Permit Version: 1 Effective Date: 28th September 1988 Issued Date: 28th September 1988 Revocation Date: 31st March 1997 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A14NE (E)	943	1	448790 129930

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**Discharge Consents** Operator: Messrs Evans, Roberts & Partners Property Type: Undefined Or Other Location: 77 Wales Street, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: H02754 Permit Version: 1 Effective Date: 4th October 1971 Issued Date: 4th October 1971 Revocation Date: 31st March 1997 Discharge Type: Trade Discharge - Process Water Discharge Environment: Into Land Receiving Water: Into Land **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A14NE (E)	953	1	448800 129930
16	**Discharge Consents** Operator: Conder Products Property Type: Undefined Or Other Location: Abbotts Barton House, Worthy Road, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: H00062 Permit Version: 1 Effective Date: 22nd January 1965 Issued Date: 22nd January 1965 Revocation Date: 31st March 1997 Discharge Type: Non Water Company (Private) Sewage Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Lapsed (under Environment Act 1995, Schedule 23)** Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	933	1	448460 130650
17	**Discharge Consents** Operator: Mr Michael Toosey Property Type: Domestic Property (Single) Location: 81 Andover Road, Winchester, Winchester, Hampshire, So22 6au Authority: Environment Agency, Southern Region Catchment Area: River Itchen Reference: Npswqd005036 Permit Version: 1 Effective Date: 22nd October 2008 Issued Date: 22nd October 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Groundwaters Via Soakaway **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A18NW (N)	952	1	447496 130877
18	**Discharge Consents** Operator: Hampshire County Council Property Type: Domestic Property (Multiple) Location: The Castle, Winchester, Hampshire Authority: Environment Agency, Southern Region Catchment Area: Not Given Reference: N01620 Permit Version: 1 Effective Date: 20th August 1979 Issued Date: 20th August 1979 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Freshwater River **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	1000	1	448460 129060
19	**Local Authority Pollution Prevention and Controls** Name: Class One Dry Cleaners Location: Andover Road, Winchester, SO23 7BS Authority: Winchester City Council, Environmental Health Department Permit Reference: PERM07/02 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	60	2	447881 129993

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Local Authority Pollution Prevention and Controls** Name: Market Winchester Express Location: Andover Road, WINCHESTER, Hampshire, SO23 7 Authority: Winchester City Council, Environmental Health Department Permit Reference: PERM/14/09 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Authorisation has varied** Positional Accuracy: Manually positioned to the address or location	A13NE (N)	213	2	447847 130175
21	**Local Authority Pollution Prevention and Controls** Name: Evans Halshaw Location: Hyde Street, WINCHESTER, Hampshire, SO23 7DP Authority: Winchester City Council, Environmental Health Department Permit Reference: AUTH93/11 Dated: 22nd October 1993 Process Type: Local Authority Air Pollution Control Description: PG6/34 Respraying of road vehicles **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	303	2	448124 130036
22	**Local Authority Pollution Prevention and Controls** Name: Five Star Dry Cleaners Location: Stockbridge Road, Winchester, SO22 6RN Authority: Winchester City Council, Environmental Health Department Permit Reference: PERM07/01 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NE (W)	324	2	447452 129983
23	**Local Authority Pollution Prevention and Controls** Name: Gervades Location: 7 Upper Brook Street, Winchester Authority: Winchester City Council, Environmental Health Department Permit Reference: PERM07/05 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A9NW (SE)	505	2	448223 129515
	Nearest Surface Water Feature	A8NW (SW)	331	-	447635 129554
24	**Pollution Incidents to Controlled Waters** Property Type: Other Transport Location: 3 Cranworth Road, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Petrol Note: Loss Of 3 Litres Of Petrol To Drain; Road (Road Traffic Accident) Incident Date: 6th November 1995 Incident Reference: 2143 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	341	1	447700 130300
25	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: Hyde Brook, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Unknown Note: Film Of Oil On Brook Incident Date: 1st August 1998 Incident Reference: 798399 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Poor Operational Practice Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	352	1	448200 129900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	**Pollution Incidents to Controlled Waters** Property Type: Domestic/Residential Location: Gordon Road, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Miscellaneous - Inert Suspended Solids Note: Stream Turned Grey Incident Date: 13th August 1993 Incident Reference: 811 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Industrial Chemicals Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (E)	371	1	448201 130001
27	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Union Building, Winchester Art College Authority: Environment Agency, Southern Region Pollutant: Oils - Other Oil Note: Loss Of 1500 Litres Heating Oil Incident Date: 22nd October 1992 Incident Reference: 353 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	459	1	448300 129800
28	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Location Description Not Available Authority: Environment Agency, Southern Region Pollutant: Miscellaneous - Inert Suspended Solids Note: Stream Turned Cloudy; Miscellaneous Premises: Other Incident Date: 17th July 1995 Incident Reference: 1955 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (E)	467	1	448301 130001
29	**Pollution Incidents to Controlled Waters** Property Type: WSC Sewage, Sewerage & Supply Location: Market Street, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: General Biodegradable : Crude Sewage & Sewerage Material Note: Not Supplied Incident Date: 29th May 1999 Incident Reference: 313 Catchment Area: Itchen Receiving Water: Potential River Cause of Incident: High Flow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Approximate location provided by supplier	A9NW (SE)	575	1	448300 129500
30	**Pollution Incidents to Controlled Waters** Property Type: Other Utilities Location: Adjacent To Central Park Body Shop Authority: Environment Agency, Southern Region Pollutant: Oils - Waste Oil Note: Oil In Stream Incident Date: 28th September 1992 Incident Reference: 316 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	643	1	448300 130400
31	**Pollution Incidents to Controlled Waters** Property Type: Road Location: Romsey Road, St James Lane, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Petrol Note: 6 Gallons Of Petrol Down Drain Incident Date: 7th December 1992 Incident Reference: 409 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	649	1	447300 129400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
32	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: By The Leisure Centre, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Diesel (Including Agricultural) Note: Lots Of Oil Or Petrol In River Incident Date: 20th April 1996 Incident Reference: 796188 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	652	1	448500 129895
32	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: North Walls, Near Leisure Centre, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Waste Oil Note: Oil On Stream; Miscellaneous Premises: Unknown Incident Date: 28th January 1994 Incident Reference: 1054 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	652	1	448500 129900
33	**Pollution Incidents to Controlled Waters** Property Type: Demolition Location: Gordon Road, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Waste Oil Note: Pink Or Red Colour In Stream Incident Date: 12th April 1996 Incident Reference: 796171 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NE (E)	663	1	448501 130001
34	**Pollution Incidents to Controlled Waters** Property Type: Contaminated Land Location: X-Ray Department, Royal Hampshire County Hospital Authority: Environment Agency, Southern Region Pollutant: Chemicals - Other Organic Note: Spillage Of 20 Litres Of Photographic Mixture Incident Date: 14th July 1998 Incident Reference: 798349 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Vandalism Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	722	1	447200 129400
35	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Between North Walls, And Friarsgate Authority: Environment Agency, Southern Region Pollutant: Miscellaneous - Inert Suspended Solids Note: Stream Discoloured At 10 Am Most Days Incident Date: 13th May 1992 Incident Reference: 70 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	745	1	448500 129500
36	**Pollution Incidents to Controlled Waters** Property Type: No Premises Identified Location: Cathedral Grounds, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Organic Chemicals : Mineral & Synthetic Oils Note: Not Supplied Incident Date: 1st November 1999 Incident Reference: 3339 Catchment Area: Itchen Receiving Water: Potential River Cause of Incident: Other Cause Incident Severity: Category 3 - Minor Incident Positional Accuracy: Approximate location provided by supplier	A9NW (SE)	751	1	448300 129250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Between King Alfred Place And, King Alfred Terrace, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Miscellaneous - Unknown Note: Strong Smell Of Sewage Plus Small Dead Pike In River; Domestic/Residential Incident Date: 10th September 1995 Incident Reference: 2054 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NE (E)	806	1	448600 130200
38	**Pollution Incidents to Controlled Waters** Property Type: Other Utilities Location: Hillier Way, Abbots Barton Authority: Environment Agency, Southern Region Pollutant: Oils - Other Oil Note: Oil On River Itchen Incident Date: 23rd April 1993 Incident Reference: 615 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	821	1	448450 130500
39	**Pollution Incidents to Controlled Waters** Property Type: Domestic/Residential Location: Abbey Gardens, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: General Biodegradable : Household Domestic Waste Note: Not Supplied Incident Date: 29th July 1999 Incident Reference: 2655 Catchment Area: Itchen Receiving Water: Potential River Cause of Incident: Deliberate Action Incident Severity: Category 3 - Minor Incident Positional Accuracy: Approximate location provided by supplier	A9NE (SE)	856	1	448500 129300
40	**Pollution Incidents to Controlled Waters** Property Type: Industrial: Other Location: Louisiana Pub, Bridge Street, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Miscellaneous - Inert Suspended Solids Note: Cloudy Water; Construction Incident Date: 20th June 1994 Incident Reference: 1315 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	856	1	448700 129795
40	**Pollution Incidents to Controlled Waters** Property Type: Industrial: Other Location: 300 Metres Downstream Durngate Mill Authority: Environment Agency, Southern Region Pollutant: Miscellaneous - Inert Suspended Solids Note: Milkly White Discharge; Construction Incident Date: 17th June 1994 Incident Reference: 1310 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	856	1	448700 129800
41	**Pollution Incidents to Controlled Waters** Property Type: Domestic/Residential Location: Coulson Close, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Waste Oil Note: Oil On River Incident Date: 24th May 1993 Incident Reference: 680 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Oils/Related Products Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	881	1	448600 129400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**Pollution Incidents to Controlled Waters** Property Type: Domestic/Residential Location: Durngate Mill, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Chemicals - Detergents/Surfactant Note: Large Amounts Of Foam On River Incident Date: 31st March 1993 Incident Reference: 570 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Industrial Chemicals Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	896	1	448700 129600
43	**Pollution Incidents to Controlled Waters** Property Type: Road (Road Traffic Accident) Location: Water Lane, Near Bottom Of, Blue Ball Lane, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Oils - Waste Oil Note: Oil Emptied Into River Incident Date: 23rd July 1996 Incident Reference: 796342 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Road Traffic Accident Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	928	1	448700 129500
43	**Pollution Incidents to Controlled Waters** Property Type: No Premises Identified Location: Mildmay Court, Eastgate Street, WINCHESTER Authority: Environment Agency, Southern Region Pollutant: Organic Chemicals : Hydraulic Oils / Fluids Note: Not Supplied Incident Date: 18th May 1999 Incident Reference: 219 Catchment Area: Itchen Receiving Water: Potential River Cause of Incident: Plant / Machinery Failure : Other Incident Severity: Category 3 - Minor Incident Positional Accuracy: Approximate location provided by supplier	A9NE (SE)	930	1	448700 129495
44	**Prosecutions Relating to Controlled Waters** Location: Hyde Street, Hyde Street, Winchester, SO23 7 Prosecution Text: Causing Dirty Water To Enter A Tributary Of The River Itchen. Prosecution Act: Wra91 S85 Hearing Date: 10th December 2001 Verdict: Guilty Fine: 1000 Cost: 1215 Positional Accuracy: Manually positioned to the road within the address or location	A13NE (NE)	308	1	448091 130125
45	**Registered Radioactive Substances** Name: Royal Hampshire County Hospital Location: Romsey Road, WINCHESTER, Hampshire, SO22 5DG Authority: Environment Agency, Southern Region Permit Reference: AD7834 Dated: 31st March 1991 Process Type: Not Supplied Description: Authorisation under RSA **Status: Authorisation either revoked or cancelledCancelled** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	938	1	446987 129323
	River Quality Name: Nuns Walk Strm GQA Grade: River Quality A Reach: Itchen Conf - Source Estimated Distance (km): 5.3 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A14SE (E)	646	1	448493 129850
	River Quality Name: Itchen GQA Grade: River Quality A Reach: Itchen Navigation Conf - Durngate Mill Estimated Distance (km): 4.2 Flow Rate: Flow less than 10 cumecs Flow Type: River Year: 2000	A14SE (E)	821	1	448652 129713

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	River Quality Name: Itchen GQA Grade: River Quality A Reach: Durngate Mill - U/S Itchen Abbas F.F. Estimated Distance (km): 8.4 Flow Rate: Flow less than 5 cumecs Flow Type: River Year: 2000	A14SE (E)	821	1	448652 129713
46	**River Quality Biology Sampling Points** Name: Itchen Reach: Itchen Navigation Confluence To Durngate Mill Estimated Distance: 4.20 Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Biology GQA Grade Not Supplied Year: 1995 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2000 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2002 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2003 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2004 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2005 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2006 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2007 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2008 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2009 GQA Grade: River Quality Biology GQA Grade A - Very Good	A14SE (E)	801	1	448620 129670
47	**Water Abstractions** Operator: Southern Water Services Ltd Licence Number: 11/42/22.4/80 Permit Version: 100 Location: Itchen Valley Point B Authority: Environment Agency, Southern Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th June 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	443	1	447500 129500
48	**Water Abstractions** Operator: Brian Hampson & Paul Hampson & Sheila Lemon Licence Number: 11/42/22.6/78 Permit Version: 101 Location: Winchester Laundry, Hyde Abbey Road Authority: Environment Agency, Southern Region Abstraction: Industrial; Commercial And Public Services: Laundry Use Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 30th January 2003 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14SE (E)	724	1	448570 129830

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	**Water Abstractions** Operator: Winchester Laundry & Cleaners Ltd Licence Number: 11/42/22.6/78 Permit Version: 100 Location: Winchester Laundry, Hyde Abbey Road Authority: Environment Agency, Southern Region Abstraction: Industrial; Commercial And Public Services: Laundry Use Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th November 1989 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14SE (E)	724	1	448570 129830
	Water Abstractions Operator: Southern Water Services Ltd Licence Number: 11/42/22.6/129 Permit Version: 100 Location: Sewage Ps Point B At Garnier Road, Winchester Authority: Environment Agency, Southern Region Abstraction: Water supply related: General Washing/Process Washing Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th March 1979 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3SE (S)	1589	1	447980 128260
	Water Abstractions Operator: Southern Water Services Ltd Licence Number: 11/42/22.6/129 Permit Version: 100 Location: Sewage Ps Point B At Garnier Road, Winchester Authority: Environment Agency, Southern Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th March 1979 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	1589	1	447980 128260
	Water Abstractions Operator: Southern Water Services Ltd Licence Number: 11/42/22.6/129 Permit Version: 100 Location: Sewage Ps Point A At Garnier Road, Winchester Authority: Environment Agency, Southern Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th March 1979 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	1606	1	447950 128240

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Southern Water Services Ltd Licence Number: 11/42/22.6/129 Permit Version: 100 Location: Sewage Ps Point A At Garnier Road, Winchester Authority: Environment Agency, Southern Region Abstraction: Water supply related: General Washing/Process Washing Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th March 1979 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	1606	1	447950 128240
	Water Abstractions Operator: Southern Water Services Ltd Licence Number: 11/42/22.6/129 Permit Version: 100 Location: Sewage Ps Point C At Garnier Road, Winchester Authority: Environment Agency, Southern Region Abstraction: Water supply related: General Washing/Process Washing Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 0 Yearly Rate (m3): 45460 Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th March 1979 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	1629	1	447990 128220
	Water Abstractions Operator: Southern Water Services Ltd Licence Number: 11/42/22.6/129 Permit Version: 100 Location: Sewage Ps Point C At Garnier Road, Winchester Authority: Environment Agency, Southern Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: See Licence Map Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th March 1979 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	1629	1	447990 128220
	Water Abstractions Operator: Winchester College Licence Number: 31/105 Permit Version: 1 Location: Point A, Borehole At Garnier Road Authority: Environment Agency, Southern Region Abstraction: Aquaculture: Fish Farm/Cress Pond Throughflow Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 November Authorised End: 31 July Permit Start Date: 12th February 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1744	1	448110 128120

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Winchester College Licence Number: So/042/0031/019 Permit Version: 1 Location: Point A, Borehole At Garnier Road Authority: Environment Agency, Southern Region Abstraction: Aquaculture: Fish Farm/Cress Pond Throughflow Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 November Authorised End: 01 August Permit Start Date: 17th February 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(S)	1749	1	448113 128115
	Water Abstractions Operator: Webbs Country Foods Ltd. Licence Number: 22.6/156 Permit Version: Not Supplied Location: Winnall, WINCHESTER Authority: Environment Agency, Southern Region Abstraction: General Industrial Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 327 Yearly Rate (m3): 85101 Details: H5 Chalk Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A25SE (NE)	1952	1	449450 131050
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 52 Southern Hampshire Scale: 1:100,000	A13SE (SE)	0	1	447804 129903
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Desination: Principal Aquifer	A13SE (SE)	0	3	447804 129903
	Superficial Aquifer Designations No Data Available				
49	**Source Protection Zones** Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A13SW (SW)	86	1	447671 129838
50	**Source Protection Zones** Name: Romsey Road Source: Environment Agency, Head Office Reference: Su232 Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A13SW (SW)	86	1	447671 129838
51	**Source Protection Zones** Name: Romsey Road Source: Environment Agency, Head Office Reference: Su232 Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A13SW (SW)	86	1	447671 129838
52	**Source Protection Zones** Name: Romsey Road Source: Environment Agency, Head Office Reference: Su232 Type: Groundwater Source	A7NE (SW)	494	1	447420 129500
	Extreme Flooding from Rivers or Sea without Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
53	**BGS Recorded Landfill Sites** Site Name: Nuns Road Location: WINCHESTER, Hampshire Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate	A19SE (NE)	800	3	448480 130428
54	**Historical Landfill Sites** Licence Holder: R J Best Location: Winchester, Hampshire Name: Nuns Road Operator Location: Hyde Street, Winchester Boundary Accuracy: As Supplied Provider Reference: EAHLD20974 First Input Date: 1st January 1963 Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Inert and Industrial Waste EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 1700/5209 BGS Ref: 514 Other Ref: FW50, WIN 9	A19SE (NE)	804	1	448486 130425
	Local Authority Landfill Coverage Name: Winchester City Council - Has supplied landfill data		0	2	447804 129903
	Local Authority Landfill Coverage Name: Hampshire County Council - Had landfill data but passed it to the relevant environment agency		0	8	447804 129903

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Chalk including Red Chalk	A13SE (SE)	0	3	447804 129903
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (SE)	0	4	447804 129903
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (N)	30	4	447804 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (N)	54	4	447811 130023
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (N)	94	4	447807 130064
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SE (E)	148	4	447996 129884
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (E)	152	4	448000 129903

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SE (E)	152	4	448000 129890
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	167	4	447993 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	173	4	448000 129997
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	174	4	448000 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (S)	194	4	447832 129648
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	215	4	448000 130093

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (SE)	218	4	448000 129697
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (W)	273	4	447510 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14NW (E)	341	4	448180 129963
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14NW (E)	352	4	448181 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14SW (E)	379	4	448214 129784
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14SW (E)	426	4	448274 129886

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14SW (E)	444	4	448287 129811
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14NW (E)	454	4	448287 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19SW (NE)	512	4	448220 130293
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8NE (S)	594	4	448021 129277
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A8NE (SE)	595	4	448067 129293
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8NE (S)	595	4	448000 129270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12NE (W)	642	4	447127 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A9NW (SE)	676	4	448314 129362
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A8SE (S)	685	4	448000 129177
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SW (W)	754	4	447000 129893
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SW (W)	755	4	447000 129895
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SW (W)	755	4	447000 129903

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12NW (W)	758	4	447000 129941
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SW (W)	766	4	446988 129890
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12NW (W)	767	4	447000 130000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SE (E)	813	4	448627 129648
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SE (S)	842	4	447804 129000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A8SE (S)	846	4	447920 129000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SW (S)	851	4	447497 129052
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A8SE (S)	858	4	448000 129000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	861	4	447443 129060
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SW (S)	865	4	447628 129000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SE (E)	873	4	448711 129748
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NW (N)	905	4	447482 130823

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A9NE (SE)	905	4	448636 129415
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	918	4	447303 129064
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A9SW (SE)	923	4	448380 129095
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A9NE (SE)	925	4	448636 129374
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SW (S)	927	4	447610 128944
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	949	4	447360 129000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A9SW (SE)	955	4	448295 129004
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A9SW (SE)	956	4	448291 129000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A9SW (SE)	959	4	448296 129000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NW (N)	974	4	447474 130893
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A15SW (E)	974	4	448822 129870
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NE (SE)	975	4	448679 129350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	993	4	447264 129000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A3NE (S)	997	4	447814 128846
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Man-Made Mining Cavities Easting: 447800 Northing: 130000 Distance: 32 Quadrant Reference: A13 Quadrant Reference: NW Bearing Ref: N Cavity Type: Possible Voids-During Piling Operations Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: No Details	A13NW (N)	32	5	447800 130000
	Man-Made Mining Cavities Easting: 448000 Northing: 129800 Distance: 168 Quadrant Reference: A13 Quadrant Reference: SE Bearing Ref: SE Cavity Type: Possible Voids-During Piling Operations Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: River Terrace Deposits	A13SE (SE)	168	5	448000 129800
	Man-Made Mining Cavities Easting: 447900 Northing: 129500 Distance: 348 Quadrant Reference: A8 Quadrant Reference: NE Bearing Ref: S Cavity Type: Possible Voids-During Piling Operations Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: No Details	A8NE (S)	348	5	447900 129500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Natural Cavities Easting: 448400 Northing: 130500 Distance: 784 Quadrant Reference: A19 Quadrant Reference: SW Bearing Ref: NE Cavity Type: Solution Pipe x 10 Solid Geology Detail: Upper Chalk Formation Superficial Geology Detail: Alluvium, River Terrace Deposits	A19SW (NE)	784	5	448400 130500
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	28	3	447804 129998
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	52	3	447811 130021
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	92	3	447807 130062
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	152	3	448000 129873
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	167	3	447993 129998
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	28	3	447804 129998
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	28	3	447804 129998
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	226	3	448074 129893
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	28	3	447804 129998
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	52	3	447811 130021
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	92	3	447807 130062
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	148	3	447996 129882
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	167	3	447993 129998
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	28	3	447804 129998
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	52	3	447811 130021
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	92	3	447807 130062
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	148	3	447996 129882
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	167	3	447993 129998
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	226	3	448074 129893
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	28	3	447804 129998
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	52	3	447811 130021
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	92	3	447807 130062
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	148	3	447996 129882
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	167	3	447993 129998
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	226	3	448074 129893
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	28	3	447804 129998
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	52	3	447811 130021
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	92	3	447807 130062
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	167	3	447993 129998
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	447804 129903

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**Contemporary Trade Directory Entries** Name: Andrew Foster Location: Station Garage, Stockbridge Road, Winchester, Hampshire, SO22 6RF Classification: Mot Testing Centres **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	54	-	447730 129973
55	**Contemporary Trade Directory Entries** Name: Aztec Trading Location: Station Garage, Stockbridge Road, Winchester, Hampshire, SO22 6RF Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	54	-	447730 129973
56	**Contemporary Trade Directory Entries** Name: Winchester Cars & Campers Location: 23, City Road, Winchester, Hampshire, SO23 8SD Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	58	-	447906 129896
56	**Contemporary Trade Directory Entries** Name: Winchester Tyre & Exhausts Location: 23, City Road, Winchester, Hampshire, SO23 8SD Classification: Exhaust & Shock Absorber Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	58	-	447906 129896
56	**Contemporary Trade Directory Entries** Name: A H F Auto Ltd Location: 12, City Road, Winchester, Hampshire, SO23 8SG Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	96	-	447936 129923
56	**Contemporary Trade Directory Entries** Name: Chessington Tyres Ltd Location: City Road, Winchester, Hampshire, SO23 8SD Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	103	-	447947 129917
56	**Contemporary Trade Directory Entries** Name: Extrudawood Location: 10, City Road, Winchester, Hampshire, SO23 8SD Classification: Furniture Manufacturers - Home & Office **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	124	-	447970 129907
57	**Contemporary Trade Directory Entries** Name: Moon & Williams Location: 5, Cranworth Road, Winchester, Hampshire, SO22 6SD Classification: Cleaning Services - Commercial **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	164	-	447688 130101
57	**Contemporary Trade Directory Entries** Name: The Iron-Works Location: 2, Fairfield Road, Winchester, Hampshire, SO22 6SF Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	206	-	447660 130134
58	**Contemporary Trade Directory Entries** Name: Vital Resources Location: Andover Road, WINCHESTER, Hampshire, SO23 7BT Classification: Railways **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (N)	195	-	447870 130152
58	**Contemporary Trade Directory Entries** Name: Market Service Station Location: Andover Road, Winchester, Hampshire, SO23 7BT Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (N)	228	-	447843 130191
58	**Contemporary Trade Directory Entries** Name: Direct Feeds Location: Andover Road, Winchester, Hampshire, SO23 7BT Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (N)	244	-	447884 130199

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
59	**Contemporary Trade Directory Entries** Name: The Printing Shop Location: 1, De Lunn Buildings, Jewry Street, Winchester, Hampshire, SO23 8SA Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	207	-	448044 129810
59	**Contemporary Trade Directory Entries** Name: Konica Minolta Ltd Location: Canister House, 27, Jewry Street, Winchester, Hampshire, SO23 8RY Classification: Photocopiers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	228	-	448062 129797
59	**Contemporary Trade Directory Entries** Name: Konica Minolta Location: Cannister House, 27, Jewry Street, Winchester, Hampshire, SO23 8RY Classification: Photocopiers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	228	-	448062 129797
59	**Contemporary Trade Directory Entries** Name: Crondall Energy Consultants Ltd Location: Canister House, 27, Jewry Street, Winchester, Hampshire, SO23 8RY Classification: Oil & Gas Exploration Supplies & Services **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13SE (E)	228	-	448062 129797
60	**Contemporary Trade Directory Entries** Name: Orange Chemicals Ltd Location: 8, Upper High Street, Winchester, Hampshire, SO23 8UT Classification: Chemicals - Distributors & Wholesalers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (S)	220	-	447718 129645
61	**Contemporary Trade Directory Entries** Name: Adrian Marks Location: 37, Clifton Road, Winchester, Hampshire, SO22 5BU Classification: Antiques - Repairing & Restoring **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (W)	225	-	447531 129889
62	**Contemporary Trade Directory Entries** Name: Servicemaster - Winchester & Salisbury Location: Worthy La, Winchester, Hampshire, SO23 7AB Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A13NE (NE)	231	-	447964 130150
63	**Contemporary Trade Directory Entries** Name: Sarsen Press Location: 22, Hyde Street, Winchester, Hampshire, SO23 7DR Classification: Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	240	-	448066 130007
63	**Contemporary Trade Directory Entries** Name: Air Improve Ltd Location: 4, City Business Centre, Hyde Street, Winchester, Hampshire, SO23 7TA Classification: Air Conditioning Equipment & Systems **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	259	-	448092 129971
63	**Contemporary Trade Directory Entries** Name: The Passive Revolution Ltd Location: 25, City Business Centre, Hyde Street, Winchester, Hampshire, SO23 7TA Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	279	-	448119 129955
63	**Contemporary Trade Directory Entries** Name: Plannar Interiors Location: 12, City Business Centre, Hyde Street, Winchester, Hampshire, SO23 7TA Classification: Furniture Manufacturers - Home & Office **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	296	-	448137 129951
64	**Contemporary Trade Directory Entries** Name: Pierre Fabre Ltd Location: Hyde Abbey House, 23, Hyde Street, Winchester, Hampshire, SO23 7DR Classification: Pharmaceutical Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	254	-	448074 130034

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
64	**Contemporary Trade Directory Entries** Name: Hampshire Scrap Metal Removal Location: Flat 8, Alleyne House, 25, Hyde Street, Winchester, Hampshire, SO23 7DR Classification: Scrap Metal Merchants **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	260	-	448075 130049
65	**Contemporary Trade Directory Entries** Name: Mini Menus Location: 80, High Street, Winchester, Hampshire, SO23 9AT Classification: Food Products - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	264	-	447859 129579
65	**Contemporary Trade Directory Entries** Name: Polybrite Ltd Location: 80, High Street, Winchester, Hampshire, SO23 9AT Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (S)	264	-	447859 129579
65	**Contemporary Trade Directory Entries** Name: Chipsaway Location: 80, High Street, Winchester, Hampshire, SO23 9AT Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	264	-	447859 129579
65	**Contemporary Trade Directory Entries** Name: Aloe Enterprises Ltd Location: 80, High Street, Winchester, Hampshire, SO23 9AT Classification: Animal By-Products **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (S)	264	-	447859 129579
66	**Contemporary Trade Directory Entries** Name: Pilgrim Engineering Location: Evelyn House,Elm Rd, Winchester, Hampshire, SO22 5BF Classification: Car & Commercial Repairs **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (W)	268	-	447494 129929
67	**Contemporary Trade Directory Entries** Name: Facility Associates Location: Dolphin House, St. Peter Street, Winchester, Hampshire, SO23 8BW Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	271	-	448097 129761
67	**Contemporary Trade Directory Entries** Name: Facility Associates Location: Dolphin House, St. Peter Street, Winchester, Hampshire, SO23 8BW Classification: Office Furniture & Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	279	-	448106 129768
68	**Contemporary Trade Directory Entries** Name: Martin Swain Location: 2, Elm Road, Winchester, Hampshire, SO22 5AG Classification: Soft Furnishings - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	285	-	447476 129924
68	**Contemporary Trade Directory Entries** Name: Appliance Services Location: 1b, Stockbridge Road, Winchester, Hampshire, SO22 6RN Classification: Washing Machines - Servicing & Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	304	-	447470 129973
68	**Contemporary Trade Directory Entries** Name: Five Star Location: 5, Stockbridge Road, Winchester, Hampshire, SO22 6RN Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (W)	324	-	447452 129983
68	**Contemporary Trade Directory Entries** Name: Standrin Location: 4, Red Deer Court, Elm Road, Winchester, Hampshire, SO22 5LX Classification: Antiques - Repairing & Restoring **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	346	-	447422 129960

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
69	**Contemporary Trade Directory Entries** Name: Copying Centre Ltd Location: 11, Charlecote Mews, Staple Gardens, Winchester, Hampshire, SO23 8SR Classification: Copying & Duplicating Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	289	-	447991 129597
70	**Contemporary Trade Directory Entries** Name: Copyman Location: 41-43, Jewry Street, Winchester, Hampshire, SO23 8RY Classification: Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	291	-	448037 129629
71	**Contemporary Trade Directory Entries** Name: John Gould Location: 12, Hatherley Road, Winchester, Hampshire, SO22 6RT Classification: Antiques - Repairing & Restoring **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	313	-	447573 130199
72	**Contemporary Trade Directory Entries** Name: Sketchley Retail Ltd Location: 8, St. Georges Street, Winchester, Hampshire, SO23 8BG Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	337	-	448038 129570
72	**Contemporary Trade Directory Entries** Name: Supasnaps Location: 8, St. Georges Street, Winchester, Hampshire, SO23 8BG Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	337	-	448038 129570
72	**Contemporary Trade Directory Entries** Name: Dataflex Design & Communication Ltd Location: St. Georges House, St. Georges Street, Winchester, Hampshire, SO23 8BG Classification: Telecommunications Equipment & Systems **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	355	-	448054 129561
73	**Contemporary Trade Directory Entries** Name: Modern Times Location: 5, Red Deer Court, Elm Road, Winchester, Hampshire, SO22 5LX Classification: Cycle Accessories, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NE (W)	358	-	447417 129984
73	**Contemporary Trade Directory Entries** Name: Lonsil Pool Care Location: 21, Stockbridge Road, Winchester, Hampshire, SO22 6RN Classification: Swimming Pool Contractors, Repairers & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	369	-	447412 130006
73	**Contemporary Trade Directory Entries** Name: Direct Denter Care Centres Location: 23, Stockbridge Road, Winchester, Hampshire, SO22 6RN Classification: Medical & Dental Laboratories **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	374	-	447407 130008
74	**Contemporary Trade Directory Entries** Name: Cnc Regrinding Location: 58b, Brassey Road, Winchester, Hampshire, SO22 6SB Classification: Engineers - General **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	367	-	447778 130337
75	**Contemporary Trade Directory Entries** Name: Tlc Cleaning Location: 79, North Walls, Winchester, Hampshire, SO23 8DA Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (E)	373	-	448210 129794
76	**Contemporary Trade Directory Entries** Name: Bonusprint Location: 98, High Street, Winchester, Hampshire, SO23 9AH Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	379	-	448029 129515

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
76	**Contemporary Trade Directory Entries** Name: Currys Digital Location: 53-54, High Street, Winchester, Hampshire, SO23 9BX Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	387	-	448020 129501
76	**Contemporary Trade Directory Entries** Name: Lacewing Fine Art Location: 28, St. Thomas Street, Winchester, Hampshire, SO23 9HJ Classification: Art Restoration & Picture Cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	423	-	448020 129460
77	**Contemporary Trade Directory Entries** Name: B E Chaplin Gunmakers Ltd Location: 6, Southgate Street, Winchester, Hampshire, SO23 9EF Classification: Gunsmiths **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NE (S)	383	-	447930 129471
77	**Contemporary Trade Directory Entries** Name: Cd Revolution 2000 Ltd Location: 13, Southgate Street, Winchester, Hampshire, SO23 9DZ Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (S)	413	-	447952 129446
77	**Contemporary Trade Directory Entries** Name: New Concept Location: 15, Southgate Street, Winchester, Hampshire, SO23 9DZ Classification: Lifting Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (S)	417	-	447948 129440
77	**Contemporary Trade Directory Entries** Name: United Carpet Cleaning Masters Location: 17 Southgate St, Winchester, Hampshire, SO23 9AA Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A8NE (S)	422	-	447946 129434
78	**Contemporary Trade Directory Entries** Name: Gen A Cis Location: Power House, Gordon Road, Winchester, Hampshire, SO23 7DD Classification: Marine Equipment & Supplies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (E)	410	-	448256 129841
78	**Contemporary Trade Directory Entries** Name: Turnpike Machinery Ltd Location: Power Ho,2 Gordon Rd, Winchester, Hampshire, SO23 7DD Classification: Printing Equipment Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A14SW (E)	410	-	448256 129840
79	**Contemporary Trade Directory Entries** Name: D & G Hardware Location: 42-44, St. Georges Street, Winchester, Hampshire, SO23 8BE Classification: Hardware **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	417	-	448130 129545
79	**Contemporary Trade Directory Entries** Name: The Clock Work Shop Location: A, 6, Parchment Street, Winchester, Hampshire, SO23 8AT Classification: Antiques - Repairing & Restoring **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	427	-	448150 129551
80	**Contemporary Trade Directory Entries** Name: Wtspc Ltd Location: 24, Western Road, Winchester, Hampshire, SO22 5AJ Classification: Printers Textile **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (W)	456	-	447299 129895
81	**Contemporary Trade Directory Entries** Name: Ham Hill Stone Co Ltd The Location: 19, Cheriton Road, Winchester, Hampshire, SO22 5EQ Classification: Quarries **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (W)	467	-	447296 129772

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
82	**Contemporary Trade Directory Entries** Name: Medisafe Ltd Location: Westgate House, 39-41, Romsey Road, Winchester, Hampshire, SO22 5BE Classification: Medical Equipment Maintenance & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	475	-	447464 129488
83	**Contemporary Trade Directory Entries** Name: Johnson'S Cleaners (Uk) Ltd Location: 66, St. Georges Street, Winchester, Hampshire, SO23 8AH Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	483	-	448200 129523
83	**Contemporary Trade Directory Entries** Name: Gervades Location: 7, Upper Brook Street, Winchester, Hampshire, SO23 8AL Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	505	-	448222 129515
84	**Contemporary Trade Directory Entries** Name: Liquid Technologies International Location: 29, Southgate Street, Winchester, Hampshire, SO23 9EB Classification: Marine Equipment & Supplies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (S)	486	-	447920 129364
85	**Contemporary Trade Directory Entries** Name: Saxons Of Winchester Location: 23, The Square, Winchester, Hampshire, SO23 9EX Classification: Furniture - Reproduction **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	488	-	448098 129429
86	**Contemporary Trade Directory Entries** Name: Mccoy Hill Location: McCoy Hill House,Upper Brook St, Winchester, Hampshire, SO23 8DF Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A14SW (SE)	493	-	448250 129572
87	**Contemporary Trade Directory Entries** Name: E-Cleaning Services Ltd Location: 13, Boscobel Road, Winchester, Hampshire, SO22 6RY Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	511	-	447735 130478
88	**Contemporary Trade Directory Entries** Name: Robert Dyas Location: 3, Upper Brook Street, Winchester, Hampshire, SO23 8AR Classification: Hardware **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	522	-	448205 129472
89	**Contemporary Trade Directory Entries** Name: National Engineering Specification Ltd Location: Southgate Chambers, 37-39, Southgate Street, Winchester, Hampshire, SO23 9EH Classification: Engineers - General **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A8NE (S)	539	-	447910 129309
90	**Contemporary Trade Directory Entries** Name: National Tyres And Autocare Location: St. Cross Road, Winchester, Hampshire, SO23 9HZ Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	607	-	447786 129237
91	**Contemporary Trade Directory Entries** Name: Heritage Blinds Location: 61, North Walls, Winchester, Hampshire, SO23 8DP Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SW (E)	615	-	448441 129717

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
92	**Contemporary Trade Directory Entries** Name: Southgate Peugeot Location: 2-4, St. Cross Road, Winchester, Hampshire, SO23 9HY Classification: Mot Testing Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	617	-	447848 129225
93	**Contemporary Trade Directory Entries** Name: Winchester Commercials Ltd Location: 12, Bereweeke Way, Winchester, Hampshire, SO22 6BJ Classification: Commercial Vehicle Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	709	-	447361 130538
94	**Contemporary Trade Directory Entries** Name: Novatrans Uk Ltd Location: Radley House, 8, St. Cross Road, Winchester, Hampshire, SO23 9HX Classification: Freight Forwarders **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SE (S)	732	-	447817 129111
95	**Contemporary Trade Directory Entries** Name: A Touch Of Class Location: Andover Road, Winchester, Hampshire, SO22 7BS Classification: Dry Cleaners **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A18NW (N)	812	-	447598 130760
96	**Contemporary Trade Directory Entries** Name: Trevor'S Auto Electrical Repairs Location: 18, Nursery Gardens, Winchester, Hampshire, SO22 5DT Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	828	-	447006 129510
97	**Contemporary Trade Directory Entries** Name: T Wiltshire Location: 11, College Street, Winchester, Hampshire, SO23 9LZ Classification: Bookbinding & Equipment **Status: Active** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	863	-	448164 129044
98	**Contemporary Trade Directory Entries** Name: Winchester Garden Machinery Ltd Location: Romsey Road, Winchester, Hampshire, SO22 5DL Classification: Lawnmowers & Garden Machinery - Sales & Service **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	877	-	446991 129431
99	**Contemporary Trade Directory Entries** Name: Frenchie Cosmetics Ltd Location: Eastgate House, Eastgate Street, Winchester, Hampshire, SO23 8DZ Classification: Cosmetic Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NE (SE)	893	-	448567 129327
99	**Contemporary Trade Directory Entries** Name: Eagle International Location: 170, High Street, Winchester, Hampshire, SO23 9BQ Classification: Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A9NE (SE)	912	-	448582 129316
100	**Contemporary Trade Directory Entries** Name: Royal Hampshire County Hospital Location: Romsey Road, Winchester, Hampshire, SO22 5DG Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	940	-	446982 129328
100	**Contemporary Trade Directory Entries** Name: Winchester & Eastleigh Healthcare Nhs Trust Location: Romsey Road, Winchester, Hampshire, SO22 5DG Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	940	-	446982 129328
100	**Contemporary Trade Directory Entries** Name: Royal Hampshire County Hospital Location: Romsey Road, Winchester, Hampshire, SO22 5DG Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	940	-	446982 129328

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
100	**Contemporary Trade Directory Entries** Name: Winchester & Eastleigh Healthcare Nhs Trust Location: Romsey Road, Winchester, Hampshire, SO22 5DG Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	940	-	446982 129328
100	**Contemporary Trade Directory Entries** Name: Winchester & Eastleigh Healthcare Nhs Trust Location: Romsey Road, WINCHESTER, Hampshire, SO22 5DG Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	940	-	446982 129328
100	**Contemporary Trade Directory Entries** Name: Royal Hampshire County Hospital Location: Romsey Road, Winchester, Hampshire, SO22 5DG Classification: Hospitals **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	940	-	446982 129328
101	**Contemporary Trade Directory Entries** Name: Winchester & Eastleigh Healthcare Nhs Trust Location: Romsey Rd, Winchester, Hampshire, SO22 5DG Classification: Hospitals **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A7NW (SW)	953	-	446926 129392
102	**Contemporary Trade Directory Entries** Name: Gradko International Ltd Location: 77, Wales Street, Winchester, Hampshire, SO23 0RH Classification: Scientific Apparatus & Instruments - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A15NW (E)	986	-	448834 129914
103	**Contemporary Trade Directory Entries** Name: J Darlison Location: 13, Byron Avenue, Winchester, Hampshire, SO22 5AT Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (W)	988	-	446777 129720
104	**Fuel Station Entries** Name: A H F Auto Location: Swan Lane, WINCHESTER, Hampshire, SO23 8SG Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Approximate location provided by supplier	A13NE (NE)	207	-	448030 130017
105	**Fuel Station Entries** Name: Market Winchester Express Location: Andover Road, Winchester, Hampshire, SO23 7BT Brand: ESSO Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A13NE (N)	228	-	447843 130191
106	**Fuel Station Entries** Name: Fulflood Service Station Location: 63 Stockbridge Road, WINCHESTER, Hampshire, SO22 6RP Brand: OBSOLETE Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Approximate location provided by supplier	A12NE (NW)	618	-	447230 130240

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
107	**National Parks** Name: South Downs Multiple Area: N Area (m2): 1652679314.31 Source: Natural England **Status: Fully Designated - designated as a National Park** Designation Date: 2nd November 2009	A14NE (E)	630	6	448477 129928
108	**Nitrate Vulnerable Zones** Name: Not Supplied Description: NVZ Area Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13SE (SE)	0	7	447804 129903
109	**Sites of Special Scientific Interest** Name: River Itchen Multiple Areas: Y Total Area (m2): 7485005.15 Source: Natural England Reference: 2000227 Designation Details: Special Area Of Conservation Designation Date: 16th August 2000 Date Type: Notified	A14NE (E)	642	6	448489 129927
110	**Special Areas of Conservation** Name: River Itchen Multiple Areas: Y Total Area (m2): 3039927.78 Source: Natural England Reference: UK0012599 **Status: Designated**	A14SE (E)	800	6	448612 129643

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Winchester City Council - Environmental Health Department	January 2013	Annual Rolling Update
Test Valley Borough Council - Housing, Health & Communities Service	September 2012	Annual Rolling Update
Discharge Consents		
Environment Agency - Southern Region	July 2013	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Southern Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - Southern Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - Southern Region	July 2013	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Winchester City Council - Environmental Health Department	April 2013	Annual Rolling Update
Test Valley Borough Council - Housing, Health & Communities Service	January 2013	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
Winchester City Council - Environmental Health Department	April 2013	Annual Rolling Update
Test Valley Borough Council - Housing, Health & Communities Service	January 2013	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Winchester City Council - Environmental Health Department	April 2013	Annual Rolling Update
Test Valley Borough Council - Housing, Health & Communities Service	January 2013	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	July 2012	Quarterly
Pollution Incidents to Controlled Waters		
Environment Agency - Southern Region	December 1999	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - Southern Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - Southern Region	March 2013	As notified
Registered Radioactive Substances		
Environment Agency - Southern Region	July 2013	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - Southern Region - Hampshire and Isle of Wight Area Office	July 2013	Quarterly
Environment Agency - Southern Region - Solent and South Downs	July 2013	Quarterly
Water Abstractions		
Environment Agency - Southern Region	July 2013	Quarterly
Water Industry Act Referrals		
Environment Agency - Southern Region	July 2013	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	October 2012	Annually
Superficial Aquifer Designations		
British Geological Survey - National Geoscience Information Service	October 2012	Annually

Agency & Hydrological	Version	Update Cycle
Source Protection Zones		
Environment Agency - Head Office	July 2013	Quarterly
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	August 2013	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	August 2013	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	August 2013	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	August 2013	Quarterly
Flood Defences		
Environment Agency - Head Office	August 2013	Quarterly

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Southern Region - Hampshire and Isle of Wight Area Office	July 2013	Quarterly
Environment Agency - Southern Region - Solent and South Downs	July 2013	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Southern Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Southern Region - Hampshire and Isle of Wight Area Office	July 2013	Quarterly
Environment Agency - Southern Region - Solent and South Downs	July 2013	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Southern Region - Hampshire and Isle of Wight Area Office	April 2013	Quarterly
Environment Agency - Southern Region - Solent and South Downs	April 2013	Quarterly
Local Authority Landfill Coverage		
Hampshire County Council - Minerals and Waste Planning	May 2000	Not Applicable
Test Valley Borough Council	May 2000	Not Applicable
Winchester City Council - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Hampshire County Council - Minerals and Waste Planning	May 2000	Not Applicable
Test Valley Borough Council	May 2000	Not Applicable
Winchester City Council - Environmental Health Department	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - Southern Region - Hampshire Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Southern Region - Hampshire Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Southern Region - Hampshire Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	August 2013	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2013	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Winchester City Council - Planning Department	November 2012	Annual Rolling Update
Test Valley Borough Council	October 2012	Annual Rolling Update
Hampshire County Council - Minerals and Waste Planning	September 2013	Annual Rolling Update
Planning Hazardous Substance Consents		
Winchester City Council - Planning Department	November 2012	Annual Rolling Update
Test Valley Borough Council	October 2012	Annual Rolling Update
Hampshire County Council - Minerals and Waste Planning	September 2013	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	January 2010	Variable
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	April 2013	Bi-Annually
Brine Compensation Area		
Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas		
The Coal Authority - Mining Report Service	January 2012	As notified
Mining Instability		
Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	October 2013	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	October 2013	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	October 2013	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	October 2013	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	October 2013	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	October 2013	As notified
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	July 2011	As notified

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	August 2013	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2013	Quarterly
Sensitive Land Use	**Version**	**Update Cycle**
Areas of Adopted Green Belt Test Valley Borough Council	August 2013	As notified
Areas of Outstanding Natural Beauty Natural England	July 2013	Bi-Annually
Environmentally Sensitive Areas Natural England	July 2013	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	July 2013	Bi-Annually
Marine Nature Reserves Natural England	July 2013	Bi-Annually
National Nature Reserves Natural England	July 2013	Bi-Annually
National Parks Natural England	July 2013	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2013	Annually
Ramsar Sites Natural England	July 2013	Bi-Annually
Sites of Special Scientific Interest Natural England	July 2013	Bi-Annually
Special Areas of Conservation Natural England	July 2013	Bi-Annually
Special Protection Areas Natural England	July 2013	Bi-Annually

Data Suppliers

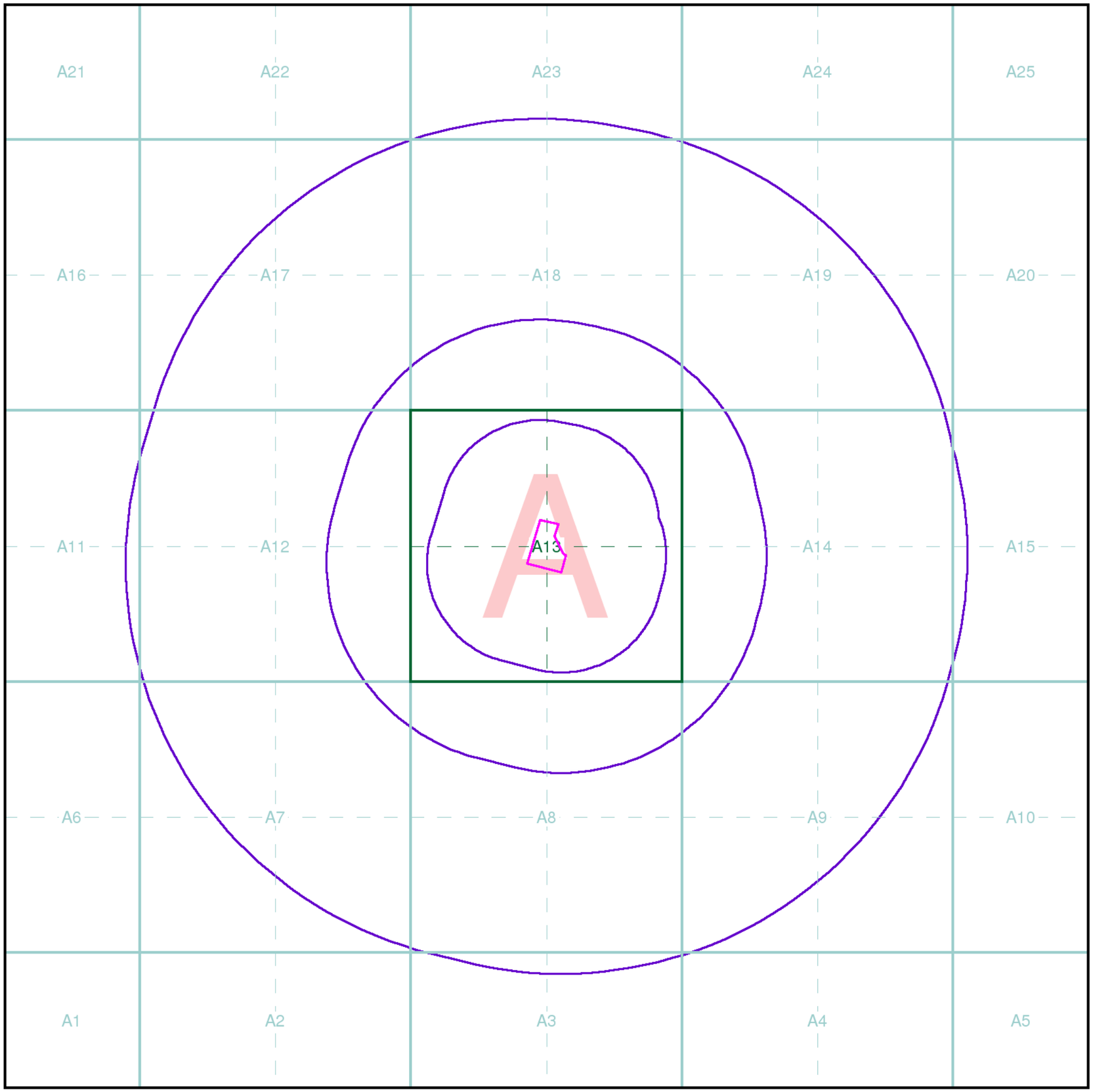
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	**Winchester City Council - Environmental Health Department** City Offices, Colebrook Street, Winchester, Hampshire, SO23 9LJ	Telephone: 01962 848519 Fax: 01962 849101 Website: www.winchester.gov.uk
3	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
4	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
5	**Peter Brett Associates** Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
6	**Natural England** Northminster House, Northminster Road, Peterborough, Cambridgeshire, PE1 1UA	Telephone: 0845 600 3078 Fax: 01733 455103 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
7	**Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)** Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
8	**Hampshire County Council - Minerals and Waste Planning** Room 130, Ashburton Court West, The Castle, Winchester, Hampshire, SO23 8UD	Telephone: 01962 841841 Fax: 01962 847055 Website: www.hants.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.



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Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Ordnance Survey® Licensed Partner

British Geological Survey, NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr E Tweedie, Tweedie Evans Consulting Ltd, The Old Chapel, 35a Southover, Wells, Somerset, BA5 1UH

Order Details

Order Number:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/515

Landmark® Information Group
Tel: 0844 844 9952
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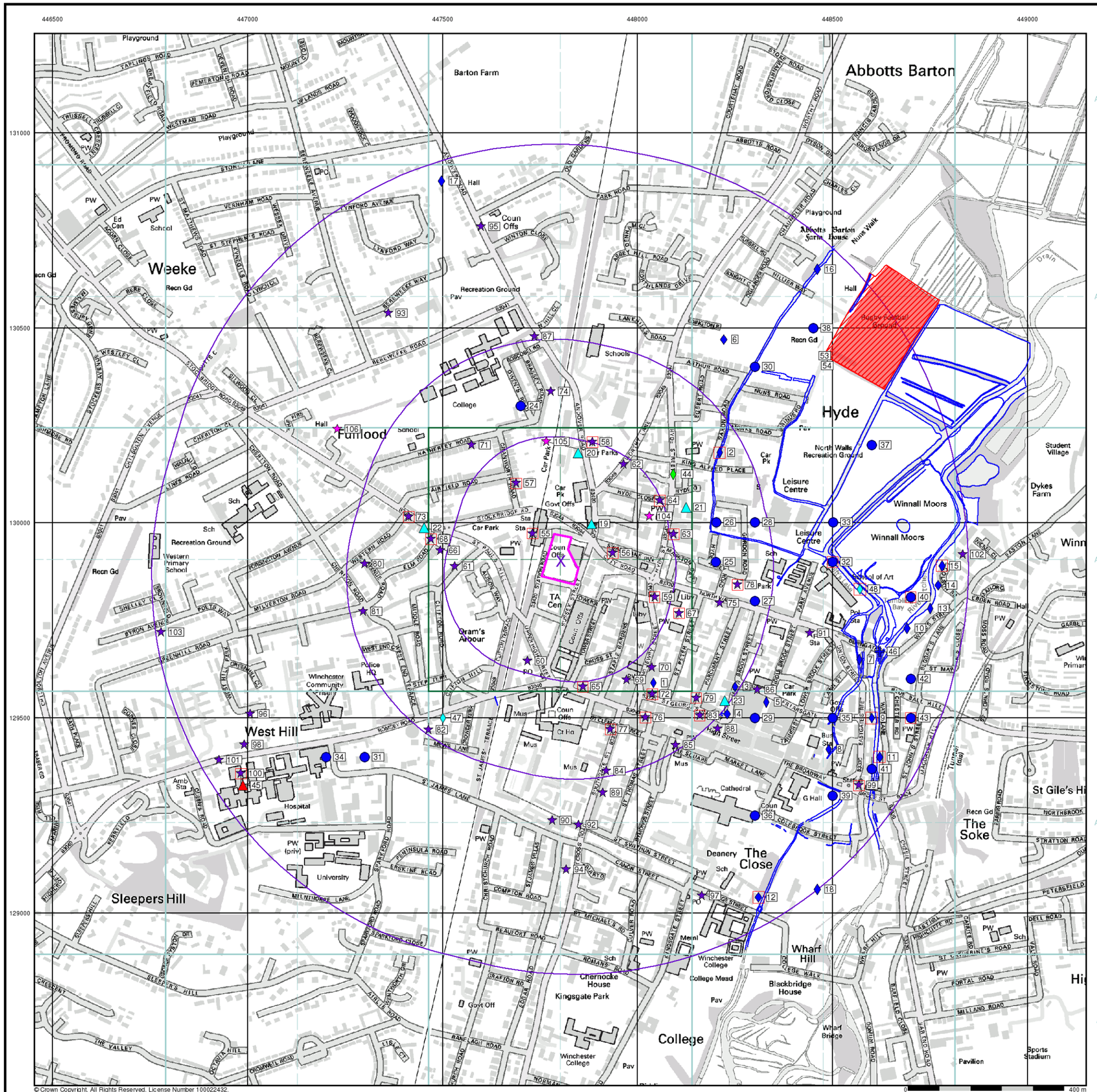
Web: www.envirocheck.co.uk



TWEEDIE EVANS CONSULTING

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

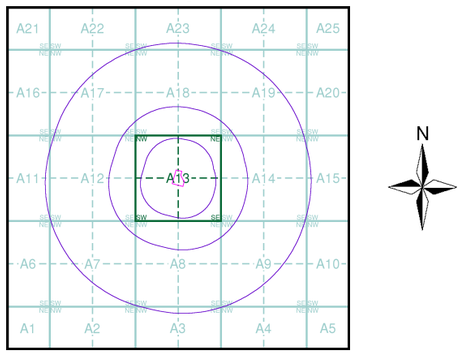
Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Site Sensitivity Map - Slice A



Order Details

Order Number:	50116218_1_1
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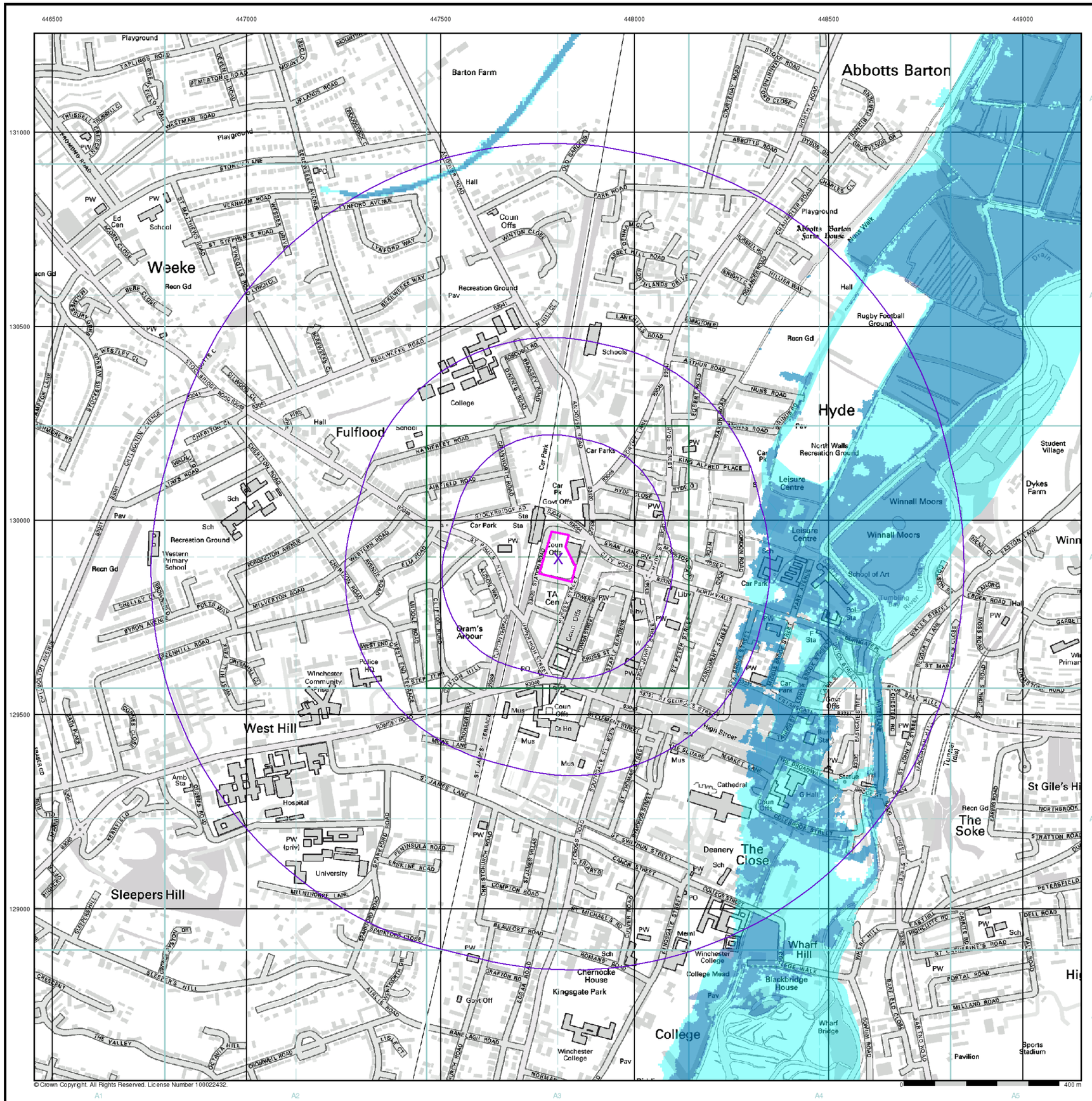
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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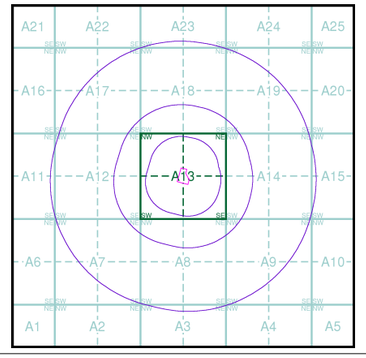
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



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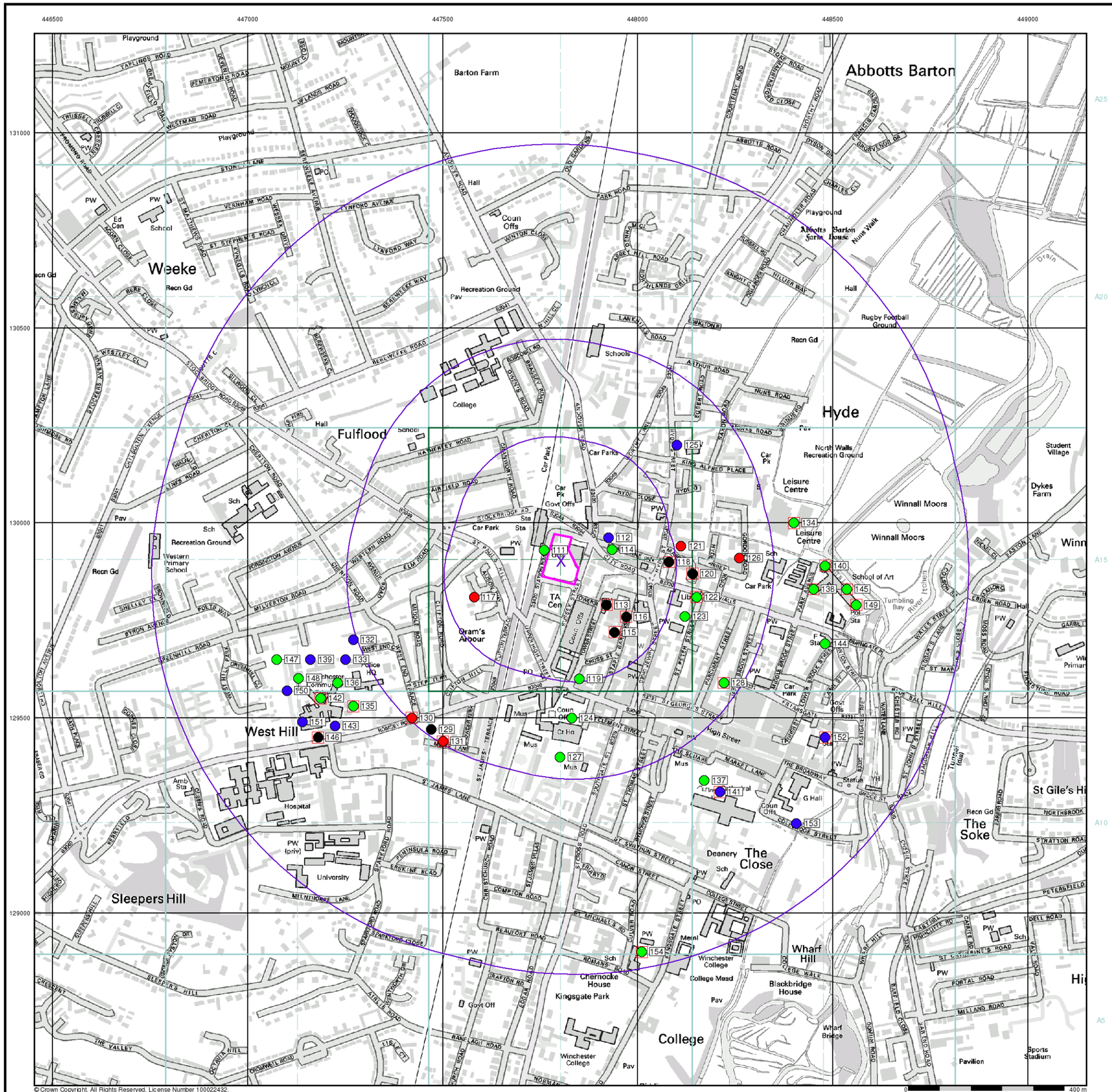


TWEEDIE EVANS CONSULTING

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

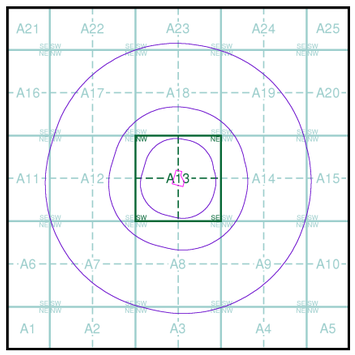
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



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Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group

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Web: www.envirocheck.co.uk

TWEEDIE EVANS CONSULTING

General

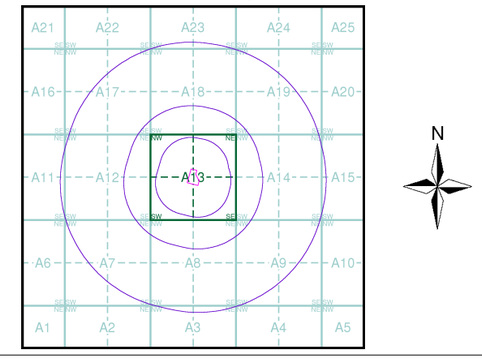
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg

- < 15
- 15 - 25
- 25 - 35
- 35 - 45
- 45 - 60
- 60 - 120
- > 120

Estimated Soil Chemistry Arsenic - Slice A



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TWEEDIE EVANS CONSULTING

General

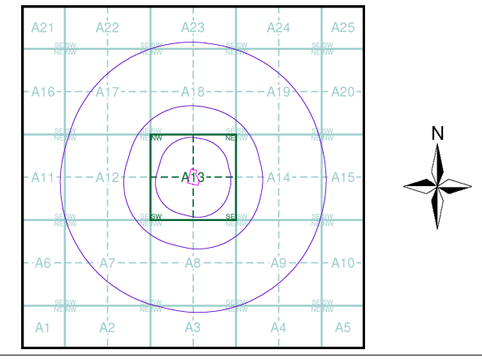
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg

- < 1.8
- 1.8 - 2.2
- 2.2 - 3.0
- > 3.0

Estimated Soil Chemistry Cadmium - Slice A



Order Details

Order Details:	50116218_1_1
Customer Ref:	1308015.001
National Grid Reference:	447800, 129900
Slice:	A
Site Area (Ha):	0.77
Search Buffer (m):	1000

Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

TWEEDIE EVANS CONSULTING

General

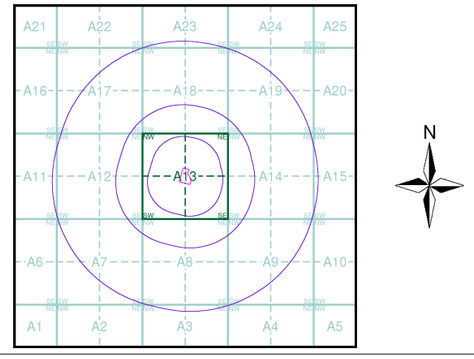
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg

- < 20
- 20 - 40
- 40 - 60
- 60 - 90
- 90 - 120
- 120 - 180
- > 180

Estimated Soil Chemistry Chromium - Slice A



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TWEEDIE EVANS CONSULTING

General

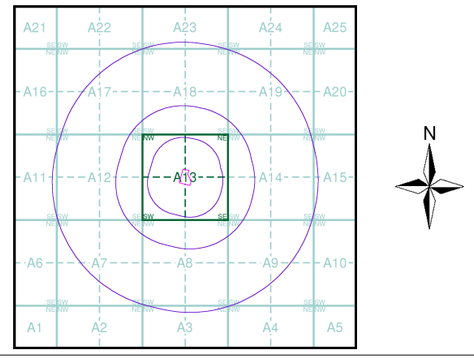
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- < 150
- 150 - 300
- 300 - 600
- 600 - 900
- > 900

Estimated Soil Chemistry Lead - Slice A



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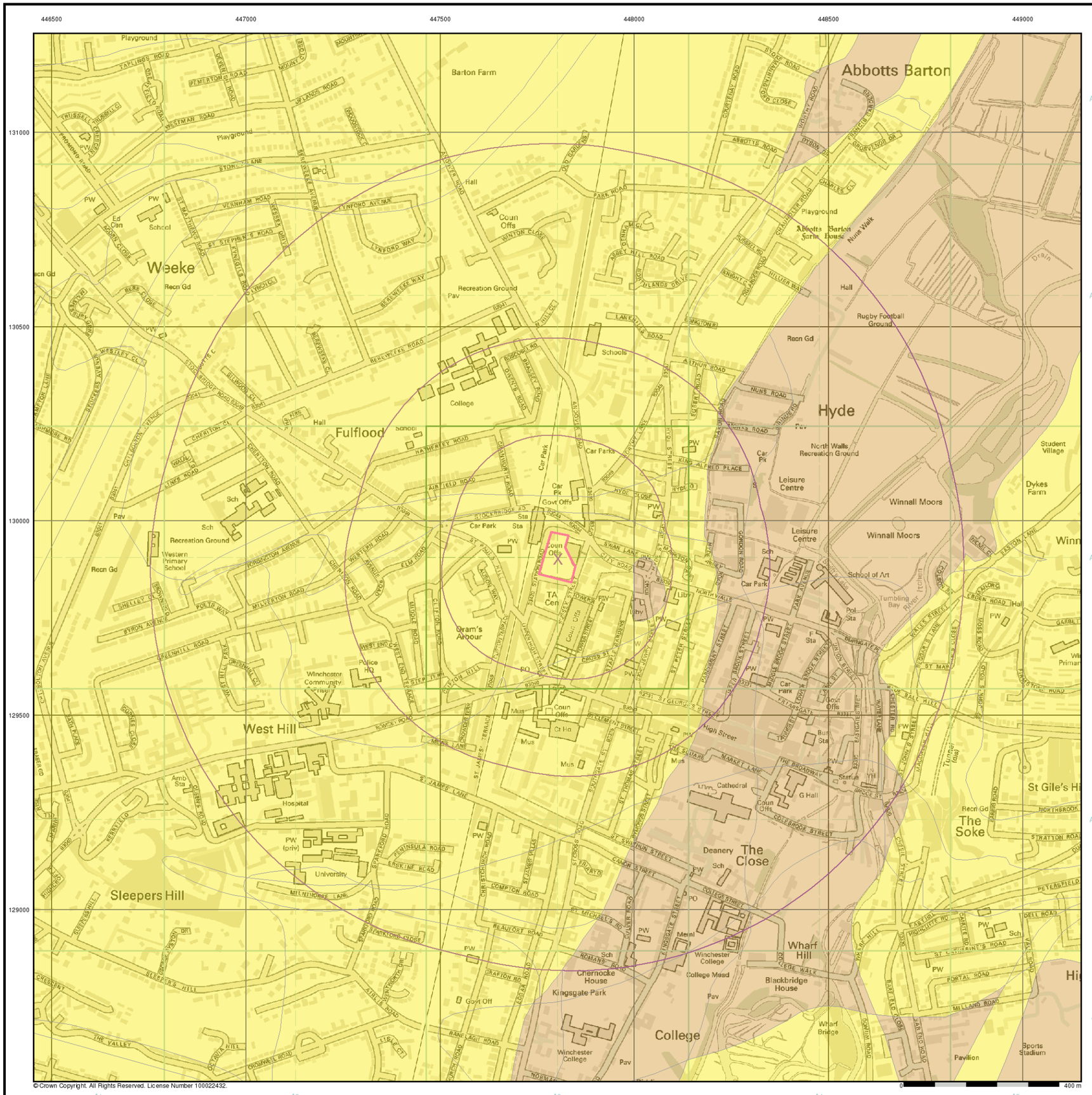


TWEEDIE EVANS CONSULTING

General

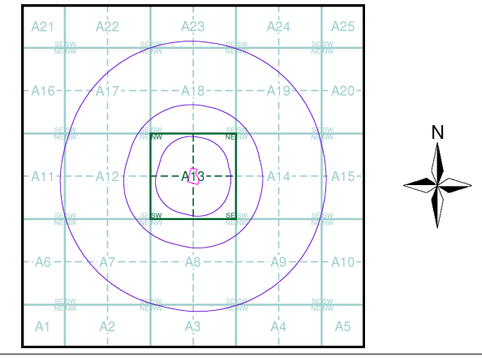
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg

- < 15
- 15 - 30
- 30 - 45
- 45 - 60
- 60 - 80
- 80 - 100
- > 100

Estimated Soil Chemistry Nickel - Slice A



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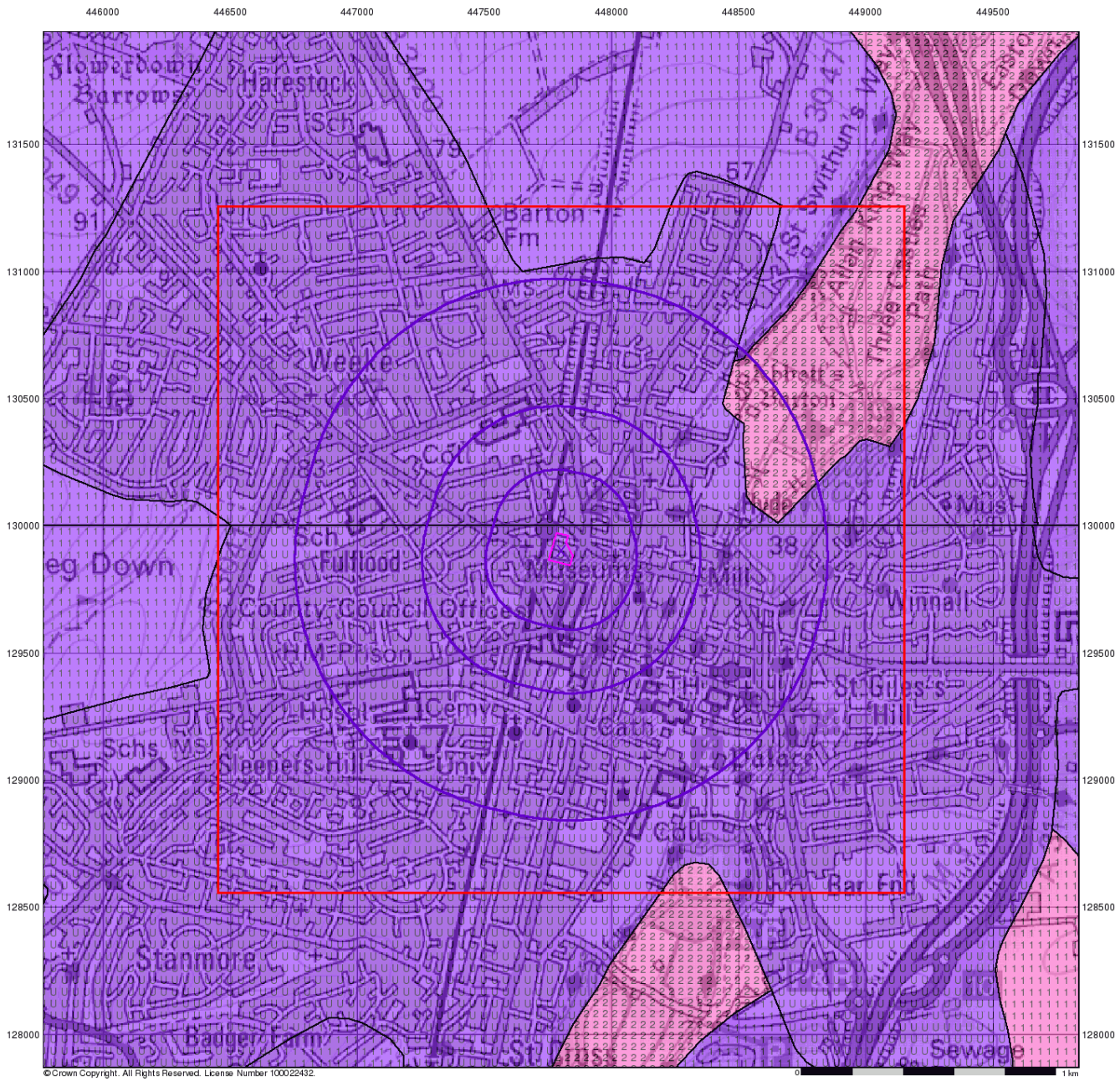


TWEEDIE EVANS CONSULTING

Groundwater Vulnerability

General

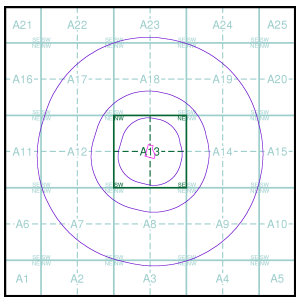
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



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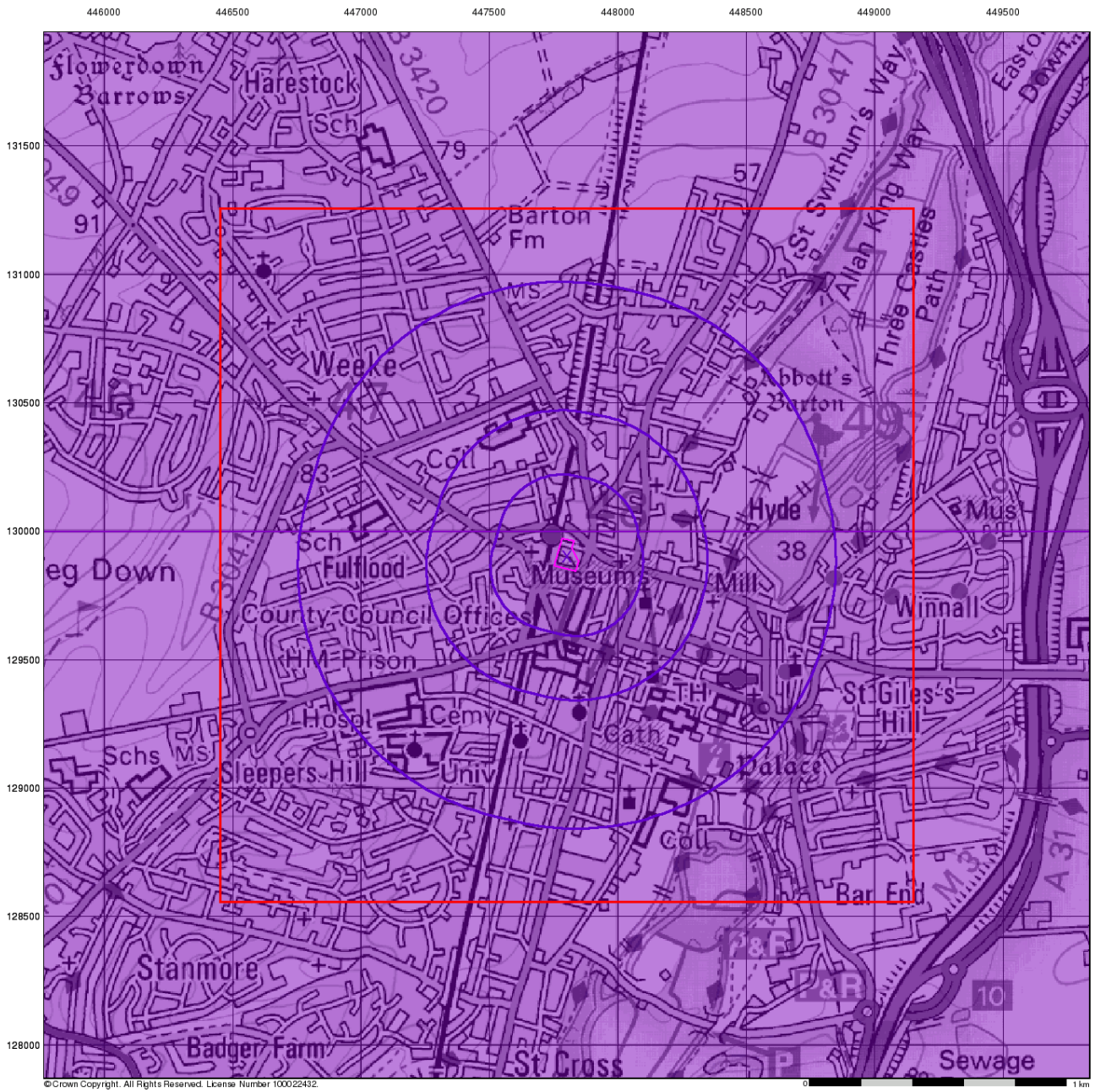


TWEEDIE EVANS CONSULTING

Bedrock Aquifer Designation

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

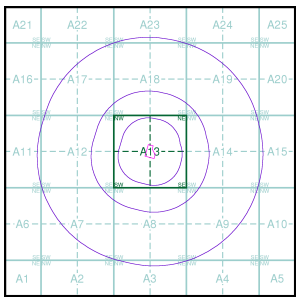
Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



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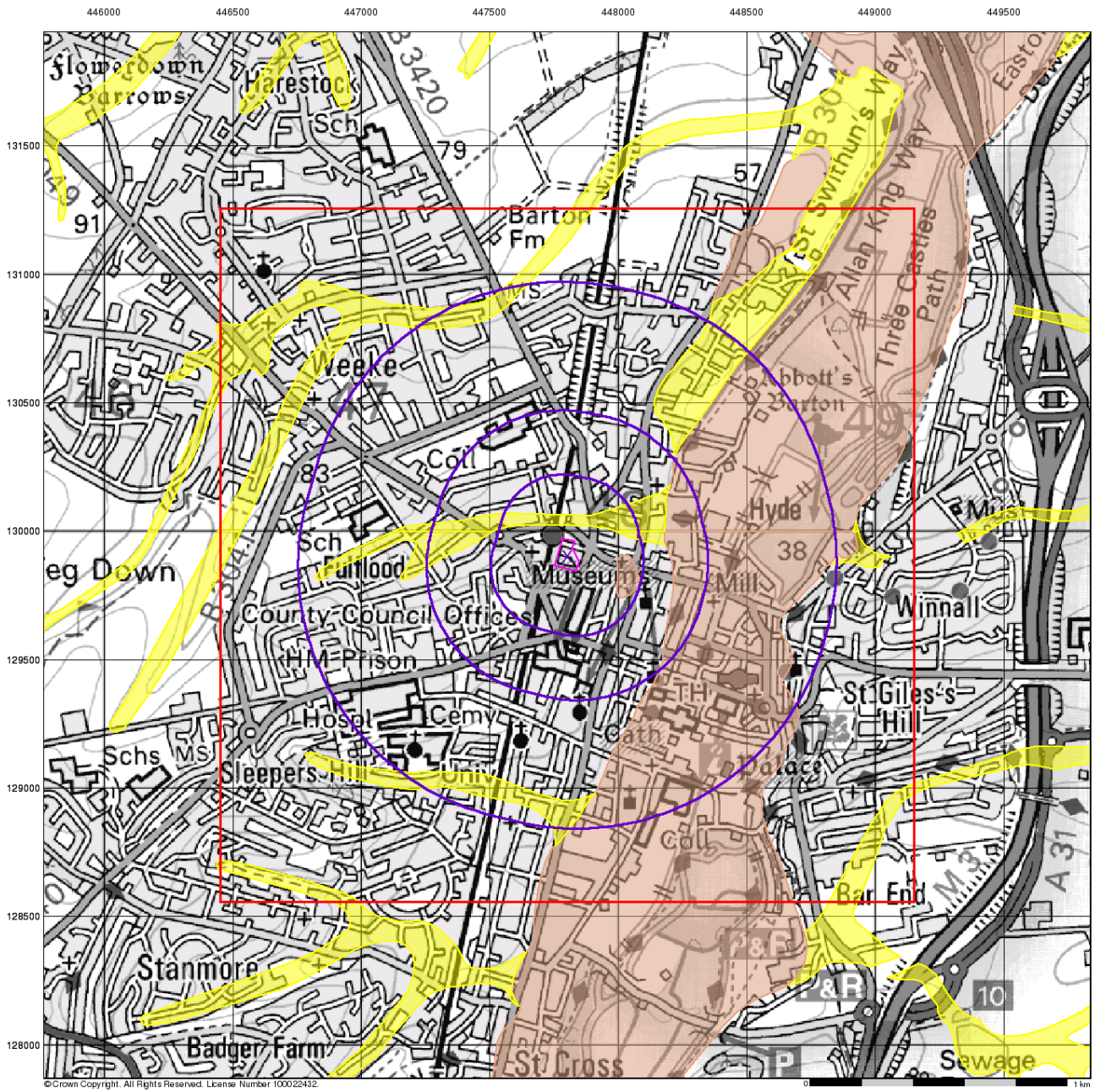


TWEEDIE EVANS CONSULTING

Superficial Aquifer Designation

General

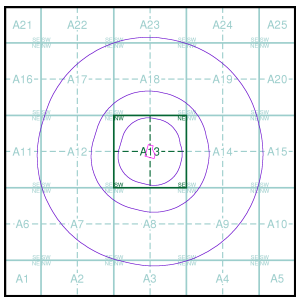
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



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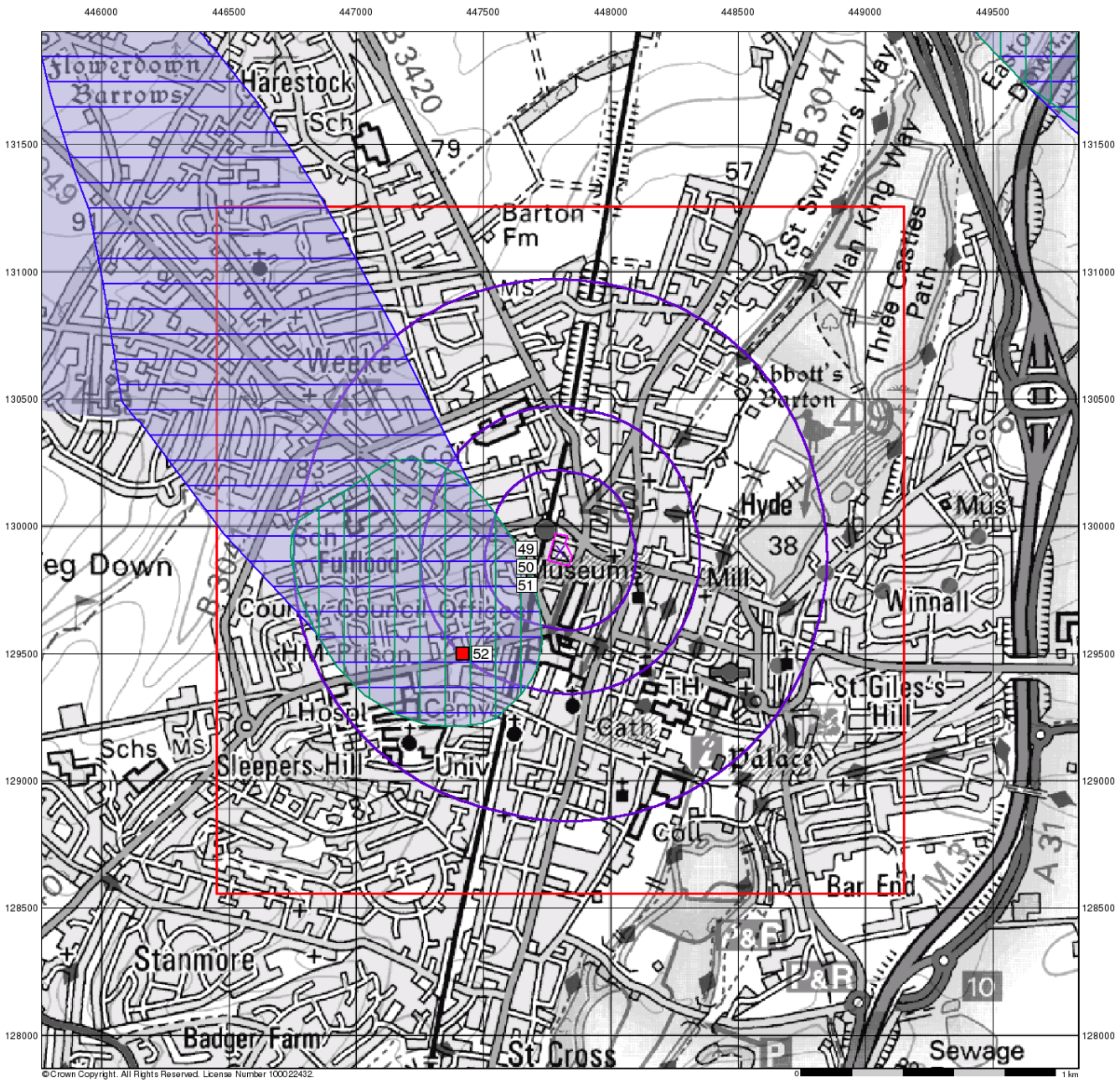
Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ



TWEEDIE EVANS CONSULTING

Source Protection Zones

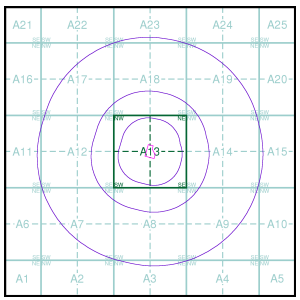
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

Source Protection Zone I
Source Protection Zone II
Source Protection Zone III
Zone of Special Interest
Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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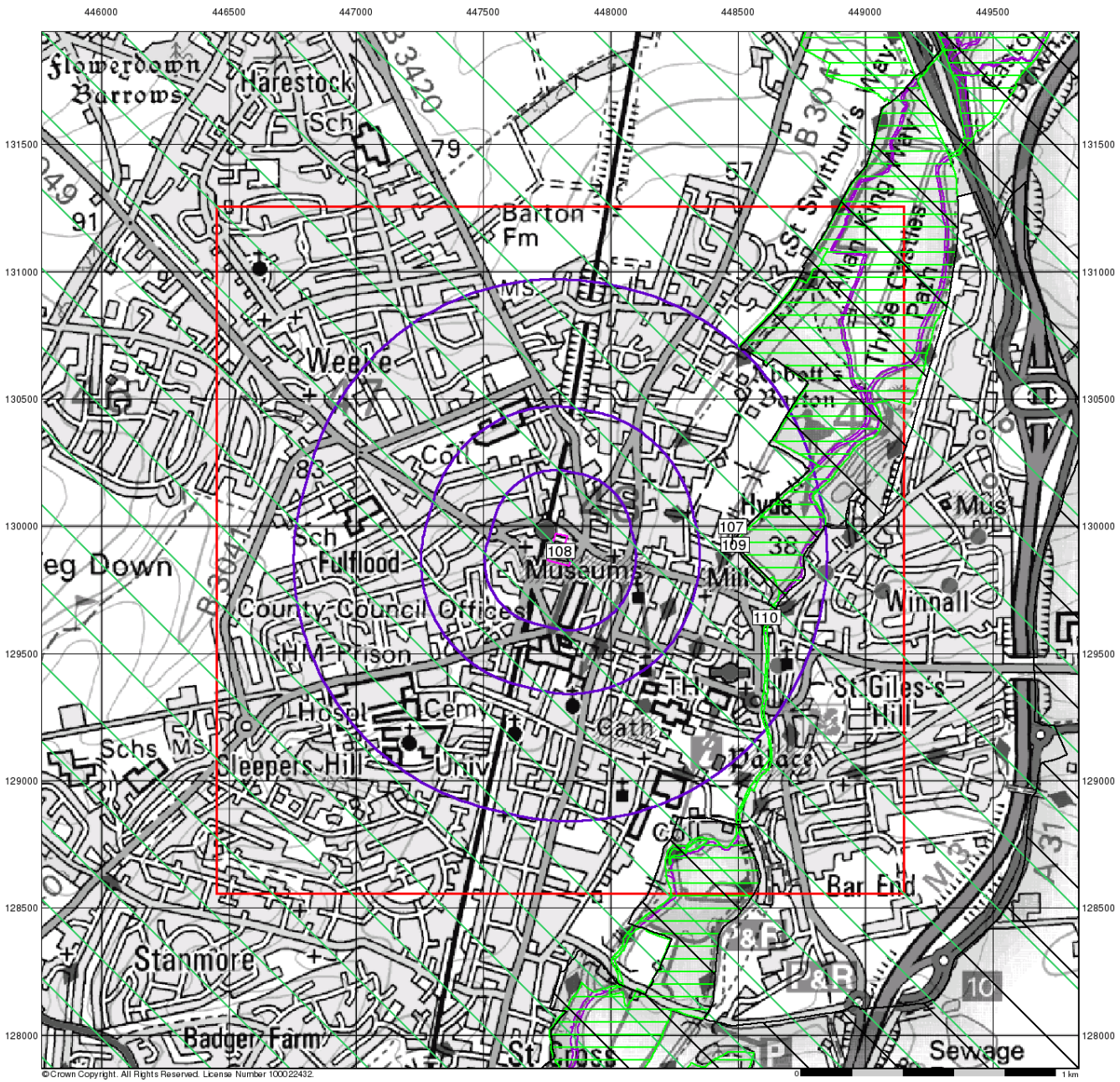


TWEEDIE EVANS CONSULTING

Sensitive Land Uses

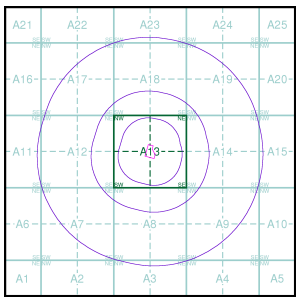
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Sensitive Land Uses

- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area

Site Sensitivity Context Map - Slice A



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Site Details

Hampshire Register Office, Station Hill, WINCHESTER, Hampshire, SO23 8TJ

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

APPENDIX D

Regulatory Correspondence

From: aharker@winchester.gov.uk
Sent: 05 April 2013 09:11
To: KWarren@winchester.gov.uk
Cc: DIngram@winchester.gov.uk
Subject: RE: Land known as the Carfax Site, Winchester PRIVATE & CONFIDENTIAL

Hi Kevin,

There are several potential contamination issues on this site you should be aware of including;

- Petrol filling station with 4 petroleum tanks with total capacity of 8000 gallons. These were filled with concrete in 1977 but there is potential for the tanks, associated infrastructure and residual contamination to be present on site.
- Engineering works between c1953 - c1991
- Brewery in 1871

There are also numerous other potentially contaminating land uses within the vicinity of this site including (but not limited to) the railway, another petrol filing station and several motor vehicle garages.

This Service also holds a number of site reports relating to the site and sites within the vicinity, however given the current office moves it is not possible to access these reports at present.

It is hoped that the contamination status of the site was investigated at the time of development of the site into the registry office and records office however this Service holds no site reports or other records to demonstrate this. Prior to purchasing this site it is recommended that you make enquiries regarding the contamination status of this site and obtain copies of any geo-environmental reports that were produced at the time of development to inform the specification for additional information required to be established.

If you require any further assistance please do not hesitate to contact me however, please be aware that I will not be able to respond until the latter part of next week until our systems and access to our files has returned to normal following the office moves.

Regards

Alison

Alison Harker
Environmental Protection Officer
Winchester City Council
Colebrook Street
Winchester SO23 9LJ
Tel: 01962 848503
Fax: 01962 840586
Email: aharker@winchester.gov.uk
www.winchester.gov.uk

From: PTidridge@winchester.gov.uk
Sent: 28 August 2013 16:26
To: Ewan Tweedie; KWarren@winchester.gov.uk
Cc: aharker@winchester.gov.uk; DIngram@winchester.gov.uk
Subject: RE: Carfax Site, Station Hill, Winchester
Attachments: 20130828154717800.pdf

Kevin/Ewan

Hi guys

Alison is best placed to assist in taking this forward from our perspective, although she is on leave this week.

In her absence I can confirm we have little additional information over that which she has provided but enclosed is a marked up scan of our contaminated land data base and a copy of the historic maps for the area. Commenting on 1 to 5 that I have marked on the main map:

1. We have on record that a contaminated land report from structural soils was commissioned as part of the redevelopment of this site into the new Hampshire records office – it is logged as finding no evidence of contamination. Since this was a Hampshire County Council led development they should be able to provide you a copy of this report as it was not that long ago.
2. Brewery and malting – a Landmark entry
3. Factory and Works – use not specified - another landmark entry.
4. Wykehm Motors Ltd - garage and petrol station. This has been obtained by data capturing Hampshire County Council Petroleum licensing records. In this instance data came from the derelict tank register so we have no map of exact locations of the 4 tanks. There are multiple overlapping entries the maximum extent I have marked in biro.
5. Railway Land (no surprise) – another Landmark entry.

Clearly the issue relating to the petroleum usage on site is likely to need the greatest further attention as these are only recorded as having been filled and made safe so could potentially still exist in situ. If these are still present this could be potentially costly to remove and often we find contamination has occurred through the bottom of these tanks especially where they are historic and had no concrete containment.

Regards

Phil

Phil Tidridge
Neighbourhoods and Environment
Winchester City Council
City Offices
Colebrook St
Winchester
Hampshire
SO23 9LJ
Tel 01962 848519

Ewan Tweedie

From: Sommers, David [david.sommers@hants.gov.uk]
Sent: 05 September 2013 08:45
To: 'KWarren@winchester.gov.uk'
Cc: Ewan Tweedie; Hedges, Craig
Subject: RE: Carfax Site
Attachments: Winchester - Wykeham Motors Ltd - Station Hill - Pet Petarch_(HF000004353792).pdf

Dear Kevin,

Please find attached the records for Wykeham Motors, which appears to be the site you are looking for. There is information relating to the purchase by HCC and a plan of the site (not to scale) with the location of the fuel tanks.

Please note that the tanks appear to have been made safe in 1977 in two stages, using concrete slurry.

I have searched for 2 Winnall Valley Road and found no matches.

For Winnall Valley Road in general I have three matches, none with property identifying details:

1. The Co-op Transport Depot
2. Ballard (Winchester) Ltd
3. Mason & Co.

If you are able to tie your property to one of these historic businesses please let me know. Alternatively I am happy to provide all 3 records if they will help you.

Regards
David.

David Sommers
Lead Petroleum Officer

Hampshire Petroleum Service
Montgomery House,
Monarch Way, Winchester SO22 5PW

Tel: 01962 833651
Mobile: 07718 146033
Fax: 01962 833699
Email: david.sommers@hants.gov.uk

Forms & Guidance at:
http://www3.hants.gov.uk/tradingstandards-petroleum.htm

From: KWarren@winchester.gov.uk [mailto:KWarren@winchester.gov.uk]
Sent: 04 September 2013 17:39
To: Sommers, David
Cc: Hedges, Craig; ewan.tweedie@tecon.co.uk
Subject: Carfax Site

Good afternoon David,

As discussed WCC are seeking to purchase the above site from HCC. I attach a plan which identifies the location outlined in red. As part of the purchase an environmental study has to be undertaken to identify any potential contaminants. The initial study has shown that four filled petrol tanks are believed to be situated in the site, however we have been unable to ascertain precisely where. It would reduce the cost of the site investigation if the location of the tanks could be pinpointed. It would therefore be of assistance if you were able to advise where the tanks might be located.

I look forward to hearing from you shortly.

Kind regards,

Kevin

Kevin Warren
Head of Estates
Winchester City Council
Colebrook Street
WINCHESTER
SO23 9LJ
01962 848528

REGISTER NO W/40

DERELICT TANK REGISTER

Licence No _____ Period From — To 20/12/44

Full Name and Address of Premises

Wykeham Motors Ltd, Station Hill, Winchester.

Tel No —

Full Name and Address of Occupier

—

Tel No —

Full Name and Address of Owner

H.C.C. The Castle, Winchester, Hants.

Tel No —

Tanks

Number	Installed	~~Tested~~ QUANTITY	~~Next Test Due~~ LOCATION	Remarks
1	not known	2000 galls	see plan	filled with Concrete
2	not known	2000 galls	see plan	filled with Concrete
3	not known	2000 galls	see plan	filled with Concrete
4	not known	2000 galls	see plan	filled with concrete
~~5~~				
~~6~~				
~~7~~				
~~8~~				

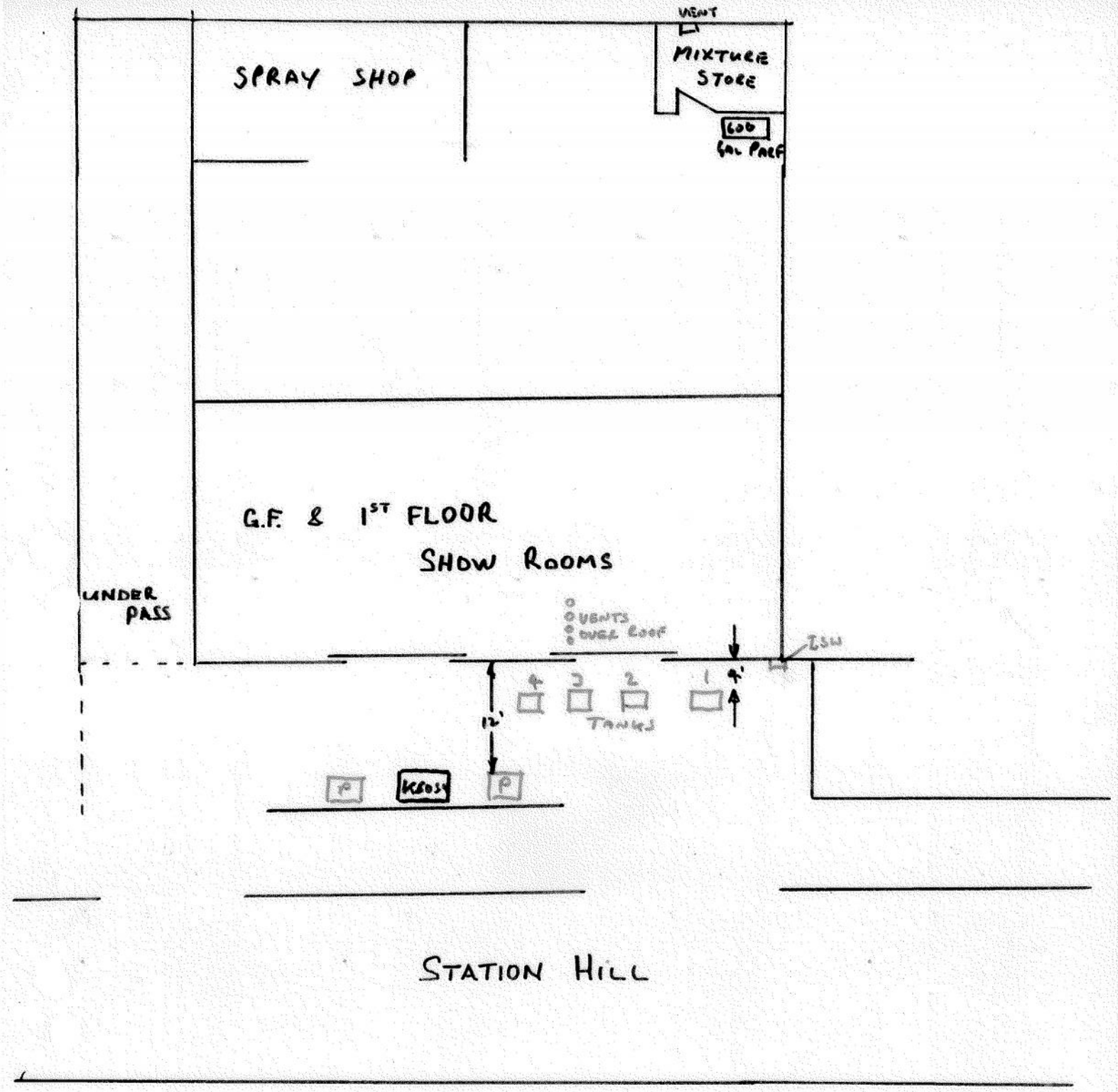
PL9 - Date Sent N/A

PL10(PH Act Notice) - Date Sent N/A. (HQ only)

Date Rendered Safe 182 20/12/44 384 13/5/77 Method Conc. full.

Local Authority Notified PL12 - N/A (Date) PL13 - N/A. (Date)

SIGNED C. J Partridge RANK Sub/O. DATE 8/11/81



STATION HILL

MAXIMUM NO. TO BE EMPLOYED IN COMPARTMENT (12)			
FIRE RESISTING SELF CLOSING DOOR (½ Hour) FRSCD or FRSCD 1 etc.			
FIRE RESISTING (½ Hour) .	FR	FIRE RESISTING (1 Hour) FR1 (etc)	
HIGHLY FLAMMABLE MATERIALS USED .	(AU)	HIGHLY FLAMMABLE MATERIALS STORED .	(AS)
FIRE EXIT SIGN [E] or [E] etc.		PANIC BOLTS . . .	PB
VERTICAL LADDER . .	VL	RAKING LADDER .	RL
HYDRANT	(H)	FIRE BLANKET . . .	B
MANUAL ALARM SOUNDER (Bell, Gong, etc.) . .	△	FIRE ALARM CALL POINT	◎
WATER BUCKET . .	WB	SAND BUCKET . . .	SB
WATER EXTINGUISHER .	W	FOAM EXTINGUISHER .	F
DRY POWDER EXTINGUISHER . .	DP	CARBON DIOXIDE EXTINGUISHER . .	CO_2
AUDIBLE WARNING DEVICE . . .		HOSE REEL . . .	

GAF 3215/72

NAME		
ADDRESS STATION HILL		
NOT TO SCALE		
Drawn by TGL	Date 23.4.75	Ref No.

NOTE FOR FILE

ADDRESS Wykeham Motors Station Hill Winchester

DATE 20/12/77 INSPECTING OFFICER K. Hammond

visited site today and met Chemist who certified tanks gas free.

Tanks have now been rendered safe by filling with cement slurry.

K Hammond

TELEGRAMS—
"BATES, CHEMISTS, SOUTHAMPTON"

TELEPHONE—
22766 SOUTHAMPTON

W. BATES & CO., LTD.,

ANALYTICAL CHEMISTS,
SHIPPING AND EXPORT DRUGGISTS,
MAKERS AND FITTERS OF SHIPS' MEDICINE CHESTS

A 1245

OXFORD HOUSE, COLLEGE STREET, SOUTHAMPTON, SO9 1LN

Messrs. C.B.9 (Tank Cleaning) Ltd ..... June 2019

MV / SS Two (2) 2,000 Tpdl c/c Tanks D Manchester

We have this day examined on board the above vessel:-
the above Two (2) Tanks

We have tested samples of air taken therefrom and hereby certify same to be free from inflammable vapour.
Safe for filling with concrete

REMARKS

for and on behalf of
W. BATES & CO., LTD.,

Ph.C.

NOTE FOR FILE

ADDRESS WYKEHAM MOTORS STATION HILL WINCHESTER

DATE 19/12/77 INSPECTING OFFICER K. HAMMOND

Southern Cleansing Services, Botley attended site on 19/12/77 and bottened and cleaned two underground storage tanks, ready for filling cement slurry.

K Hammond

HAMPSHIRE

Memorandum from :

County Estates Officer

To:

County Architect - for the attention of Mr Jarman (7343) 7312
cc Please see list below

Winchester 4411 ext 497

PLEASE QUOTE: 5M/87/AJS/PJM

YOUR REFERENCE:

Date 5th December, 1977

WYKEHAM MOTORS - GARAGE PREMISES, STATION HILL, WINCHESTER

The County Council completed the purchase of the above premises on the 1st instant. Two disused petrol tanks, accessible from the forecourt, require immediate attention and in this respect I attach a copy of a memorandum I have received from the County Secretary.

At the option of the vendours the tanks were not filled in prior to the County Councils purchase and £300 has accordingly been set aside for this purpose.

I understand that each of the two tanks contains approximately 30 gallons of residue fuel which cannot be extracted by the existing petrol pump. I understand from Mr Walker your group leader, electrical maintenance, that the tanks will have to be properly emptied, possibly by a specialist firm such as Southern Cleansing Services, Botley, flushed out in some way to dispell harmful or inflammable gases and completely filled with lean mix concrete so as to leave no voids.

I will be most grateful if you will undertake this work at the earliest possible time and liase with the Chief Fire Officer who will no doubt wish to be on hand when the necessary operations are carried out.

As mentioned above up to £300 of the cost of doing this work can be charged against the cost of acquisition of the property. Any additional amount must be charged against maintenance or some similar budgetry provision.

With regard to disconnecting and making dead the electrical supply Mr Crouch will contact Mr Walker after Monday ~~next~~ week. A supply must be maintained to the single room on the first floor occupied by Smiths Motoring School and a meeting with the proprietors of the school has been arranged for December 5th. Provision of a separate supply to the first floor room in question appears to be necessary.

I hope that by the time you receive this memorandum Mr Schrier will have discussed details with Mr Jarman.

cc County Secretary Ref: PR567/BQ/DF
Chief Fire Officer (Divisional Officer Mr Sullivan)
Chief Fire Officer (Station Officer, Mr Long 'C' Division)
County Architect Mr Walker
County Estates Department Mr P Crouch (488)

HAMPSHIRE FIRE BRIGADE

NOTE FOR FILE

ADDRESS: WYKEHAM MOTORS - WINCHESTER

DATE: 13-5-77 INSPECTING OFFICER SUB.O. HAMMOND

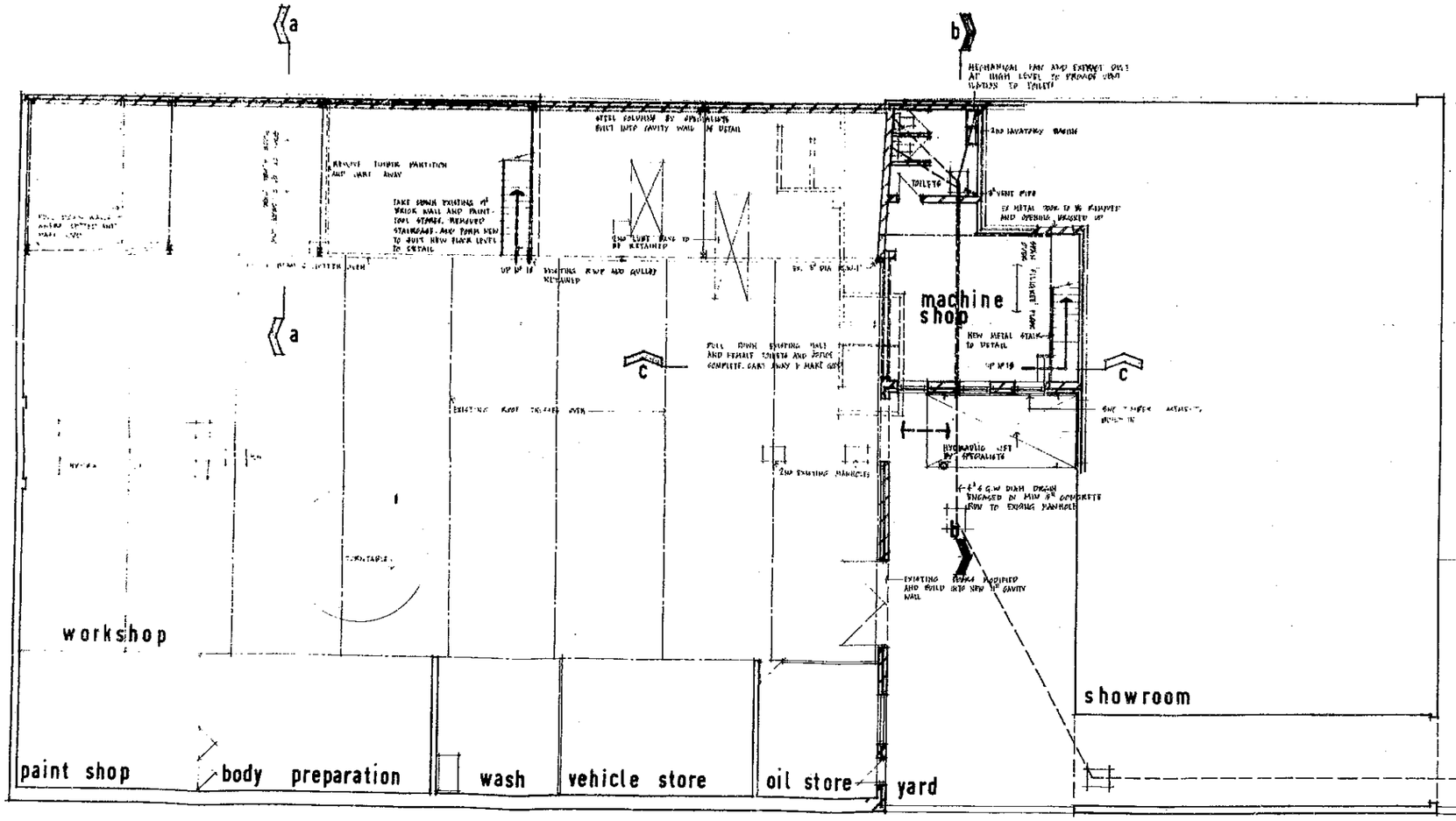
Visited the above premises, tanks No 3 & 4 cleaned, degassed and filled with Cement Slurry.

NOTE 12-8-77

Telephone Call by MR Pitt, they have decided that the two existing tanks will be rendered safe & will no longer require a licence. However, this will take place only when agreed between Shell & Wykehams. Informed Mr. Pitt that we will licence the site for one year & on completion of rendering safe, will refund any money Due.


AUTOWORK (WINCHESTER) LTD
TELEPHONE WINCHESTER 4834
GARAGE
SALES & SERVICE
ESSO
ESSO
ESSO
ESSO
GARAGE
GARAGE


ESTIMATES FREE
WHITE
THE REMOVERS &
SHIPPING
AGENTS
LET US
AUTOWORX
CARAGE



ground floor

CITY OF WINCHESTER
(BUILDING BYELAWS 1965)
PLAN No. 4479
REC'D 21 APR 1966
APPROVED 2 6 66
REFUSED

0479

A Bridge for Wykeham Motors Ltd.

new workshop and stores

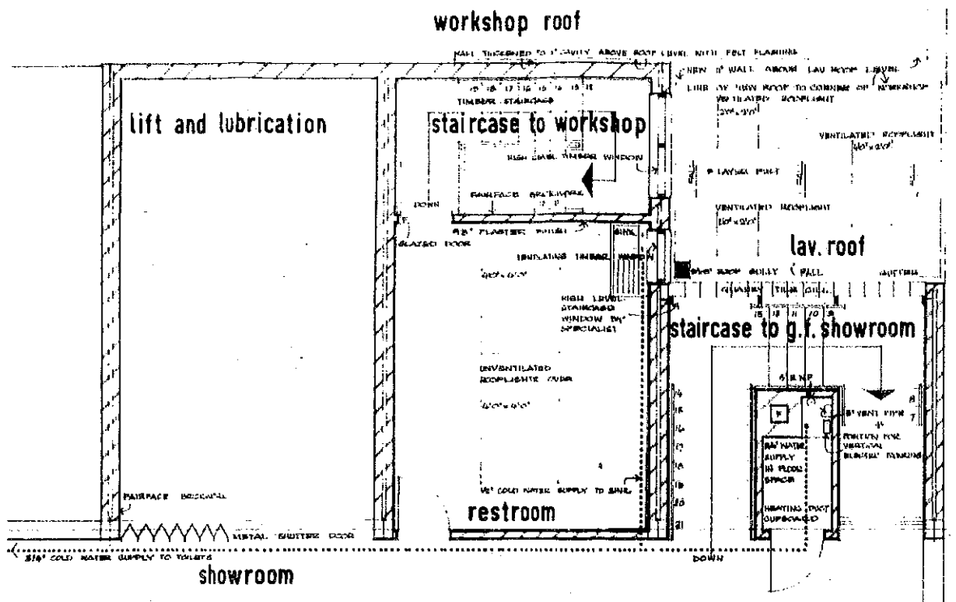
wykeham motors ltd

427

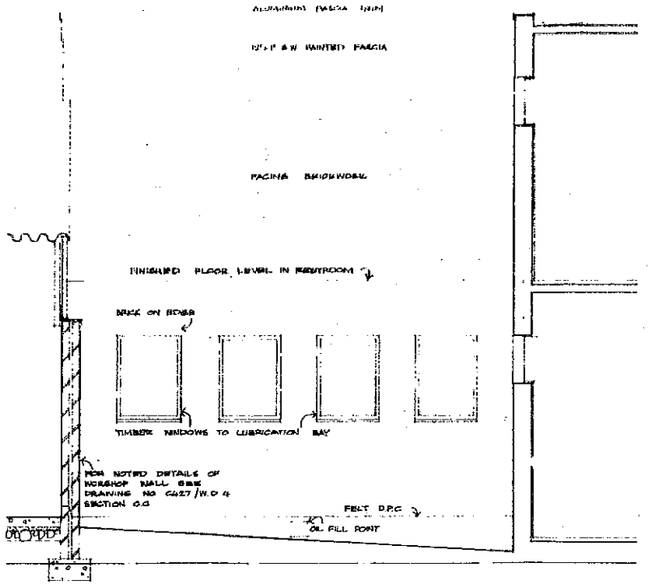
1 ground floor plan

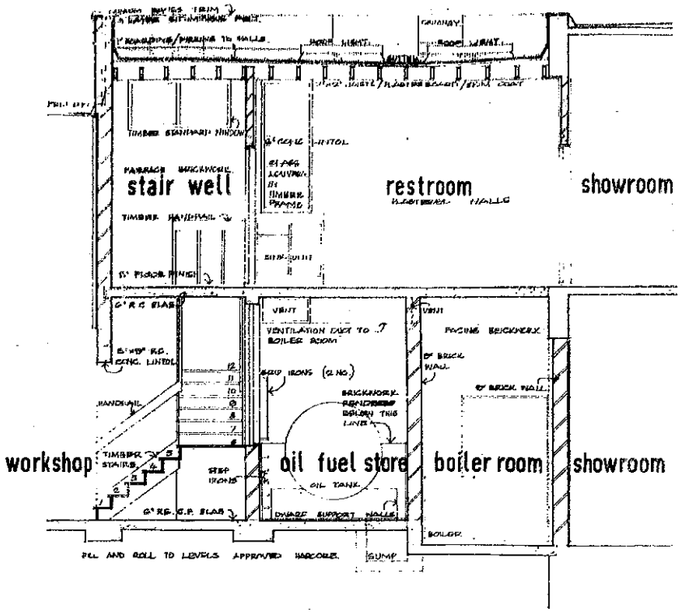
A2

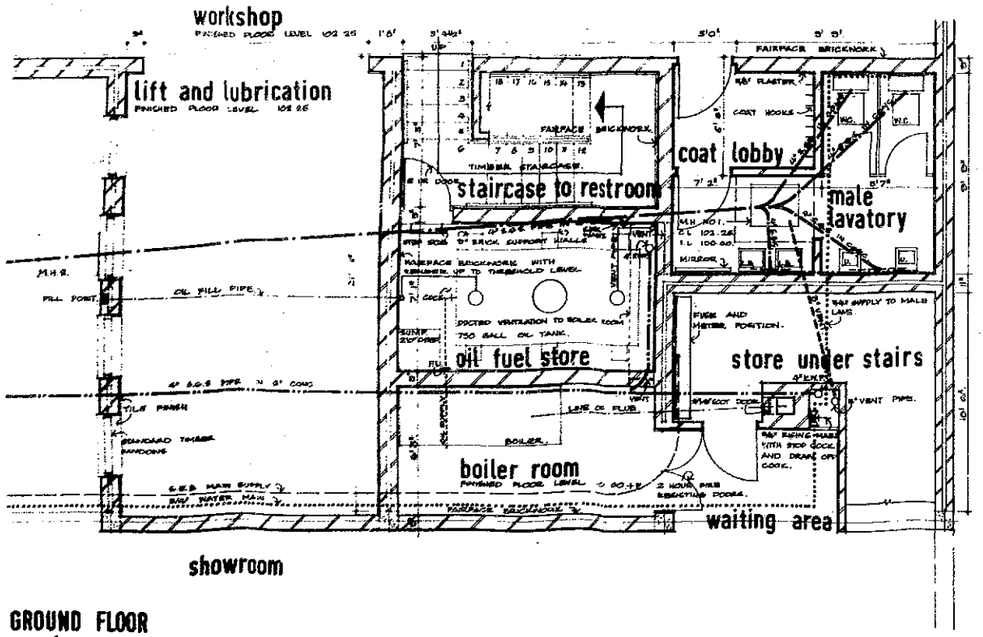
9920



FIRST FLOOR

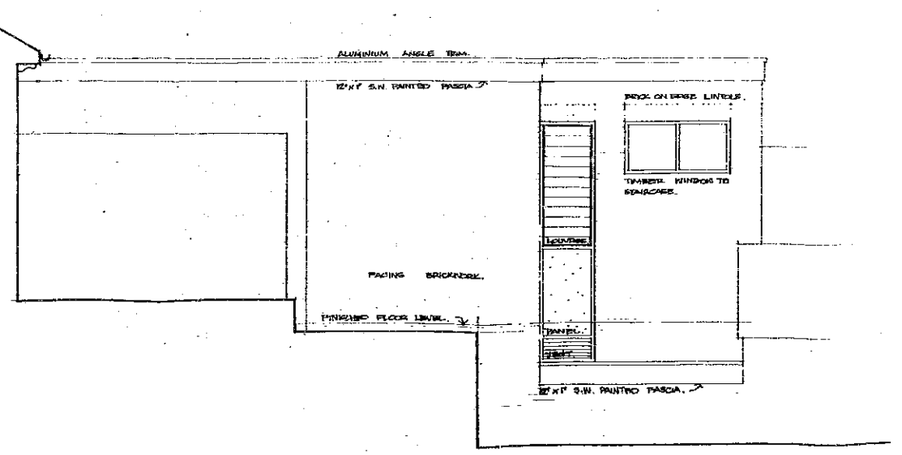






GROUND FLOOR

YARD ELEVATION



ELEVATION FROM WEST

SECTION AA

notes

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS.

LOCAL AUTHORITY, FIRE OFFICER, ARP/TH INSPECTOR, FACTORY INSPECTOR C427/WD 6.7.8.9.

CONTRACTOR AND SUB CONTRACTORS C427/WD. 2, 3, 4, 5, 6, 7.

NEW SHOWROOMS
WYKEHAM MOTORS LTD

C. 427 W.D.21	revised layout of accommodation to rear of showroom

CITY OF WINCHESTER
APPROVED UNDER BUILDING BYELAWS
~~REJECTED~~

EVANS & ROBERTS
Chartered Architects and Town Planning Consultants
WOLVESEY PALACE, WINCHESTER.

C 427
W.D.21
MAY 65
1/4" to 1'-0"

A3 A2

APPENDIX E

Risk Evaluation

Risk Evaluation

TWEEDIE EVANS CONSULTING

The qualitative assessment methodology presented in Ciria publication C552 (2001) titled *'Contaminated Land Risk Assessment: A Guide to Good Practice'* has been used by TEC for the basis of evaluating potential risk.

The method requires an assessment of the:

- magnitude of the probability or likelihood of the risk occurring (Table 1); and
- magnitude of the potential consequence or severity of the risk occurring (Table 2)

Table 1. Classification of Probability

Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place, and is less likely in the short-term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.

Table 2. Classification of Consequence

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resource. (Note: Water Resources Act contains no scope for considering significance of pollution). Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organisation forming part of such ecosystem (note: the definitions of ecological systems within the draft circular on Contaminated Land, DETR, 2000).	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to human health ("significant harm" as defined in DETR, 2000). Pollution of sensitive water resources. (Note: Water Resources Act contains no scope for considering significance of pollution). A significant change in a particular ecosystem, or organism forming part of such ecosystem, (note: the definitions of ecological systems within draft circular on Contaminated Land, DETR, 2000).	Concentration of a contaminant from site exceeding the generic or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of a species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ("significant harm" as defined in the draft circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (for example foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc), easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

The combination of the two factors is determined using Table 3 and the resulting level of risk is described in Table 4. The evaluation can be applied to each of the scenarios identified in the risk model and the overall risk assessed.

Table 3. Combination of Consequence with Probability

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	**Very High Risk**	**High Risk**	**Moderate Risk**	**Moderate/Low Risk**
	Likely	**High Risk**	**Moderate Risk**	**Moderate/Low Risk**	**Low Risk**
	Low Likelihood	**Moderate Risk**	**Moderate/Low Risk**	**Low Risk**	**Very Low Risk**
	Unlikely	**Moderate/Low Risk**	**Low Risk**	**Very Low Risk**	**Very Low Risk**

Table 4. Description of risks and likely action required

Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer-term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the long-term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Using the risk model the pollutant linkages are identified and a preliminary estimate of risk undertaken. If there is no pollutant linkage identified, then there is no risk. If the estimate of risk for all the linkages and exposure scenarios is very low at this stage then it is likely that no further assessment will be required.

APPENDIX F

Exploratory Hole Logs

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH01

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 21/10/2013 - 22/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
	Ground Surface		0.0				
0.50	MADE GROUND Brown sandy gravel of limestone, flint and red brick.			A	0.3m 0.5m	**PID (ppm) and SPT** PID at 0.2mbgl = 0.00 PID at 0.5mbgl = 0.00	Concrete Bentonite
1.60	MADE GROUND Light brown to white gravelly sandy silt. Gravel of chalk, flint and red brick.		1.0			PID at 1.0mbgl = 0.00 SPT at 1.2mbgl = (4, 4) 4, 10, 11, 11 **N = 36**	
2.00	MADE GROUND Light brown to white sandy clayey gravel of red brick, chalk and flint. Occasional wood fragments.					PID at 1.75mbgl = 0.00	
2.30			2.0			SPT at 2.0mbgl = (4, 10) 16, 9, 10, 12 **N = 49**	
2.50	Structure between 1.8m and 2.0m recovered as cobbles and boulders of red brick and concrete.			T	2.3m 2.5m		
3.00	MADE GROUND Reddish brown locally white slightly silty gravelly clay. Gravel of chalk and red brick.		3.0			SPT at 3.0mbgl = (4, 5) 4, 4, 3, 3 **N = 14**	
4.00	Reddish brown locally white gravelly CLAY. Gravel of chalk.			T	3.5m 3.7m		
	Structureless CHALK composed of white, slightly gravelly clayey SILT. Gravel is very weak low density with occasional reddish brown staining. (Grade Dm?)		4.0	A	4.0m 4.1m		
5.80	Structureless CHALK composed of silty sub-angular to sub-rounded GRAVEL. Clasts are very weak low density and white. Occasional angular to sub-rounded flint. (Grade Dc?)			T	4.35m 4.55m		
	Very weak to weak, low to medium density CHALK, white with occasional yellow staining.		5.0			SPT at 5.0mbgl = (4, 4) 4, 4, 4, 4, **N = 16**	
	Weak, medium density CHALK, white with occasional yellow staining. ....Occasional bands of flint.		6.0			SPT at 6.5mbgl = (4, 5) 6, 6, 10, 10 **N = 32**	
			7.0				
			8.0			SPT at 8.0mbgl = (4, 8) 12, 10, 12, 14 **N = 48**	
			9.0				

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

Groundwater encountered at 19.3mbgl.

Logged by: CH | Checked by: ET | Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH01

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 21/10/2013 - 22/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
			10.0	A	10.0m 10.2m	SPT at 9.5mbgl = (5, 10) 6, 8, 8, 9 **N = 31**	3-6mm Pea Gravel
			11.0			SPT at 11.0mbgl = (5, 9) 6, 5, 7, 7 **N = 25**	
			12.0			SPT at 12.5mbgl = (4, 4) 1, 1, 4, 7 **N = 13**	50mm HPDE pipe
			13.0				
			14.0			SPT at 14.0mbgl = (20, 5/15mm) 21, 23, 6/60mm **N >50**	
15.00			15.0				
	Weak to moderately weak, medium to high density CHALK, white with moderate yellow staining. .....Occasional bands of flint.		16.0			SPT at 15.5mbgl = (6, 14) 16, 15, 18, 1/5mm **N>50**	
			17.0			SPT at 17.0mbgl = (7, 15) 16, 9, 10, 14 **N = 49**	
			18.0				

Notes:

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V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

Groundwater encountered at 19.3mbgl.

Logged by: CH	Checked by: ET	Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH01

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 21/10/2013 - 22/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
20.50			19.0			SPT at 18.5mbgl = (9, 9) 17, 10, 6, 4 **N = 37**	
			20.0			SPT at 20.0mbgl = (12, 7) 6, 5, 7, 15 **N = 33**	
	Moderately weak, high density white unstained CHALK.		21.0				
	...Occasional bands of flint.		22.0			SPT at 21.5mbgl = (25/50mm) 50/40mm **N > 50**	
25.00			23.0			SPT at 23.0mbgl = (7, 9) 9, 9, 9, 15 **N = 42**	
			24.0			SPT at 24.5mbgl = (12, 13) 19, 31 **N>50**	
	Borehole Terminated		25.0				
			26.0				
			27.0				

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

Groundwater encountered at 19.3mbgl.

Logged by: CH | Checked by: ET | Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH02

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
	Ground Surface		0.0				
0.20	MADE GROUND Tarmacadam Hardstanding.					**PID (ppm) and SPT**	Concrete
	MADE GROUND Light brown to white gravelly sand. Gravel of chalk, flint red brick and black carbonaceous material.		1.0			PID at 0.25mbgl = 0.00 PID at 1.0mbgl = 0.00 SPT at 1.2mbgl = (4, 4) 5, 5, 5, 6 **N = 21**	Bentonite
3.00			2.0			SPT at 2.1mbgl = (6, 5) 5, 4, 6, 9 **N = 24**	
	MADE GROUND Light brown sandy gravel of red brick, flint, chalk and black carbonaceous material.		3.0	A	3.0m 3.1m	SPT at 3.0mbgl = (6, 7) 5, 5, 5, 6 **N = 21**	
3.50	Structureless CHALK composed of silty sub-angular to sub-rounded GRAVEL. Clasts are very weak low density and white. Occasional angular to sub-rounded flint. (Grade Dc?)		4.0			SPT at 4.0mbgl = (4, 5) 6, 5, 5, 4 **N = 20**	
4.50	Very weak to weak, low to medium density CHALK, white with occasional yellow staining. ...Occasional bands of flint.		5.0			PID at 5.0mbgl = 0.00 11, 14, 16 **N = 47**	
6.20	Weak, medium density CHALK, white with occasional yellow staining. ....Occasional bands of flint.		6.0	A T	6.0m 6.2m 6.5m 6.7m	SPT at 6.5mbgl = (4, 5) 7, 8, 8, 9 **N = 31**	
			7.0			PID at 7.5mbgl = 0.00	
			8.0			SPT at 8.0mbgl = (4, 4) 4, 5, 5, 5 **N = 19**	
			9.0				

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

No groundwater encountered.

Logged by: CH | Checked by: ET | Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH02

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks
					9.5m	SPT at 9.5mbgl = (4, 5) 6, 7, 9, 9 **N = 31**
				A		
			10.0		10.0m	PID at 10.0mbgl = 0.00
				T	10.2m	
			11.0			SPT at 11.0mbgl = (6, 6) 6, 8, 16, 20/65mm **N >50**
			12.0			
						SPT at 12.5mbgl = (6, 10) 9, 10, 16, 10 **N = 45**
			13.0			
			14.0			SPT at 14.0mbgl = (11, 14) 9, 10, 9, 6 **N = 34**
15.00						
	Weak to moderately weak, medium to high density CHALK, white with moderate yellow staining.		15.0			PID at 15.0mbgl = 0.00
	.....Occasional bands of flint.					SPT at 15.5mbgl = (13, 12) 12, 12, 9, 11 **N = 34**
			16.0			
					16.75m	
				A		
			17.0		17.0m	SPT at 17.0mbgl = (7, 7) 9, 11, 9, 11 **N = 40**
			18.0			

Installation: 3-6mm Pea Gravel; 50mm HPDE pipe

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

No groundwater encountered.

Logged by: CH | Checked by: ET | Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH02

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
			19.0			SPT at 18.5mbgl = (4, 5) 5, 5, 4, 4 **N = 18**	
20.00			20.0			SPT at 20.0mbgl = (6, 9) 10, 10, 8, 9 **N = 37**	
	Borehole Terminated		21.0				
			22.0				
			23.0				
			24.0				
			25.0				
			26.0				
			27.0				

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

No groundwater encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH03

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013 - 25/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
	Ground Surface		0.0				
0.30	MADE GROUND Reddish brown sandy gravel of limestone, red brick and charcoal.					**PID (ppm) and SPT Results**	
	MADE GROUND White locally yellow gravelly clayey silt. Gravel of chalk.		1.0			PID at 0.5mbgl = 0.00 PID at 1.0mbgl = 0.00 SPT at 1.2mbgl = (8, 9) 10, 7, 5, 5 **N = 27**	
1.70				A	1.7m 1.9m		
2.30	MADE GROUND White locally reddish brown, red and black clayey gravel of chalk, red brick, charcoal and flint.		2.0			SPT at 2.1mbgl = (6, 5) 5, 5, 6, 7 **N = 23**	
	Structureless CHALK composed of silty sub-angular to sub-rounded GRAVEL. Clasts are very weak low density and white. Occasional angular to sub-rounded flint. (Grade Dc?)		3.0			SPT at 3.0mbgl = (4, 5) 5, 5, 6, 6 **N = 22**	
3.50	Very weak to weak, low to medium density CHALK, white with occasional yellow staining. ...Occasional bands of flint.		4.0			SPT at 4.0mbgl = (4, 4) 5, 8, 7, 8 **N = 28** PID at 4.5mbgl = 0.00	
			5.0			SPT at 5.0mbgl = (7, 11) 9, 9, 8, 10 **N = 36**	
6.00	Weak, medium density CHALK, white with occasional yellow staining. ....Occasional bands of flint.		6.0			SPT at 6.5mbgl = (5, 5) 8, 5, 10, 14 **N = 37**	
			7.0				
			8.0			SPT at 8.0mbgl = (10, 13) 10, 8, 8, 9 **N = 25**	
			9.0			PID at 9.0mbgl = 0.00	

Concrete
Bentonite

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

No groundwater encountered.

Logged by: CH | Checked by: ET | Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH03

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013 - 25/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
12.00			10.0			SPT at 9.5mbgl = (13, 12/45mm) 22, 18, 10/50mm **N >50**	3-6mm Pea Gravel
			11.0			SPT at 11.0mbgl = (6, 7) 5, 11, 11, 14 **N =41**	
	Weak to moderately weak, medium to high density CHALK, white with moderate yellow staining.		12.0			SPT at 12.5mbgl = (6, 10) 10, 14, 12, 12 **N = 48**	
	.....Occasional bands of flint.		13.0	T	13.0m 13.2m	PID at 13.0mbgl = 0.00	50mm HPDE pipe
			14.0	A	14.0m 14.5m	SPT at 14.0mbgl = (8, 7) 10, 7, 7, 13 **N = 37**	
			15.0			SPT at 15.5mbgl = (9, 6) 10, 10, 18, 12/55mm **N >50**	
			16.0	T	16.0m 16.2m		
17.50			17.0			PID at 17.0mbgl = 0.00 9, 31, 5 **N = 49**	
	Moderately weak, medium to high strength density white CHALK.		18.0		18.0m		

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

No groundwater was encountered.

Logged by: CH	Checked by: ET	Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

CABLE PERCUSSIVE BORING RECORD

BOREHOLE: BH03

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013 - 25/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	Depth (m)	Sample Details Type	Sample Details Depth	Remarks	Installation
				A	18.2m	SPT at 18.5mbgl = (4, 4) 6, 5, 5, 5 **N = 21**	
20.00			19.0				
	Borehole Terminated		20.0			SPT at 20.0mbgl = (9, 9) 10, 10, 12, 7 **N = 39**	
			21.0				
			22.0				
			23.0				
			24.0				
			25.0				
			26.0				
			27.0				

Notes:

A - Amber Glass Jar
T - Plastic Tub
V - Glass Vial
D - Disturbed Sample
U - Undisturbed Sample
B - Bulk Sample
SPT - Standard Penetration Test
HSV - Hand Shear Vane

Plant: Dando 2000

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

TWEEDIE EVANS CONSULTING LTD
The Old Chapel
35A Southover
Wells
Somerset
BA5 1UH

DYNAMIC SAMPLING RECORD

BOREHOLE: WS01

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 22/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.30	MADE GROUND Reddish brown sandy gravel of limestone, flint, red brick and black carbonaceous material (charcoal).					**PID (ppm) and SPT** PID at 0.2mbgl = 0.00	
0.60	MADE GROUND Brown locally reddish brown silty gravelly sand. Gravel of limestone, red brick, chalk and glass.						
1.10	MADE GROUND White locally reddish brown clayey sandy gravel of chalk and red brick.					PID at 1.0mbgl = 0.00	
1.30	MADE GROUND Reddish brown gravel and cobbles of red brick.						
2.40	Structureless CHALK composed of gravelly SILT. Gravel is white low to medium density chalk. (Grade Dm?)					SPT at 2.0mbgl = (11, 12) 11, 12, 10, 10 **N = 43**	
4.00	Weak low to medium density CHALK, white with occasional yellow staining and gravel of flint.					SPT at 4.0mbgl (10, 9) 9, 13, 13, 15/60mm **N >50**	
	Borehole Terminated						

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS02

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 22/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.20	MADE GROUND Reddish brown sandy gravel of limestone, flint, red brick and black carbonaceous material (charcoal).					**PID (ppm) and SPT** PID at 0.2mbgl = 0.00	
0.70	MADE GROUND Brown locally reddish brown silty gravelly sand. Gravel of limestone, red brick, chalk and glass.					PID at 0.6mbgl = 0.00	
1.00							
1.15	MADE GROUND White locally reddish brown clayey sandy gravel of chalk and red brick.						
1.25						SPT at 1.25mbgl = (3, 15) 25, 15, 10/30mm **N >50**	
	MADE GROUND Light brown locally white sandy gravel of chalk and red brick.						
	MADE GROUND Reddish brown cobbles of red brick.						
	Borehole Terminated						

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Borehole terminated on obstruction recovered as cobbles of red brick. .

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS03

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 22/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.10	MADE GROUND Reddish brown sandy gravel of limestone, flint, red brick and black carbonaceous material (charcoal).					**PID (ppm) and SPT** PID at 0.2mbgl = 0.00	Concrete
0.70	MADE GROUND Brown locally reddish brown silty gravelly sand. Gravel of limestone, red brick, chalk and glass.						Bentonite
1.50	MADE GROUND White locally reddish brown clayey sandy gravel of chalk and red brick.					PID at 1.0mbgl = 0.00	3-6mm Pea Gravel
2.00	Structureless CHALK composed of white gravelly SILT. Gravel is white low to medium density chalk. (Grade Dm?)					SPT at 2.0mbgl = (8, 9) 8, 11, 9, 9 **N = 37**	50mm HPDE pipe
5.00	Weak low to medium density CHALK, white with occasional yellow staining. ...Occasional coarse flint gravel from 3.7mbgl.					SPT at 4.0mbgl (11, 10) 8, 7, 5, 6 **N = 26**	
	Borehole Terminated					SPT at 5.0mbgl = (10, 10) 10, 10, 15, 15/50mm **N >50**	

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS04

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 22/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.10	MADE GROUND Reddish brown sandy gravel of limestone, flint, red brick and black carbonaceous material (charcoal).					**PID (ppm) Results** PID at 0.3mbgl = 0.00	
0.70	MADE GROUND Brown locally reddish brown silty gravelly sand. Gravel of limestone, red brick, chalk and glass.						
1.00	MADE GROUND White locally reddish brown clayey sandy gravel of chalk and red brick.					PID at 1.0mbgl = 0.00	
1.45	MADE GROUND White locally reddish brown and brown clayey gravel of chalk, red brick and flint.						
	MADE GROUND Reddish brown cobbles of red brick.						
	Borehole Terminated						

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Borehole terminated on obstruction recovered as cobbles of red brick.

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS05

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.30	MADE GROUND Tarmacadam hardstanding.					**PID (ppm) and SPT** PID at 0.3mbgl = 0.00	
0.60	MADE GROUND Reddish brown slightly clayey sandy gravel of limestone, red brick and charcoal.						
0.70							
0.95	MADE GROUND Brown locally dark brown and yellow sandy gravel of limestone, tarmacadam, flint, red brick and charcoal.					SPT at 1.0mbgl = (6, 7) 6, 7, 6, 7 **N = 23**	
1.50	MADE GROUND Dark brown locally light brown clayey gravel of red brick, charcoal, flint and chalk.					PID at 1.5mbgl = 0.00	
2.00	MADE GROUND Brown locally white slightly sandy gravelly silty clay. Gravel of chalk, charcoal, flint and red brick.						
	Structureless CHALK composed of white slightly gravelly SILT. Gravel is very weak to weak low density chalk. Occasional gravel of flint. (Grade Dm?)					SPT at 3.0mbgl = (8, 7) 7, 8, 9, 9 **N = 33**	
	Very weak to weak low to medium density CHALK, white locally speckled black with frequent brown staining. Occasional cobble of flint.						
5.00	Weak low to medium density CHALK, white with localised pockets of brown staining.						
	Borehole Terminated					SPT at 5.0mbgl = (21, 4/5mm) 24, 26/50mm **N > 50**	

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS06

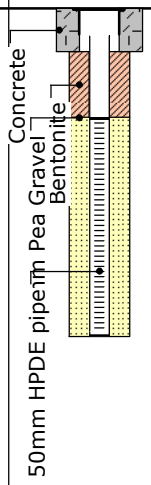
Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.25	MADE GROUND Tarmacadam hardstanding.					**PID (ppm) and SPT**	
0.70	MADE GROUND Reddish brown slightly clayey sandy gravel of limestone, red brick and charcoal.					PID at 0.3mbgl = 0.00	
1.80	MADE GROUND Dark brown locally white sandy gravelly silty clay. Gravel of flint, chalk and red brick. MADE GROUND White locally red sandy gravelly clay. Gravel of chalk and red brick.						
1.90	Cobbles of flint.						
2.65	Very weak to weak low to medium density CHALK, white locally speckled black with frequent brown staining. Occasional cobble of flint.					SPT at 2.0mbgl = (4, 6) 6, 6, 5, 6 **N = 23**	
3.50	Weak low to medium density CHALK, white with localised pockets of brown staining.						
5.00	Weak medium density CHALK, white with occasional brown staining.					SPT at 4.0mbgl = (9, 6) 6, 5, 6, 5 **N = 22**	
	Borehole Terminated						



Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS07

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.10	MADE GROUND Dark brown slightly sandy silt.					**PID (ppm) and SPT Results** PID at 0.3mbgl = 0.00	
0.30	MADE GROUND Light brown locally orange brown gravelly silty clay. Gravel of flint, red brick, charcoal and rare glass.						
1.70	Very weak to weak, low to medium density CHALK, white with moderate brown staining.					SPT at 1.0mbgl = (5, 4) 5, 4, 4, 6 **N = 19**	
3.60	Weak low to medium density CHALK, white with occasional brown staining.					SPT at 3.0mbgl = (7, 7) 10, 9, 8, 7 **N = 34**	
5.00	Weak medium density CHALK, white with occasional brown staining. ....Occasional gravel of flint.					SPT at 4.0mbgl (12, 5) 5, 4, 3, 4 **N = 16**	
	Borehole Terminated					SPT at 5.0mbgl = (8, 6) 5, 7, 6, 7 **N = 24**	

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS08

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.55	MADE GROUND Dark brown slightly sandy silt.					**PID (ppm) Results** PID at 0.5mbgl = 0.00	
0.87	MADE GROUND Light brown speckled white locally yellowish brown slightly sandy slightly clayey gravelly silt. Gravel of red brick, chalk and concrete.						
	MADE GROUND Light grey concrete.						
	Borehole Terminated						

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Borehole terminated at 0.9mbgl on concrete.

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS09

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.20	MADE GROUND Dark brown slightly sandy silt.					**PID (ppm) and SPT Results**	
0.60	Structureless CHALK composed of slightly sandy SILT. White with occasional brown staining. (Grade Dm?)					PID at 0.5mbgl = 0.00	
2.10	Very weak to weak low to medium density white CHALK. Occasional flint gravel.					SPT at 1.0mbgl = (4, 4) 4, 4, 4, 5 **N = 17**	
	Borehole Terminated					SPT at 2.1mbgl = (25/0mm) 50/0mm **N > 50**	

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Borehole terminated at 0.9mbgl on concrete.

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS10

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.10	MADE GROUND Dark brown slightly sandy silt.					**PID (ppm) and SPT** PID at 0.1mbgl = 0.00	Concrete
	Structureless CHALK composed of slightly sandy SILT. White with occasional brown staining and occasional flint gravel (Grade Dm?).					SPT at 1.0mbgl = (10, 11) 10, 8, 6, 6 **N = 30**	Bentonite 3-6mm Pea Gravel
2.10	Borehole Terminated					SPT at 2.1mbgl = (25/0mm) 50/0mm **N > 50**	50mm HPDE pipe

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Borehole terminated at 0.9mbgl on concrete.

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS11

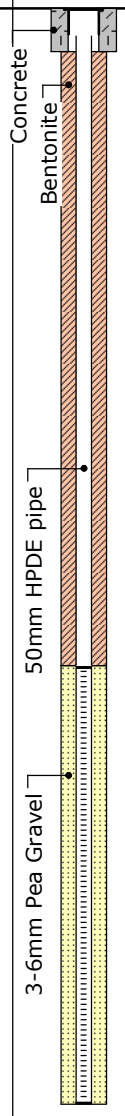
Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.30	MADE GROUND Reddish brown sandy gravel of limestone and flint.					**PID (ppm) and SPT Results** PID at 0.25mbgl = 0.00	
1.05	MADE GROUND Light brown speckled white gravelly sand. Gravel of limestone, chalk, flint and red brick.						
1.60	MADE GROUND White locally brown gravelly silt. Gravel of chalk.						
2.70	MADE GROUND Brown locally white gravelly clay. Gravel of chalk, flint and red brick.					PID at 1.5mbgl = 0.00	
2.95	MADE GROUND White gravelly clayey silt. Gravel of chalk and flint.					SPT at 2.0mbgl = (8, 9) 8, 6, 7, 6 **N = 27**	
5.00	MADE GROUND Light brown slightly gravelly sandy clay. Gravel of fine black carbonaceous material (charcoal). Weak low to medium density CHALK, white with occasional yellow staining.					PID at 3.5mbgl = 0.00 SPT at 4.0mbgl = (6, 5) 6, 8, 10, 13 **N = 37**	
	Borehole Terminated					SPT at 5.0mbgl = (10, 11) 11, 10, 9, 8 **N = 38**	



Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS12

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.30	MADE GROUND Reddish brown sandy gravel of limestone and flint.					**PID (ppm) and SPT Results**	
1.00	MADE GROUND Dark brown locally white sandy gravelly silt. Gravel of flint, chalk, red brick, charcoal and rare plastic.					PID at 0.5mbgl = 0.00	
	MADE GROUND White slightly gravelly silt. Gravel of chalk and rare red brick.					SPT at 1.0mbgl = (5, 5) 5, 4, 4, 4 **N = 17**	
2.00	Very weak to weak low to medium density CHALK, white speckled brown. Occasional gravel of flint.						
	Borehole Terminated					SPT at 2.0mbgl = (6, 6) 6, 6, 6, 6 **N = 24**	

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS13

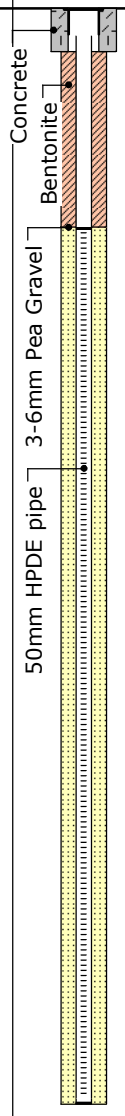
Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.30	MADE GROUND Reddish brown sandy gravel of limestone and flint.					**PID (ppm) and SPT Results** PID at 0.25mbgl = 0.00	
	MADE GROUND Reddish brown cobbles of red brick.					PID at 0.5mbgl = 0.00	
1.00	MADE GROUND Dark brown locally white sandy gravelly silt. Gravel of flint, chalk, red brick, charcoal and rare plastic.					SPT at 1.0mbgl = (5, 6) 10, 8, 8, 8 **N = 34**	
	MADE GROUND White slightly gravelly silt. Gravel of chalk and rare red brick.						
2.05	Very weak to weak low to medium density CHALK, white speckled brown. Occasional gravel of flint.						
	Weak medium density CHALK, white with occasional yellow staining. Occasional flint gravel.					SPT at 3.0mbgl = (17, 8/35mm) 15, 10, 9, 8 **N = 42**	
4.80							
5.00	Weak medium density CHALK, white with localised pockets of orange staining. Occasional flint gravel.					SPT at 5.0mbgl = (10, 10) 11, 10, 8, 14 **N = 43**	
	Borehole Terminated						



Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS14

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.30	MADE GROUND Reddish brown sandy gravel of limestone and flint.					**PID (ppm) and SPT** PID at 0.2mbgl = 0.00	
0.90	MADE GROUND Dark brown locally white slightly clayey sandy gravel of chalk, flint, red brick, rare concrete and rare charcoal.					PID at 1.0mbgl = 0.00	
1.10	MADE GROUND Brown to dark brown locally white slightly sandy gravelly clay. Gravel of flint, red brick, chalk, charcoal and ceramic.					SPT at 1.0mbgl = (6, 8) 7, 7, 7, 6 **N = 27**	
	MADE GROUND White locally brown clayey gravel of chalk, flint, red brick and charcoal.						
2.95	MADE GROUND White gravelly clayey silt. Gravel of chalk.						
	MADE GROUND Yellow locally white silty gravelly sand. Gravel of flint, and chalk.					SPT at 3.0mbgl = (10, 15/65mm) 20, 13, 17/75mm **N > 50**	
	Borehole Terminated						

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Borehole terminated on gravel of flint.

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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DYNAMIC SAMPLING RECORD

BOREHOLE: WS15

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 24/10/2013

Client: Winchester City Council

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks	Installation
	Ground Surface						
0.30	MADE GROUND Reddish brown sandy gravel of limestone and flint.					**PID (ppm) and SPT Results** PID at 0.25mbgl = 0.00	
0.50	MADE GROUND Dark brown locally light brbown sandy gravelly clay. Gravel of chalk, flint, red brick and charcoal.					PID at 0.75mbgl = 0.00	
	MADE GROUND Light brown locally white gravelly silt. Gravel of chalk and rare red brick.						
1.90	(Possible made ground) White locally yellow stained gravelly SILT. Gravel is very weak low density chalk.					SPT at 1.9mbgl = (20, 5/25mm) 20, 16, 12, 2/10mm **N >50**	
	Borehole Terminated						

Notes:

PID - Photo-ionisation Detector
SPT - Standard Penetration Test
A - 250ml and 60ml Amber Glass Jar

Borehole terminated at 1.9mbgl on flint.

Plant: Archway Dart

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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HAND DUG TRIAL PIT RECORD

LOCATION: HDP1

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 21/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks
	Ground Surface					
0.30	MADE GROUND Black gravelly clay. Gravel of red brick, flint and black carbonaceous material (charcoal).					**PID (ppm) Results** PID @ 0.25mbgl = 0.0
0.74	MADE GROUND Reddish brown sandy gravel of limestone, chert and red brick.					
	MADE GROUND Light brown locally brown sandy clayey gravel of flint and red brick.					
	Hand Dug Pit Terminated					

Notes:

PID - Photo-Ionisation Detector

Pit terminated at 0.74mbgl due to the presence of concrete - likely to be associated to the top of a UST.

Equipment: Spade

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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HAND DUG TRIAL PIT RECORD

LOCATION: HDP2

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 21/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks
	Ground Surface					
0.30	MADE GROUND Black gravelly clay. Gravel of red brick, flint and black carbonaceous material (charcoal).					**PID (ppm) Results** PID at 0.3mbgl = 0.00
0.60	MADE GROUND Reddish brown sandy gravel of limestone, chert and red brick.					
1.00	MADE GROUND Light brown locally brown sandy clayey gravel of flint and red brick.					
	MADE GROUND Reddish brown cobbles and boulders of red brick.					
	Hand Dug Pit Terminated					

Notes:

PID - Photo-Ionisation Detector

Pit terminated at 1.0mbgl due to refusal on red brick.

Equipment: Spade

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

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HAND DUG TRIAL PIT RECORD

LOCATION: HDP3

Project Title: Carfax, Winchester

Project No: 1308015.001

Dates: 23/10/2013

Client: Winchester City Council

Coordinates:

Depth (m)	Description	Legend	O.D. Level	Sample Details: Type	Sample Details: Depth	Remarks
	Ground Surface					
0.30	MADE GROUND Reddish brown sandy gravel of limestone, chert and red brick.					**PID (ppm) Results**
0.50	MADE GROUND Dark brown speckled white sandy gravelly clay. Gravel of red brick, flint and chalk.					PID at 0.5mbgl = 0.00
1.24	MADE GROUND Reddish brown cobbles and boulders of red brick.					
	Hand Dug Pit Terminated					

Notes:

PID - Photo-Ionisation Detector

Pit terminated at 1.24mbgl due to the absence of a tank - understood to be at approximately 1.0mbgl.

Equipment: Spade

Water Observations:

No groundwater was encountered.

Logged by: CH | Checked by: ET | Approved by: RE

APPENDIX G

Geochemical Certificates of Analysis

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Analytical Report Number : 13-47613

Project / Site name:	Carfax , Winchester	**Samples received on:**	23/10/2013
Your job number:	1308015.001	**Samples instructed on:**	30/10/2013
Your order number:		**Analysis completed by:**	14/11/2013
Report Issue Number:	1	**Report issued on:**	14/11/2013
Samples Analysed:	17 soil samples		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295005	295006	295007	295008	295009
Sample Reference				BH03	WS11	WS14	WS05	HDP4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.7	1.20-1.30	0.10-0.20	0.30-0.40	0.30-0.50
Date Sampled				24/10/2013	24/10/2013	24/10/2013	22/10/2013	23/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	18	13	9.5	4.2	5.7
Total mass of sample received	kg	0.001	NONE	0.48	0.47	0.43	0.48	0.54
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH	pH Units	N/A	MCERTS	8.6	8.4	8.4	8.6	8.6
Electrical Conductivity	µS/cm	10	NONE	-	-	-	70	80
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	1	NONE	-	-	-	< 1	< 1
Free Cyanide	mg/kg	1	NONE	-	-	-	< 1	< 1
Total Sulphate as SO_4	mg/kg	100	ISO 17025	800	810	620	790	510
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.050	0.038	0.021	0.023	0.022
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	50	38	21	23	22
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.025	0.019	0.011	0.012	0.011
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	6.8	13	14
Water Soluble Chloride (2:1)	mg/kg	5	MCERTS	-	-	-	51	35
Ammonium as NH_4	mg/kg	5	MCERTS	-	-	-	6.2	7.1
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	-	-	-	0.0035	0.0005
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.2	0.9	0.8	0.4	< 0.1
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Phenanthrene	mg/kg	0.2	MCERTS	< 0.20	1.7	< 0.20	< 0.20	< 0.20
Anthracene	mg/kg	0.1	MCERTS	< 0.10	0.34	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.2	MCERTS	< 0.20	3.0	0.85	0.51	< 0.20
Pyrene	mg/kg	0.2	MCERTS	< 0.20	2.5	0.72	0.45	< 0.20
Benzo(a)anthracene	mg/kg	0.2	MCERTS	< 0.20	1.2	0.50	0.43	< 0.20
Chrysene	mg/kg	0.05	MCERTS	< 0.05	1.2	0.38	0.28	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	1.4	0.71	0.46	< 0.10
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	< 0.20	0.91	0.33	0.25	< 0.20
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	1.3	0.39	0.27	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	< 0.20	0.43	< 0.20	< 0.20	< 0.20
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.54	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.6	15	4.0	2.8	< 1.6

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295005	295006	295007	295008	295009
Sample Reference				BH03	WS11	WS14	WS05	HDP4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.7	1.20-1.30	0.10-0.20	0.30-0.40	0.30-0.50
Date Sampled				24/10/2013	24/10/2013	24/10/2013	22/10/2013	23/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	-	-	-	1.3	1.2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.8	5.3	9.5	19	9.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	19	66	140	350	250
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.2	0.6	0.8	0.2	0.3
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.6	1.1	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.4	0.5	2.6	0.8
Chromium (hexavalent)	mg/kg	4	MCERTS	-	-	-	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	3.7	13	24	7.4	9.5
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	-	-	-	1.6	1.7
Copper (aqua regia extractable)	mg/kg	1	MCERTS	6.5	26	56	6.8	12
Iron (aqua regia extractable)	mg/kg	40	MCERTS	-	-	-	6700	5100
Lead (aqua regia extractable)	mg/kg	2	MCERTS	15	75	250	100	87
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	460	250
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	-	-	-	0.4	0.4
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	4.8	14	29	6.5	8.6
Phosphorus (aqua regia extractable)	mg/kg	20	NONE	-	-	-	240	440
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tin (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	< 1.0	2.2
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	6.5	19	36	19	12
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	27	83	170	350	170
Calcium (aqua regia extractable)	mg/kg	20	NONE	-	-	-	430000	170000
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	-	-	-	16000	21000
Potassium (aqua regia extractable)	mg/kg	20	NONE	-	-	-	460	520
Sodium (aqua regia extractable)	mg/kg	20	NONE	-	-	-	190	200
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	-	-	-	22	< 10
TPH1 (C10 - C40)	mg/kg	10	MCERTS	< 10	29	< 10	170	< 10
TPH2 (C6 - C10)	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	23	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	23	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	13	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	14	< 10	98	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	27	< 10	98	< 10

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295005	295006	295007	295008	295009
Sample Reference				BH03	WS11	WS14	WS05	HDP4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.7	1.20-1.30	0.10-0.20	0.30-0.40	0.30-0.50
Date Sampled				24/10/2013	24/10/2013	24/10/2013	22/10/2013	23/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH (C10 - C25)	mg/kg	10	NONE	-	-	-	21	< 10

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295005	295006	295007	295008	295009
Sample Reference				BH03	WS11	WS14	WS05	HDP4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.7	1.20-1.30	0.10-0.20	0.30-0.40	0.30-0.50
Date Sampled				24/10/2013	24/10/2013	24/10/2013	22/10/2013	23/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	4	ISO 17025	-	-	-	< 4.0	< 4.0
Chloroethane	µg/kg	2	ISO 17025	-	-	-	< 2.0	< 2.0
Bromomethane	µg/kg	6	ISO 17025	-	-	-	< 6.0	< 6.0
Vinyl Chloride	µg/kg	24	ISO 17025	-	-	-	< 24	< 24
Trichlorofluoromethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	7	ISO 17025	-	-	-	< 7.0	< 7.0
Cis-1,2-dichloroethene	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
1,1-dichloroethane	µg/kg	6	MCERTS	-	-	-	< 6.0	< 6.0
2,2-Dichloropropane	µg/kg	6	NONE	-	-	-	< 6.0	< 6.0
Trichloromethane	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
1,1,1-Trichloroethane	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
1,2-dichloroethane	µg/kg	4	MCERTS	-	-	-	< 4.0	< 4.0
1,1-Dichloropropene	µg/kg	7	NONE	-	-	-	< 7.0	< 7.0
Trans-1,2-dichloroethene	µg/kg	7	NONE	-	-	-	< 7.0	< 7.0
Benzene	µg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
Tetrachloromethane	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
1,2-dichloropropane	µg/kg	6	MCERTS	-	-	-	< 6.0	< 6.0
Trichloroethene	µg/kg	6	MCERTS	-	-	-	< 6.0	< 6.0
Dibromomethane	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
Bromodichloromethane	µg/kg	7	NONE	-	-	-	< 7.0	< 7.0
Cis-1,3-dichloropropene	µg/kg	7	ISO 17025	-	-	-	< 7.0	< 7.0
Trans-1,3-dichloropropene	µg/kg	8	ISO 17025	-	-	-	< 8.0	< 8.0
Toluene	µg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	5	MCERTS	-	-	-	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	8	ISO 17025	-	-	-	< 8.0	< 8.0
Dibromochloromethane	µg/kg	2	ISO 17025	-	-	-	< 2.0	< 2.0
Tetrachloroethene	µg/kg	8	MCERTS	-	-	-	< 8.0	< 8.0
1,2-Dibromoethane	µg/kg	3	ISO 17025	-	-	-	< 3.0	< 3.0
Chlorobenzene	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
1,1,1,2-Tetrachloroethane	µg/kg	4	MCERTS	-	-	-	< 4.0	< 4.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
Styrene	µg/kg	5	MCERTS	-	-	-	< 5.0	< 5.0
Tribromomethane	µg/kg	7	MCERTS	-	-	-	< 7.0	< 7.0
o-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	5	MCERTS	-	-	-	< 5.0	< 5.0
Isopropylbenzene	µg/kg	7	NONE	-	-	-	< 7.0	< 7.0
Bromobenzene	µg/kg	11	MCERTS	-	-	-	< 11	< 11
N-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	11	NONE	-	-	-	< 11	< 11
4-Chlorotoluene	µg/kg	11	NONE	-	-	-	< 11	< 11
1,3,5-Trimethylbenzene	µg/kg	4	ISO 17025	-	-	-	< 4.0	< 4.0
Tert-Butylbenzene	µg/kg	4	NONE	-	-	-	< 4.0	< 4.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	< 5.0
Sec-Butylbenzene	µg/kg	5	NONE	-	-	-	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	7	ISO 17025	-	-	-	< 7.0	< 7.0
P-Isopropyltoluene	µg/kg	16	ISO 17025	-	-	-	< 16	< 16
1,2-dichlorobenzene	µg/kg	5	MCERTS	-	-	-	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	8	MCERTS	-	-	-	< 8.0	< 8.0
Butylbenzene	µg/kg	4	NONE	-	-	-	< 4.0	< 4.0
1,2-Dibromo-3-chloropropane	µg/kg	7	ISO 17025	-	-	-	< 7.0	< 7.0
1,2,4-Trichlorobenzene	µg/kg	9	MCERTS	-	-	-	< 9.0	< 9.0
Hexachlorobutadiene	µg/kg	7	NONE	-	-	-	< 7.0	< 7.0
1,2,3-Trichlorobenzene	µg/kg	10	NONE	-	-	-	< 10	< 10

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295005	295006	295007	295008	295009
Sample Reference				BH03	WS11	WS14	WS05	HDP4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.7	1.20-1.30	0.10-0.20	0.30-0.40	0.30-0.50
Date Sampled				24/10/2013	24/10/2013	24/10/2013	22/10/2013	23/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Naphthalene	mg/kg	0.1	ISO 17025	-	-	-	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
Acenaphthene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Fluorene	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Phenanthrene	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
Anthracene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	< 0.1
Carbazole	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Fluoranthene	mg/kg	0.2	MCERTS	-	-	-	0.5	< 0.2
Pyrene	mg/kg	0.2	ISO 17025	-	-	-	0.5	< 0.2
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.2	MCERTS	-	-	-	0.4	< 0.2
Chrysene	mg/kg	0.05	ISO 17025	-	-	-	0.3	< 0.1
Benzo(b)fluoranthene	mg/kg	0.1	ISO 17025	-	-	-	0.5	< 0.1
Benzo(k)fluoranthene	mg/kg	0.2	ISO 17025	-	-	-	0.3	< 0.2
Benzo(a)pyrene	mg/kg	0.1	MCERTS	-	-	-	0.3	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
Dibenz(a,h)anthracene	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	< 0.2
Benzo(ghi)perylene	mg/kg	0.05	ISO 17025	-	-	-	< 0.1	< 0.1

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295010	295011	295012	295013	295014
Sample Reference				WS08	WS11	WS07	WS06	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.10-0.30	0.10-0.20	0.25-0.35	0.20-0.40
Date Sampled				21/10/2013	24/10/2013	23/10/2013	23/10/2013	22/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	21	3.2	19	15	6.6
Total mass of sample received	kg	0.001	NONE	0.47	0.45	0.49	0.47	0.51
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH	pH Units	N/A	MCERTS	7.9	8.3	8.0	8.1	8.2
Electrical Conductivity	µS/cm	10	NONE	-	-	-	-	100
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	1	NONE	-	-	-	-	< 1
Free Cyanide	mg/kg	1	NONE	-	-	-	-	< 1
Total Sulphate as SO_4	mg/kg	100	ISO 17025	310	270	410	720	150
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.0077	0.016	0.0087	0.015	0.016
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	7.7	16	8.7	15	16
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0039	0.0078	0.0044	0.0074	0.0081
Sulphide	mg/kg	1	MCERTS	< 1.0	3.9	< 1.0	3.5	5.2
Water Soluble Chloride (2:1)	mg/kg	5	MCERTS	-	-	-	-	56
Ammonium as NH_4	mg/kg	5	MCERTS	-	-	-	-	< 5.0
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	-	-	-	-	0.0016
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.2	0.3	1.5	1.7	0.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Phenanthrene	mg/kg	0.2	MCERTS	0.66	< 0.20	< 0.20	1.2	< 0.20
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.20	< 0.10
Fluoranthene	mg/kg	0.2	MCERTS	1.3	< 0.20	0.42	2.7	< 0.20
Pyrene	mg/kg	0.2	MCERTS	1.2	< 0.20	0.36	2.3	< 0.20
Benzo(a)anthracene	mg/kg	0.2	MCERTS	0.77	< 0.20	0.30	1.3	< 0.20
Chrysene	mg/kg	0.05	MCERTS	0.86	< 0.05	0.26	1.4	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	1.4	< 0.10	0.32	2.1	< 0.10
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	0.58	< 0.20	0.21	0.73	< 0.20
Benzo(a)pyrene	mg/kg	0.1	MCERTS	1.1	< 0.10	0.20	1.2	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	0.44	< 0.20	< 0.20	0.45	< 0.20
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.50	< 0.05	< 0.05	0.55	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	8.8	< 1.6	2.2	14	< 1.6

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295010	295011	295012	295013	295014
Sample Reference				WS08	WS11	WS07	WS06	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.10-0.30	0.10-0.20	0.25-0.35	0.20-0.40
Date Sampled				21/10/2013	24/10/2013	23/10/2013	23/10/2013	22/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	-	-	-	-	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	2.2	8.8	21	6.0
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	240	58	220	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.9	0.5	0.7	1.8	0.2
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	< 0.2	< 0.2	1.1	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.4	< 0.2	0.2	0.7	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	-	-	-	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	11	19	15	14
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	-	-	-	-	2.1
Copper (aqua regia extractable)	mg/kg	1	MCERTS	55	8.0	20	73	6.7
Iron (aqua regia extractable)	mg/kg	40	MCERTS	-	-	-	-	12000
Lead (aqua regia extractable)	mg/kg	2	MCERTS	140	13	54	760	24
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	190
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	< 0.3	< 0.3	1.2	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	-	-	-	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	21	10	15	25	6.1
Phosphorus (aqua regia extractable)	mg/kg	20	NONE	-	-	-	-	250
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tin (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	18	27	29	20
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	180	56	67	280	75
Calcium (aqua regia extractable)	mg/kg	20	NONE	-	-	-	-	79000
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	-	-	-	-	6300
Potassium (aqua regia extractable)	mg/kg	20	NONE	-	-	-	-	540
Sodium (aqua regia extractable)	mg/kg	20	NONE	-	-	-	-	110
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	-	-	-	-	< 10
TPH1 (C10 - C40)	mg/kg	10	MCERTS	13	< 10	< 10	18	28
TPH2 (C6 - C10)	mg/kg	0.1	NONE	-	-	-	-	< 0.1
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	12	< 10	< 10	17	25
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	12	< 10	< 10	17	25

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295010	295011	295012	295013	295014
Sample Reference				WS08	WS11	WS07	WS06	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.10-0.30	0.10-0.20	0.25-0.35	0.20-0.40
Date Sampled				21/10/2013	24/10/2013	23/10/2013	23/10/2013	22/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH (C10 - C25)	mg/kg	10	NONE	-	-	-	-	< 10

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295010	295011	295012	295013	295014
Sample Reference				WS08	WS11	WS07	WS06	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.10-0.30	0.10-0.20	0.25-0.35	0.20-0.40
Date Sampled				21/10/2013	24/10/2013	23/10/2013	23/10/2013	22/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	4	ISO 17025	-	-	-	-	< 4.0
Chloroethane	µg/kg	2	ISO 17025	-	-	-	-	< 2.0
Bromomethane	µg/kg	6	ISO 17025	-	-	-	-	< 6.0
Vinyl Chloride	µg/kg	24	ISO 17025	-	-	-	-	< 24
Trichlorofluoromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1-dichloroethene	µg/kg	7	MCERTS	-	-	-	-	< 7.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	7	ISO 17025	-	-	-	-	< 7.0
Cis-1,2-dichloroethene	µg/kg	7	MCERTS	-	-	-	-	< 7.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1-dichloroethane	µg/kg	6	MCERTS	-	-	-	-	< 6.0
2,2-Dichloropropane	µg/kg	6	NONE	-	-	-	-	< 6.0
Trichloromethane	µg/kg	7	MCERTS	-	-	-	-	< 7.0
1,1,1-Trichloroethane	µg/kg	7	MCERTS	-	-	-	-	< 7.0
1,2-dichloroethane	µg/kg	4	MCERTS	-	-	-	-	< 4.0
1,1-Dichloropropene	µg/kg	7	NONE	-	-	-	-	< 7.0
Trans-1,2-dichloroethene	µg/kg	7	NONE	-	-	-	-	< 7.0
Benzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Tetrachloromethane	µg/kg	7	MCERTS	-	-	-	-	< 7.0
1,2-dichloropropane	µg/kg	6	MCERTS	-	-	-	-	< 6.0
Trichloroethene	µg/kg	6	MCERTS	-	-	-	-	< 6.0
Dibromomethane	µg/kg	7	MCERTS	-	-	-	-	< 7.0
Bromodichloromethane	µg/kg	7	NONE	-	-	-	-	< 7.0
Cis-1,3-dichloropropene	µg/kg	7	ISO 17025	-	-	-	-	< 7.0
Trans-1,3-dichloropropene	µg/kg	8	ISO 17025	-	-	-	-	< 8.0
Toluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	5	MCERTS	-	-	-	-	< 5.0
1,3-Dichloropropane	µg/kg	8	ISO 17025	-	-	-	-	< 8.0
Dibromochloromethane	µg/kg	2	ISO 17025	-	-	-	-	< 2.0
Tetrachloroethene	µg/kg	8	MCERTS	-	-	-	-	< 8.0
1,2-Dibromoethane	µg/kg	3	ISO 17025	-	-	-	-	< 3.0
Chlorobenzene	µg/kg	7	MCERTS	-	-	-	-	< 7.0
1,1,1,2-Tetrachloroethane	µg/kg	4	MCERTS	-	-	-	-	< 4.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Styrene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
Tribromomethane	µg/kg	7	MCERTS	-	-	-	-	< 7.0
o-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	5	MCERTS	-	-	-	-	< 5.0
Isopropylbenzene	µg/kg	7	NONE	-	-	-	-	< 7.0
Bromobenzene	µg/kg	11	MCERTS	-	-	-	-	< 11
N-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
2-Chlorotoluene	µg/kg	11	NONE	-	-	-	-	< 11
4-Chlorotoluene	µg/kg	11	NONE	-	-	-	-	< 11
1,3,5-Trimethylbenzene	µg/kg	4	ISO 17025	-	-	-	-	< 4.0
Tert-Butylbenzene	µg/kg	4	NONE	-	-	-	-	< 4.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Sec-Butylbenzene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,3-dichlorobenzene	µg/kg	7	ISO 17025	-	-	-	-	< 7.0
P-Isopropyltoluene	µg/kg	16	ISO 17025	-	-	-	-	< 16
1,2-dichlorobenzene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
1,4-dichlorobenzene	µg/kg	8	MCERTS	-	-	-	-	< 8.0
Butylbenzene	µg/kg	4	NONE	-	-	-	-	< 4.0
1,2-Dibromo-3-chloropropane	µg/kg	7	ISO 17025	-	-	-	-	< 7.0
1,2,4-Trichlorobenzene	µg/kg	9	MCERTS	-	-	-	-	< 9.0
Hexachlorobutadiene	µg/kg	7	NONE	-	-	-	-	< 7.0
1,2,3-Trichlorobenzene	µg/kg	10	NONE	-	-	-	-	< 10

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295010	295011	295012	295013	295014
Sample Reference				WS08	WS11	WS07	WS06	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10-0.20	0.10-0.30	0.10-0.20	0.25-0.35	0.20-0.40
Date Sampled				21/10/2013	24/10/2013	23/10/2013	23/10/2013	22/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Naphthalene	mg/kg	0.1	ISO 17025	-	-	-	-	< 0.1
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Acenaphthylene	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
Acenaphthene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Fluorene	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Phenanthrene	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
Anthracene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Fluoranthene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Pyrene	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Chrysene	mg/kg	0.05	ISO 17025	-	-	-	-	< 0.1
Benzo(b)fluoranthene	mg/kg	0.1	ISO 17025	-	-	-	-	< 0.1
Benzo(k)fluoranthene	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
Benzo(a)pyrene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
Dibenz(a,h)anthracene	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
Benzo(ghi)perylene	mg/kg	0.05	ISO 17025	-	-	-	-	< 0.1

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295015	295016	295017		
Sample Reference				WS04	WS03	WS01		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.50-0.60	0.30-0.40	0.30-0.60		
Date Sampled				22/10/2013	22/10/2013	22/10/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	12	6.9	6.6		
Total mass of sample received	kg	0.001	NONE	0.45	0.49	0.44		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
General Inorganics								
pH	pH Units	N/A	MCERTS	8.1	8.2	8.9		
Electrical Conductivity	µS/cm	10	NONE	140	120	220		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Complex Cyanide	mg/kg	1	NONE	< 1	< 1	< 1		
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1		
Total Sulphate as SO_4	mg/kg	100	ISO 17025	380	430	1700		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.027	0.046	0.18		
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	27	46	180		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.014	0.023	0.091		
Sulphide	mg/kg	1	MCERTS	12	4.6	7.4		
Water Soluble Chloride (2:1)	mg/kg	5	MCERTS	110	270	44		
Ammonium as NH_4	mg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0		
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.0081	0.0007	0.0027		
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.8	< 0.1	0.3		
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluorene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Phenanthrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluoranthene	mg/kg	0.2	MCERTS	0.55	< 0.20	0.53		
Pyrene	mg/kg	0.2	MCERTS	0.51	< 0.20	0.50		
Benzo(a)anthracene	mg/kg	0.2	MCERTS	0.32	< 0.20	0.51		
Chrysene	mg/kg	0.05	MCERTS	0.33	< 0.05	0.42		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.44	< 0.10	0.74		
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	0.21	< 0.20	0.29		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.25	< 0.10	0.46		
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	2.6	< 1.6	3.6		

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295015	295016	295017		
Sample Reference				WS04	WS03	WS01		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.50-0.60	0.30-0.40	0.30-0.60		
Date Sampled				22/10/2013	22/10/2013	22/10/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.1	< 1.0	1.1		
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	7.0	7.4		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	110	110		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.4	0.2	0.2		
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.7		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.4	1.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	11	11		
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	4.1	2.4	2.4		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	9.6	8.7		
Iron (aqua regia extractable)	mg/kg	40	MCERTS	13000	7100	6700		
Lead (aqua regia extractable)	mg/kg	2	MCERTS	50	37	65		
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	330	240	210		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.3	0.3	0.3		
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	9.8	7.0	6.3		
Phosphorus (aqua regia extractable)	mg/kg	20	NONE	470	400	260		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tin (aqua regia extractable)	mg/kg	1	MCERTS	1.1	1.3	3.6		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	12	14		
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	110	79	190		
Calcium (aqua regia extractable)	mg/kg	20	NONE	200000	190000	200000		
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	3000	4800	4200		
Potassium (aqua regia extractable)	mg/kg	20	NONE	910	550	570		
Sodium (aqua regia extractable)	mg/kg	20	NONE	160	170	200		
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	52	< 10	17		
TPH1 (C10 - C40)	mg/kg	10	MCERTS	280	< 10	23		
TPH2 (C6 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	52	< 8.0	17		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	52	< 10	17		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	180	< 10	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	180	< 10	< 10		

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295015	295016	295017		
Sample Reference				WS04	WS03	WS01		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.50-0.60	0.30-0.40	0.30-0.60		
Date Sampled				22/10/2013	22/10/2013	22/10/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH (C10 - C25)	mg/kg	10	NONE	18	< 10	< 10		

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295015	295016	295017		
Sample Reference				WS04	WS03	WS01		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.50-0.60	0.30-0.40	0.30-0.60		
Date Sampled				22/10/2013	22/10/2013	22/10/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	4	ISO 17025	< 4.0	< 4.0	< 4.0		
Chloroethane	µg/kg	2	ISO 17025	< 2.0	< 2.0	< 2.0		
Bromomethane	µg/kg	6	ISO 17025	< 6.0	< 6.0	< 6.0		
Vinyl Chloride	µg/kg	24	ISO 17025	< 24	< 24	< 24		
Trichlorofluoromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0		
1,1-dichloroethene	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	7	ISO 17025	< 7.0	< 7.0	< 7.0		
Cis-1,2-dichloroethene	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1-dichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0		
2,2-Dichloropropane	µg/kg	6	NONE	< 6.0	< 6.0	< 6.0		
Trichloromethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
1,1,1-Trichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
1,2-dichloroethane	µg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
1,1-Dichloropropene	µg/kg	7	NONE	< 7.0	< 7.0	< 7.0		
Trans-1,2-dichloroethene	µg/kg	7	NONE	< 7.0	< 7.0	< 7.0		
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tetrachloromethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
1,2-dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0		
Trichloroethene	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0		
Dibromomethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
Bromodichloromethane	µg/kg	7	NONE	< 7.0	< 7.0	< 7.0		
Cis-1,3-dichloropropene	µg/kg	7	ISO 17025	< 7.0	< 7.0	< 7.0		
Trans-1,3-dichloropropene	µg/kg	8	ISO 17025	< 8.0	< 8.0	< 8.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0		
1,3-Dichloropropane	µg/kg	8	ISO 17025	< 8.0	< 8.0	< 8.0		
Dibromochloromethane	µg/kg	2	ISO 17025	< 2.0	< 2.0	< 2.0		
Tetrachloroethene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
1,2-Dibromoethane	µg/kg	3	ISO 17025	< 3.0	< 3.0	< 3.0		
Chlorobenzene	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
1,1,1,2-Tetrachloroethane	µg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0		
Tribromomethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0		
Isopropylbenzene	µg/kg	7	NONE	< 7.0	< 7.0	< 7.0		
Bromobenzene	µg/kg	11	MCERTS	< 11	< 11	< 11		
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0		
2-Chlorotoluene	µg/kg	11	NONE	< 11	< 11	< 11		
4-Chlorotoluene	µg/kg	11	NONE	< 11	< 11	< 11		
1,3,5-Trimethylbenzene	µg/kg	4	ISO 17025	< 4.0	< 4.0	< 4.0		
Tert-Butylbenzene	µg/kg	4	NONE	< 4.0	< 4.0	< 4.0		
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0		
Sec-Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0		
1,3-dichlorobenzene	µg/kg	7	ISO 17025	< 7.0	< 7.0	< 7.0		
P-Isopropyltoluene	µg/kg	16	ISO 17025	< 16	< 16	< 16		
1,2-dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0		
1,4-dichlorobenzene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
Butylbenzene	µg/kg	4	NONE	< 4.0	< 4.0	< 4.0		
1,2-Dibromo-3-chloropropane	µg/kg	7	ISO 17025	< 7.0	< 7.0	< 7.0		
1,2,4-Trichlorobenzene	µg/kg	9	MCERTS	< 9.0	< 9.0	< 9.0		
Hexachlorobutadiene	µg/kg	7	NONE	< 7.0	< 7.0	< 7.0		
1,2,3-Trichlorobenzene	µg/kg	10	NONE	< 10	< 10	< 10		

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295015	295016	295017		
Sample Reference				WS04	WS03	WS01		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.50-0.60	0.30-0.40	0.30-0.60		
Date Sampled				22/10/2013	22/10/2013	22/10/2013		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1		
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2		
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Naphthalene	mg/kg	0.1	ISO 17025	< 0.1	< 0.1	< 0.1		
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1		
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1		
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1		
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthylene	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Fluorene	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Phenanthrene	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Anthracene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Fluoranthene	mg/kg	0.2	MCERTS	0.6	< 0.2	0.5		
Pyrene	mg/kg	0.2	ISO 17025	0.5	< 0.2	0.5		
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3		
Benzo(a)anthracene	mg/kg	0.2	MCERTS	0.3	< 0.2	0.5		
Chrysene	mg/kg	0.05	ISO 17025	0.3	< 0.1	0.4		
Benzo(b)fluoranthene	mg/kg	0.1	ISO 17025	0.4	< 0.1	0.7		
Benzo(k)fluoranthene	mg/kg	0.2	ISO 17025	0.2	< 0.2	0.3		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.3	< 0.1	0.5		
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Dibenz(a,h)anthracene	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Benzo(ghi)perylene	mg/kg	0.05	ISO 17025	< 0.1	< 0.1	< 0.1		

Analytical Report Number: 13-47613

Project / Site name: Carfax , Winchester

Lab Sample Number				295018	295019	295020	295021	
Sample Reference				WS08	WS04	WS03	WS01	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.10-0.20	0.50-0.60	0.30-0.40	0.30-0.60	
Date Sampled				21/10/2013	22/10/2013	22/10/2013	22/10/2013	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	8.2	8.1	8.2	9.8	
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	
Sulphate as SO_4	µg/l	100	ISO 17025	904	2760	5110	8850	
Elemental Sulphur	mg/l	20	NONE	< 20	< 20	< 20	< 20	
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	
Speciated PAHs								
Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Total PAH								
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	13	3.7	4.3	4.7	
Barium (dissolved)	µg/l	0.05	ISO 17025	12	44	29	63	
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	
Boron (dissolved)	µg/l	10	ISO 17025	< 10	< 10	25	27	
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.4	0.5	0.8	4.4	
Copper (dissolved)	µg/l	0.7	ISO 17025	13	9.8	2.6	5.3	
Lead (dissolved)	µg/l	1	ISO 17025	4.3	2.7	4.4	4.5	
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.9	< 0.3	< 0.3	0.5	
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	
Vanadium (dissolved)	µg/l	1.7	ISO 17025	7.2	< 1.7	8.8	19	
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.0	4.9	5.6	12	

Analytical Report Number : 13-47613

Project / Site name: Carfax , Winchester

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
295005	BH03	None Supplied	1.7	White chalk with gravel and brick. **
295006	WS11	None Supplied	1.20-1.30	Light brown clay and sand with chalk.
295007	WS14	None Supplied	0.10-0.20	Grey sandy topsoil with gravel and chalk.
295008	WS05	None Supplied	0.30-0.40	Light brown gravelly sand with brick.
295009	HDP4	None Supplied	0.30-0.50	Light brown gravelly sand with rubble.
295010	WS08	None Supplied	0.10-0.20	Brown topsoil and clay with vegetation.
295011	WS11	None Supplied	0.10-0.30	Light brown gravelly sand with rubble.
295012	WS07	None Supplied	0.10-0.20	Brown topsoil and clay with vegetation.
295013	WS06	None Supplied	0.25-0.35	Brown topsoil and clay with gravel and vegetation.
295014	WS02	None Supplied	0.20-0.40	Light brown gravelly sand.
295015	WS04	None Supplied	0.50-0.60	Brown clay and sand with gravel and chalk.
295016	WS03	None Supplied	0.30-0.40	Light brown clay and sand with rubble and chalk.
295017	WS01	None Supplied	0.30-0.60	Light brown sand with rubble and brick.

** Non Mcerts Matrix

Analytical Report Number : 13-47613

Project / Site name: Carfax , Winchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH4 in soil	Determination of ammonium in soil by extraction with potassium chloride followed by addition of buffer solution followed by ion selective electrode.	In-house method	L035-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron by acidification followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Cations in soil by ICP-OES	Determination of cations in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	NONE
Chloride, water soluble, in soil	Determination of chloride by titration using silver nitrate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L075-PL	D	MCERTS
Complex cyanide in soil	Determination of complex cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE
DRO C10-28 (Soil)		In-house method	L064-PL		NONE
Electrical conductivity of soil	Determination of electrical conductivity in soil by addition of saturated calcium sulphate followed by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	NONE
Elemental sulphur in leachate	Determination of elemental sulphur in leachate by extraction in dichloromethane followed by HPLC.	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021-UK	W	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE

Analytical Report Number : 13-47613

Project / Site name: Carfax , Winchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-UK		NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Sulphide in leachate	Determination of sulphide in leachate by ion selective electrode.	In-house method	L010-PL	W	NONE
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPH1 (Soil)	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method	L064-PL	D	MCERTS
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L073S	W	NONE

Analytical Report Number : 13-47613

Project / Site name: Carfax , Winchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 13-47668

Project / Site name:	Carfax, Winchester	**Samples received on:**	31/10/2013
Your job number:	1308015.001	**Samples instructed on:**	31/10/2013
Your order number:		**Analysis completed by:**	13/11/2013
Report Issue Number:	1	**Report issued on:**	13/11/2013
Samples Analysed:	7 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Analytical Report Number: 13-47668

Project / Site name: Carfax, Winchester

Lab Sample Number				295326	295327	295328	295329	295330
Sample Reference				BH01	BH01	BH02	BH02	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.10	10.00-10.20	3.00-3.10	9.50-10.00	16.75-17.00
Date Sampled				21/10/2013	21/10/2013	23/10/2013	23/10/2013	23/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	21	19	19	19	20
Total mass of sample received	kg	0.001	NONE	0.49	0.57	0.52	0.49	0.63
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	-
General Inorganics								
pH	pH Units	N/A	MCERTS	7.9	-	8.2	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	-	-
Total Sulphate as SO_4	mg/kg	100	ISO 17025	320	-	450	-	-
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.13	-	0.0077	-	-
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	130	-	7.7	-	-
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.067	-	0.0039	-	-
Sulphide	mg/kg	1	MCERTS	1.4	-	< 1.0	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	< 0.1	-	0.2	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Phenanthrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Pyrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzo(a)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	9.1	-	8.9	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	< 0.1	-	< 0.1	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	-	< 0.2	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	1.2	-	1.0	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3.7	-	3.8	-	-
Lead (aqua regia extractable)	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	2.3	-	< 2.0	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	2.5	-	2.1	-	-
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	70	-	13	-	-

Analytical Report Number: 13-47668

Project / Site name: Carfax, Winchester

Lab Sample Number				295326	295327	295328	295329	295330
Sample Reference				BH01	BH01	BH02	BH02	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.10	10.00-10.20	3.00-3.10	9.50-10.00	16.75-17.00
Date Sampled				21/10/2013	21/10/2013	23/10/2013	23/10/2013	23/10/2013
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH1 (C10 - C40)	mg/kg	10	MCERTS	< 10	-	< 10	-	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

Analytical Report Number: 13-47668

Project / Site name: Carfax, Winchester

Lab Sample Number				295331	295332			
Sample Reference				BH03	BH03			
Sample Number				None Supplied	None Supplied			
Depth (m)				18.00-18.20	14.00-14.50			
Date Sampled				23/10/2013	23/10/2013			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	18	16			
Total mass of sample received	kg	0.001	NONE	0.55	0.49			
Asbestos in Soil	Type	N/A	ISO 17025	-	-			
General Inorganics								
pH	pH Units	N/A	MCERTS	-	-			
Total Cyanide	mg/kg	1	MCERTS	-	-			
Total Sulphate as SO_4	mg/kg	100	ISO 17025	-	-			
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	-	-			
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	-	-			
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-			
Sulphide	mg/kg	1	MCERTS	-	-			
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-			
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	-	-			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluorene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Phenanthrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluoranthene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Pyrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Benzo(a)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(k)fluoranthene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Indeno(1,2,3-cd)pyrene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Dibenz(a,h)anthracene	mg/kg	0.2	MCERTS	< 0.20	< 0.20			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.6	< 1.6			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-			
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Lead (aqua regia extractable)	mg/kg	2	MCERTS	-	-			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-			
Nickel (aqua regia extractable)	mg/kg	2	MCERTS	-	-			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-			
Zinc (aqua regia extractable)	mg/kg	2	MCERTS	-	-			

Analytical Report Number: 13-47668

Project / Site name: Carfax, Winchester

Lab Sample Number				295331	295332			
Sample Reference				BH03	BH03			
Sample Number				None Supplied	None Supplied			
Depth (m)				18.00-18.20	14.00-14.50			
Date Sampled				23/10/2013	23/10/2013			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH1 (C10 - C40)	mg/kg	10	MCERTS	-	-			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

Analytical Report Number : 13-47668

Project / Site name: Carfax, Winchester

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
295326	BH01	None Supplied	4.00-4.10	White chalk. **
295327	BH01	None Supplied	10.00-10.20	White chalk. **
295328	BH02	None Supplied	3.00-3.10	White chalk. **
295329	BH02	None Supplied	9.50-10.00	White chalk. **
295330	BH02	None Supplied	16.75-17.00	White chalk. **
295331	BH03	None Supplied	18.00-18.20	White chalk. **
295332	BH03	None Supplied	14.00-14.50	White chalk. **

** Non MCerts Matrix

Analytical Report Number : 13-47668

Project / Site name: Carfax, Winchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
TPH1 (Soil)	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method	L064-PL	D	MCERTS
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 13-48143

Project / Site name:	Carfax , Winchester	**Samples received on:**	15/11/2013
Your job number:	1308015.001	**Samples instructed on:**	15/11/2013
Your order number:		**Analysis completed by:**	19/11/2013
Report Issue Number:	1	**Report issued on:**	19/11/2013
Samples Analysed:	1 water sample		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 13-48143

Project / Site name: Carfax , Winchester

Lab Sample Number				298094				
Sample Reference				BH01				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				13/11/2013				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.1				
Electrical Conductivity	µS/cm	10	NONE	590				
Total Cyanide	µg/l	10	ISO 17025	< 10				
Complex Cyanide	µg/l	10	NONE	< 10				
Free Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO_4	ug/l	45	ISO 17025	25400				
Sulphide	µg/l	5	NONE	< 5.0				
Chloride	mg/l	0.15	ISO 17025	19				
Ammonium as NH_4	µg/l	15	ISO 17025	16				
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	2.7				
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01				
Total PAH								
Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20				

Analytical Report Number: 13-48143

Project / Site name: Carfax , Winchester

Lab Sample Number				298094				
Sample Reference				BH01				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				13/11/2013				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7				
Arsenic (dissolved)	µg/l	1	ISO 17025	7.7				
Barium (dissolved)	µg/l	0.05	ISO 17025	9.2				
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Boron (dissolved)	µg/l	10	ISO 17025	42				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Chromium (hexavalent)	µg/l	5	NONE	< 5.0				
Chromium (dissolved)	µg/l	0.4	ISO 17025	8.4				
Cobalt (dissolved)	µg/l	0.3	ISO 17025	0.4				
Copper (dissolved)	µg/l	0.7	ISO 17025	2.8				
Iron (dissolved)	mg/l	0.004	ISO 17025	0.19				
Lead (dissolved)	µg/l	1	ISO 17025	1.9				
Manganese (dissolved)	µg/l	0.06	ISO 17025	27				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	< 0.4				
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.4				
Phosphorus (dissolved)	µg/l	30	ISO 17025	74.5				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Tin (dissolved)	µg/l	1	ISO 17025	< 1.0				
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7				
Zinc (dissolved)	µg/l	0.4	ISO 17025	4.8				
Calcium (dissolved)	mg/l	0.012	ISO 17025	170				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	2.9				
Potassium (dissolved)	mg/l	0.025	ISO 17025	1.7				
Sodium (dissolved)	mg/l	0.01	ISO 17025	13				
Monoaromatics								
Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	µg/l	10	NONE	< 10				
Diesel Range Organics (C10 - C25)	µg/l	10	NONE	< 10				
TPH1 (C10 - C40)	µg/l	10	NONE	< 10				
TPH2 (C6 - C10)	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				

Analytical Report Number: 13-48143

Project / Site name: Carfax , Winchester

Lab Sample Number				298094				
Sample Reference				BH01				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				13/11/2013				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				

Analytical Report Number: 13-48143

Project / Site name: Carfax , Winchester

Lab Sample Number				298094				
Sample Reference				BH01				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				13/11/2013				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	ISO 17025	< 1.0				
Trichlorofluoromethane	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	0.1	ISO 17025	< 0.1				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

Analytical Report Number: 13-48143

Project / Site name: Carfax , Winchester

Lab Sample Number				298094				
Sample Reference				BH01				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				13/11/2013				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	µg/l	0.05	NONE	< 0.05				
Phenol	µg/l	0.05	NONE	< 0.05				
2-Chlorophenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05				
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05				
2-Methylphenol	µg/l	0.05	NONE	< 0.05				
Hexachloroethane	µg/l	0.05	NONE	< 0.05				
Nitrobenzene	µg/l	0.05	NONE	< 0.05				
4-Methylphenol	µg/l	0.05	NONE	< 0.05				
Isophorone	µg/l	0.05	NONE	< 0.05				
2-Nitrophenol	µg/l	0.05	NONE	< 0.05				
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05				
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05				
4-Chloroaniline	µg/l	0.05	NONE	< 0.05				
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05				
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05				
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05				
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05				
Dimethylphthalate	µg/l	0.05	NONE	< 0.05				
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Dibenzofuran	µg/l	0.05	NONE	< 0.05				
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Diethyl phthalate	µg/l	0.05	NONE	< 0.05				
4-Nitroaniline	µg/l	0.05	NONE	< 0.05				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Azobenzene	µg/l	0.05	NONE	< 0.05				
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Hexachlorobenzene	µg/l	0.02	NONE	< 0.02				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Carbazole	µg/l	0.05	NONE	< 0.05				
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05				
Anthraquinone	µg/l	0.05	NONE	< 0.05				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01				

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 13-48143

Project / Site name: Carfax , Winchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH4 in water	Determination of ammonium in water by addition of buffer solution followed by ion selective electrode. Results for ammonia species are calculated from raw ammoniacal nitrogen data, and then reported	In-house method	L035-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073S-PL	W	ISO 17025
Chloride in water	Determination of Chloride in water by Gallery Discrete Analyser based on reaction with mercury (II) thiocyanate and acid solution with iron (III) nitrate to form a red/brown iron (III) thiocyanate	Methods for the Examination of Water and Associated Materials Chloride in Waters, Sewage and Effluents 1981.ISBN 0117516260	L082 B	W	ISO 17025
Complex cyanide in water	Determination of complex cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE
Electrical conductivity of water	Determination of electrical conductivity in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-UK	W	NONE
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Mineral Oil (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-UK	W	NONE
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-UK	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L070-UK	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L010-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025

Analytical Report Number : 13-48143

Project / Site name: Carfax , Winchester

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon in water	Determination of total organic carbon in water by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
TPH2 (Waters)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L073-PL	W	NONE
TPH7 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW	In-house method based on USEPA8260	L036-UK	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

APPENDIX H

Soil Geotechnical Certificates of Analysis

2718

Tweedie Evans Consulting Limited
The Old Chapel
35a Southover
Wells
Somerset
BA5 1UH

For the attention of Claire Hooley

Date of Issue 19 November 2013

TEST REPORT

PROJECT/SITE	Carfax, Winchester	Samples received	30/10/2013
GEL REPORT NUMBER	28647	Schedule received	30/10/2013
Your ref/PO:	1308015.001	Testing commenced	31/10/2013

SUMMARY OF RESULTS ATTACHED

TEST METHOD & DESCRIPTION	QUANTITY	ACCREDITED TEST
BS1377: Part 2: 1990:3.2, Moisture Content	3	YES
BS1377: Part 2: 1990:4.2-4.4&5.2-5.4, Liquid & Plastic Limits	3	YES
BS1377: Part 2: 1990:3.3, Saturation Moisture Content	1	YES
BRE SD1 Reduced Suite: pH, Sulphate - water and acid soluble, sulphur (Subcontracted)	6	YES

Remarks

Approved Signatories:

R Ewens (Laboratory Business Manager) **W Jones (Laboratory Supervisor)**

J Hanson (Director) C Thomas (Consultant)

Geotechnical Engineering Ltd
Centurion House
Olympus Park, Quedgeley
Gloucester GL2 4NF

Registered number: 00700739
VAT Number: 682 5857 89

www.geoeng.co.uk
geotech@geoeng.co.uk
TEL: 01452 527743
Fax: 01452 729314

Payments: Geotechnical Engineering Limited
Sort code: 30-15-99 **Bank account**: 00072116

Geotechnical Engineering Limited

LIQUID AND PLASTIC LIMITS

BS.1377 : Part 2 : 1990 : 4 and 5

CLIENT TWEEDIE EVANS CONSULTING LIMITED

SITE CARFAX, WINCHESTER

borehole /trial pit no.	sample		specimen depth (m)	natural moisture content (%)	specimen preparation and test method	fraction >0.425 mm (%)	liquid limit (%)	plastic limit (%)	plasticity index (%)	description and remarks
	no./type	depth (m)								
BH01	D	3.50	3.50	26	BXE	16	29	22	7	Off white slightly sandy CHALK putty with a little fine gravel
WS05	D	2.00	2.00	26	BXE	33	29	24	5	Off white slightly sandy CHALK putty with a little f-m gravel
WS12	D	2.50	2.50	27	BXE	11	31	24	7	Off white slightly sandy CHALK putty with a little f-m gravel

general remarks:
natural moisture content determined in accordance with BS1377 : Part 2 : 1990 : 3.2 (unless specified)
NP denotes non-plastic
# denotes sample tested is smaller than that which is recommended in accordance with BS1377

specimen preparation:
A - as received
B - washed on 0.425mm sieve
C - air dried
D - oven dried (60°C)
E - oven dried (105°C)
F - not known

test method:
X - cone penetrometer (test 4.3)
Y - one point cone penetrometer (test 4.4)
Z - Casagrande apparatus (test 4.5)

CONTRACT **28647**

CHECKED **WJ**

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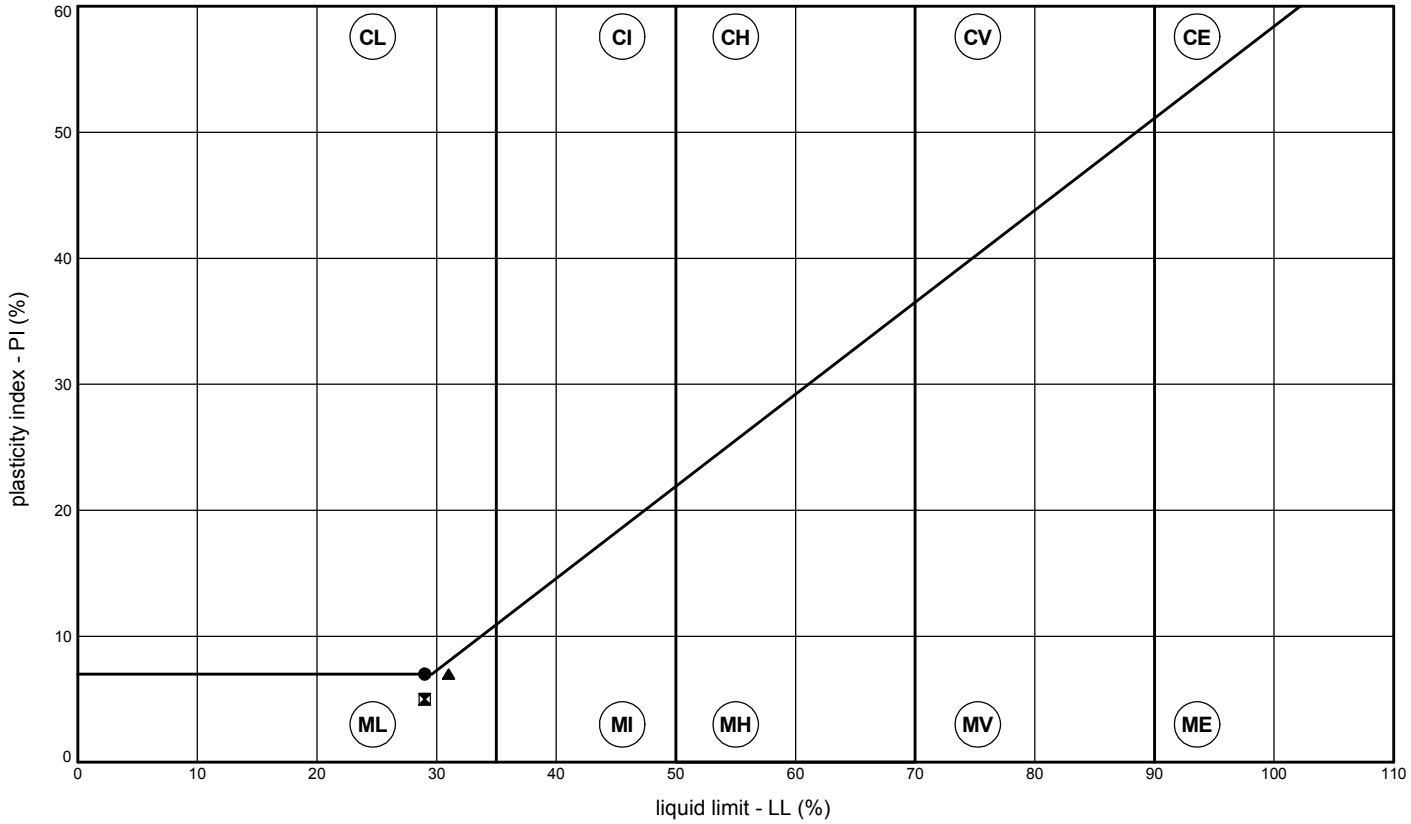
Geotechnical Engineering Limited

ATTERBERG LINE PLOT

CLIENT TWEEDIE EVANS CONSULTING LIMITED

SITE CARFAX, WINCHESTER



	BH/TP No.	depth (m)	LL	PL	PI	remarks
●	BH01	3.50	29	22	7	
⊠	WS05	2.00	29	24	5	
▲	WS12	2.50	31	24	7	

CONTRACT	CHECKED
28647	**WJ**

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Geotechnical Engineering Limited

SATURATION MOISTURE CONTENT OF CHALK

BS.1377 : Part 2 : 1990 : 3.3

CLIENT TWEEDIE EVANS CONSULTING LIMITED

SITE CARFAX, WINCHESTER

borehole /trial pit no.	sample		specimen depth (m)	natural moisture content (%)	bulk density (Mg/m^3)	dry density (Mg/m^3)	saturation moisture content (%)	porosity (%)	description and remarks
	no./type	depth (m)							
BH01	D	4.35	4.35	24	1.97	1.60	26	41	Off white CHALK

general remarks:
natural moisture content determined in accordance with BS1377 : Part 2 : 1990 : 3.2 (unless specified)
# denotes sample tested is smaller than that which is recommended in accordance with BS1377

test method:
immersion in water (test 3.3)

CONTRACT **28647**

CHECKED **WJ**

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Chemtest
The right chemistry to deliver results

Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070

Geotechnical Engineering Ltd
Centurion House
Olympus Park, Quedgeley
Gloucester
GL2 4NF

FAO Matthew Counsell
06 November 2013

Dear Matthew Counsell

Test Report Number **243255**
Your Project Reference **28647 - Carfax, Winchester**

Please find enclosed the results of analysis for the samples received 31 October 2013.

All soil samples will be retained for a period of one month and all water samples will be retained for 7 days following the date of the test report. Should you require an extended retention period then please detail your requirements in an email to customerservices@chemtest.co.uk. Please be aware that charges may be applicable for extended sample storage.

If you require any further assistance, please do not hesitate to contact the Customer Services team.

Yours sincerely

Keith Jones, Technical Manager

UKAS TESTING
2183

Notes to accompany report:

- *The sign < means 'less than'*
- *Tests marked 'U' hold UKAS accreditation*
- *Tests marked 'M' hold MCertS (and UKAS) accreditation*
- *Tests marked 'N' do not currently hold UKAS accreditation*
- *Tests marked 'S' were subcontracted to an approved laboratory*
- *n/e means 'not evaluated'*
- *i/s means 'insufficient sample'*
- *u/s means 'unsuitable sample'*
- *Comments or interpretations are beyond the scope of UKAS accreditation*
- *The results relate only to the items tested*
- *All results are expressed on a dry weight basis*
- *The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, phenols*
- *For all other tests the samples were dried at < 37°C prior to analysis*
- *Uncertainties of measurement for the determinands tested are available upon request*
- *None of the test results included in this report have been recovery corrected*

Geotechnical Engineering Ltd
Centurion House
Olympus Park, Quedgeley
Gloucester
GL2 4NF

FAO Matthew Counsell

LABORATORY TEST REPORT

Results of analysis of 6 samples
received 31 October 2013

28647 - Carfax, Winchester

Chemtest
The right chemistry to deliver results

Report Date
06 November 2013

Login Batch No						**243255**					
Chemtest LIMS ID						AJ36164	AJ36165	AJ36166	AJ36167	AJ36168	AJ36169
Sample ID						BH01	BH01	BH02	BH02	BH03	BH03
Sample No											
Sampling Date						30/10/2013	30/10/2013	30/10/2013	30/10/2013	30/10/2013	30/10/2013
Depth						2.30m	3.50m	6.50m	10.00m	13.00m	16.00m
Matrix						*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*							
2010	pH			M		8.8	8.7	8.8	8.9	8.8	8.9
2175	Sulfur (total TRL report 447)		%	M		0.04	0.02	0.03	0.01	0.02	0.02
2120	Sulfate (2:1 water soluble) as SO4	14808798	g l^{-1}	M		0.10	0.01	<0.01	<0.01	<0.01	<0.01
2430	Sulfate (total BS1377 HCl extract)	14808798	%	M		0.02	0.02	0.01	0.02	0.02	0.01

All tests undertaken between 31/10/2013 and 06/11/2013

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page.

APPENDIX I

Ground Gas Monitoring Results

Ground Gas Monitoring Data Sheet

Name of Site: Carfax, Winchester

Project Code: 1308015.001

Date: 25/10/13

Weather Conditions: Cloudy

General Ground Conditions: Damp

Atmospheric Pressure Trend (last 5 days): Generally rising

Instrument & serial No.: Gas analyser & flow pod GFM 430

Dip meter Dual phase interface probe

Instrument Condition: Good

Monitoring Well Reference	Time of sampling	Atmospheric Pressure (mb)	Borehole Flow Rate (l/h)			Gas Concentration						LEL (%)	Groundwater Depth (mbgl)	Borehole Depth (mbgl)	Comment
						CH_4 (% v/v)		CO_2 (% v/v)		O_2 (% v/v)					
			Max	Min	Stable	Max	Stable	Max	Stable	Min	Stable				
BH01	14:40	996	1.0	0.0	0.1	0.0	0.0	0.9	0.9	18.3	18.3	0.0	18.53	25.07	HS and CO = 0.0ppm, no LNAPL detected
BH02	15:20	996	0.0	0.0	0.0	0.0	0.0	4.1	4.1	15.6	15.6	0.0	Dry	20.45	HS and CO = 0.0ppm, no LNAPL detected
BH03	13:40	996	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0.0	Dry	20.25	HS and CO = 0.00ppm, no LNAPL detected
WS03	15:50	996	0.0	0.0	0.0	0.0	0.0	0.9	0.6	19.3	19.4	0.0	Dry	4.95	HS and CO = 0.0ppm, no LNAPL detected
WS06	14:25	996	0.1	0.0	0.1	0.0	0.0	1.3	1.3	17.7	17.7	0.0	Dry	1.74	HS and CO = 0.0ppm, no LNAPL detected
WS10	14:15	996	0.3	0.0	0.1	0.0	0.0	0.9	0.8	19.3	19.3	0.0	Dry	2.15	HS and CO = 0.0ppm, no LNAPL detected
WS11	11:00	996	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	20.1	20.1	0.0	Dry	5.13	HS and CO = 0.0ppm, no LNAPL detected
WS13	11:10	996	0	0	0	0	0	0.3	0.3	19.4	19.4	0	Dry	5.05	HS and CO = 0.0ppm, no LNAPL detected

Completed by: CH

Authorised by: ET

Ground Gas Monitoring Data Sheet

Name of Site: Carfax, Winchester

Project Code: 1308015.001

Date: 13/11/13

Weather Conditions: Cloudy

General Ground Conditions: Damp

Atmospheric Pressure Trend (last 5 days): Generally rising

Instrument & serial No.: Gas analyser & flow pod GFM 430

Dip meter Dual phase interface probe

Instrument Condition: Good

Monitoring Well Reference	Time of sampling	Atmospheric Pressure (mb)	Borehole Flow Rate (l/h)			Gas Concentration						LEL (%)	Groundwater Depth (mbgl)	Borehole Depth (mbgl)	Comment
						CH_4 (% v/v)		CO_2 (% v/v)		O_2 (% v/v)					
			Max	Min	Ave	Max	Stable	Max	Stable	Min	Stable				
BH01	09:00	1027	0.0	-0.1	-0.1	0.0	0.0	0.9	0.9	18.1	18.1	0.0	18.28	25.10	H_2S and CO= 0, no LNAPL detected
BH02	11:15	1025	0.5	0.1	0.1	0.0	0.0	1.3	1.3	18.5	18.5	0.0	DRY	20.40	H2S and CO= 0, no LNAPL detected
BH03	11:45	1025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.8	20.0	0.0	19.97	20.26	H_2S and CO= 0, no LNAPL detected
WS03	10:30	1027	0.0	0.0	0.0	0.0	0.0	2.6	2.6	15.4	15.4	0.0	DRY	4.84	H_2S and CO= 0, no LNAPL detected
WS06	11:00	1025	0.0	-0.1	0.0	0.0	0.0	1.5	1.5	18.2	18.2	0.0	DRY	1.69	H_2S and CO= 0, no LNAPL detected
WS10	11:30	1025	0.0	-0.1	0.0	0.0	0.0	1.6	1.6	16.9	16.9	0.0	DRY	2.13	H_2S and CO= 0, no LNAPL detected
WS11	13:00	1024	0.0	-0.7	0.0	0.0	0.0	0.4	0.4	19.9	19.9	0.0	DRY	5.05	H_2S and CO= 0, no LNAPL detected
WS13	12:00	1024	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	19.6	20.0	0.0	DRY	5.04	H_2S and CO= 0, no LNAPL detected

Completed by: TP

Authorised by: ET

Ground Gas Monitoring Data Sheet

Name of Site: Carfax, Winchester

Project Code: 1308015.001

Date: 27/11/13

Weather Conditions: Cloudy

General Ground Conditions: Damp

Atmospheric Pressure Trend (last 5 days): Generally rising

Instrument & serial No.: Gas analyser & flow pod GFM 430

Dip meter Dual phase interface probe

Instrument Condition: Good

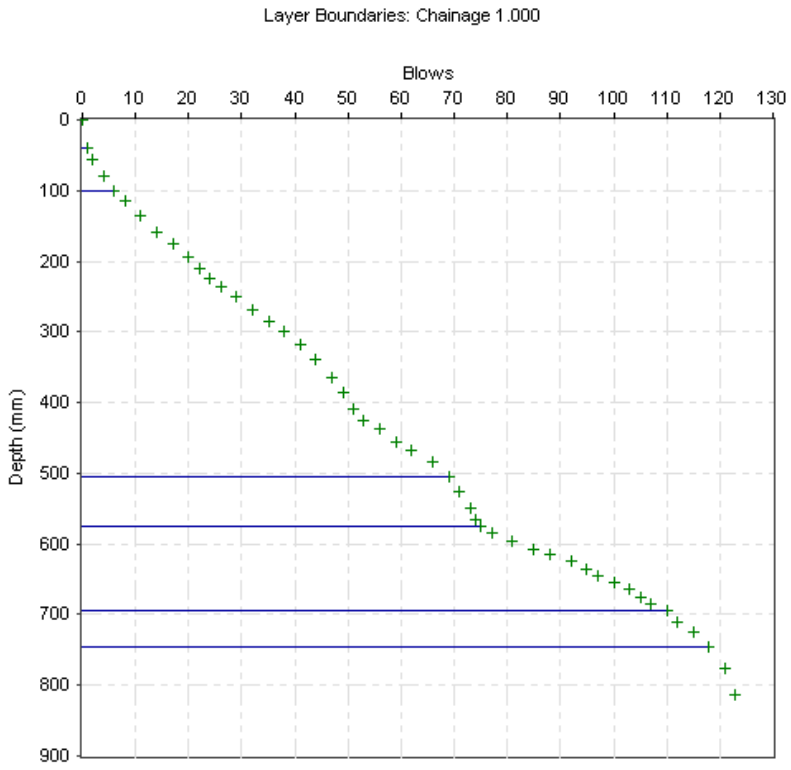
Monitoring Well Reference	Time of sampling	Atmospheric Pressure (mb)	Borehole Flow Rate (l/h)			Gas Concentration						LEL (%)	Groundwater Depth (mbgl)	Borehole Depth (mbgl)	Comment
						CH_4 (% v/v)		CO_2 (% v/v)		O_2 (% v/v)					
			Max	Min	Stable	Max	Stable	Max	Stable	Min	Stable				
BH01	12:35	1024	0.4	0.0	0.0	0.0	0.0	0.0	0.0	19.8	19.8	0.0	18.41	24.98	H2S and CO= 0, no LNAPL detected
BH02	12.05	1025	0.4	-0.3	-0.3	0.0	0.0	0.0	0.0	20.2	20.2	0.0	DRY	20.10	H2S and CO= 0, no LNAPL detected
BH03	13.30	1024	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	19.9	19.9	0.0	DRY	20.00	H2S and CO= 0, no LNAPL detected
WS03	12.20	1025	0.3	-0.2	0.0	0.0	0.0	2.5	2.5	16.4	16.4	0.0	DRY	4.84	H2S and CO= 0, no LNAPL detected
WS06	11.50	1026	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	19.3	19.3	0.0	DRY	1.70	H2S and CO= 0, no LNAPL detected
WS10	12.50	1024	0.1	-0.1	0.0	0.0	0.0	0.9	0.9	18.7	18.7	0.0	DRY	2.11	H2S and CO= 0, no LNAPL detected
WS11	13.15	1024	0.3	-0.1	-0.1	0.0	0.0	0.2	0.2	19.8	19.8	0.0	DRY	5.04	H2S and CO= 0, no LNAPL detected
WS13	13.05	1024	0.3	-0.1	0	0.0	0.0	1.6	1.6	18.4	18.4	0.0	DRY	5.05	H2S and CO= 0, no LNAPL detected

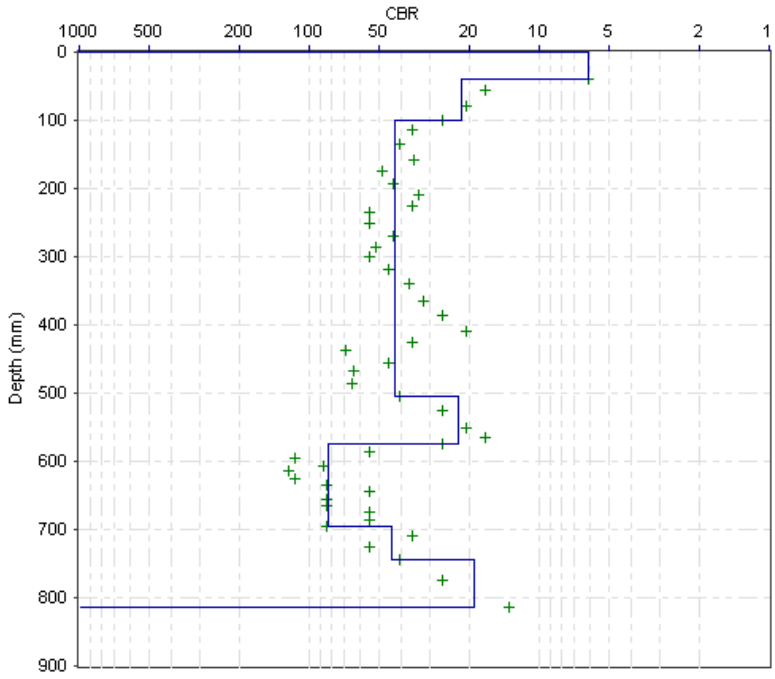
Completed by: TP

Authorised by: ET

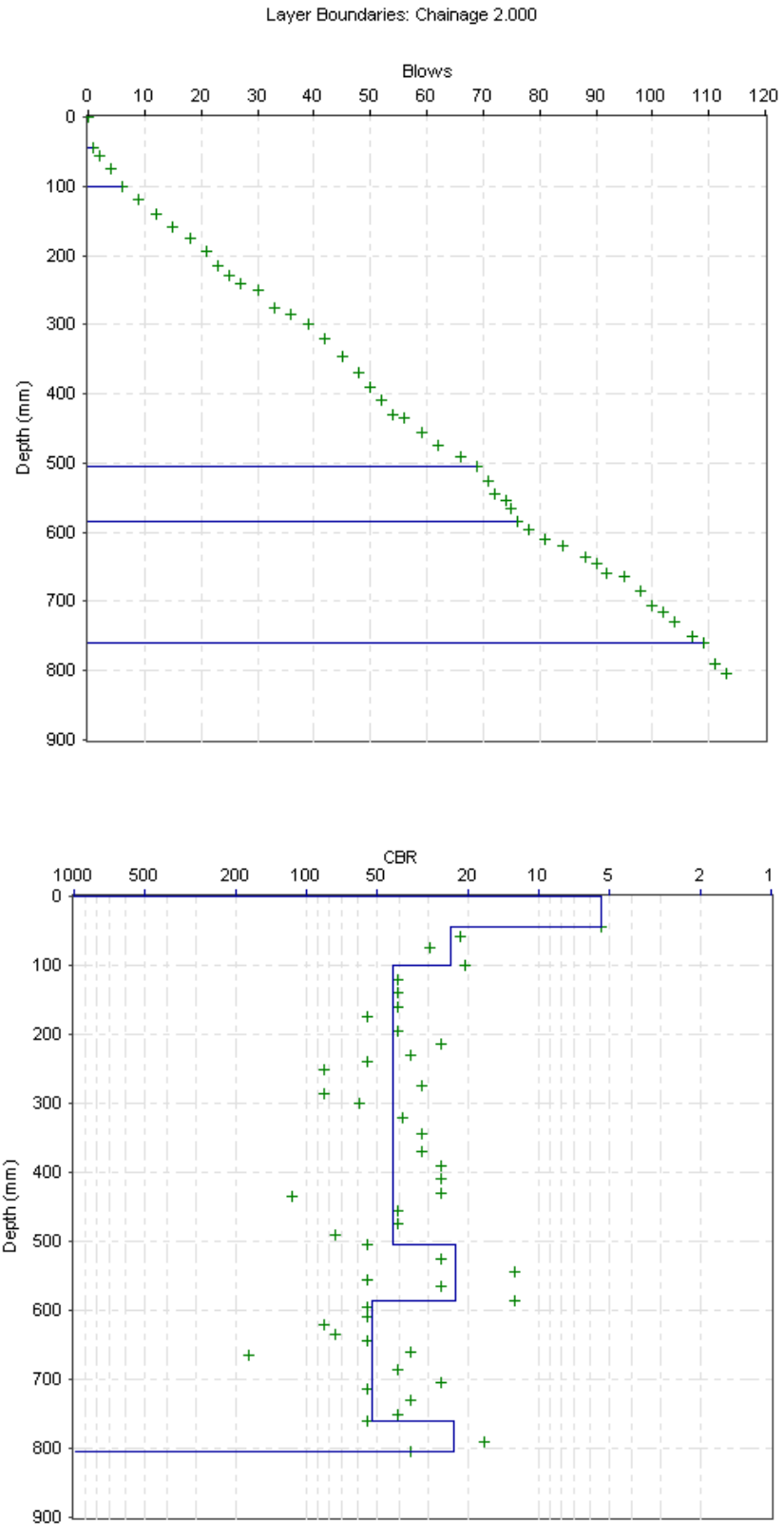
APPENDIX J

DCP-TRL Results

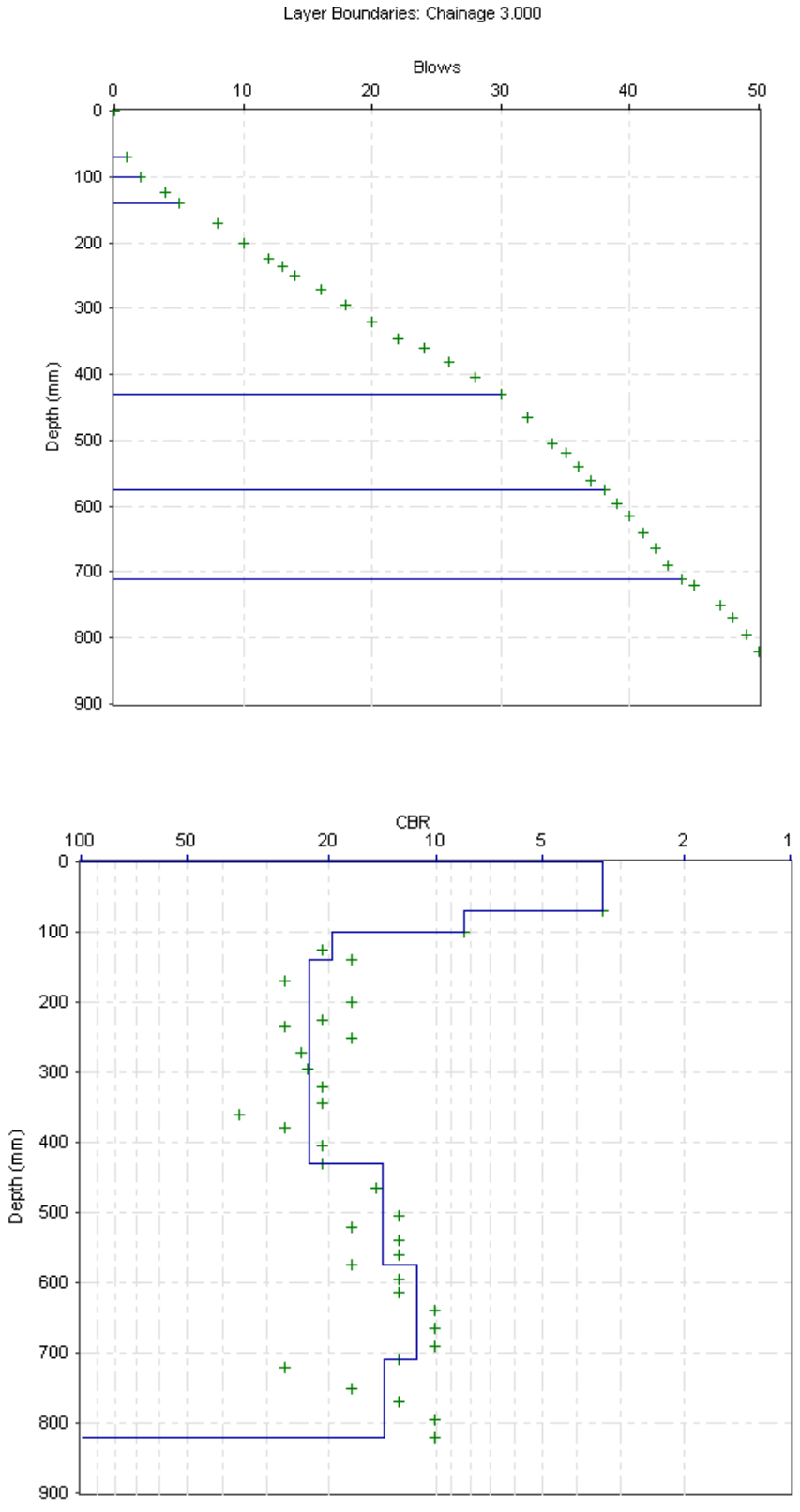




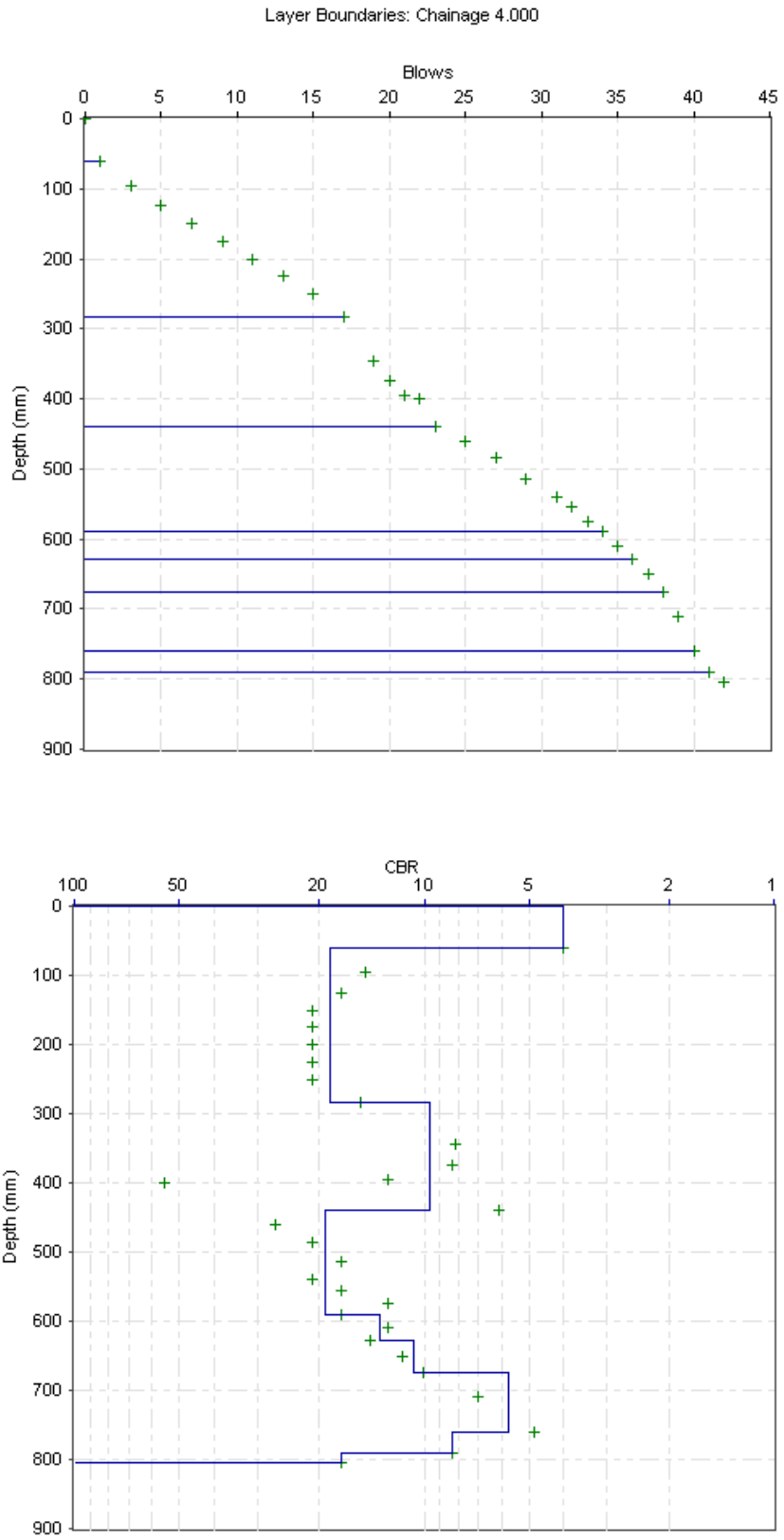
Dynamic Cone Penetrometer (TRL) - DCP 1



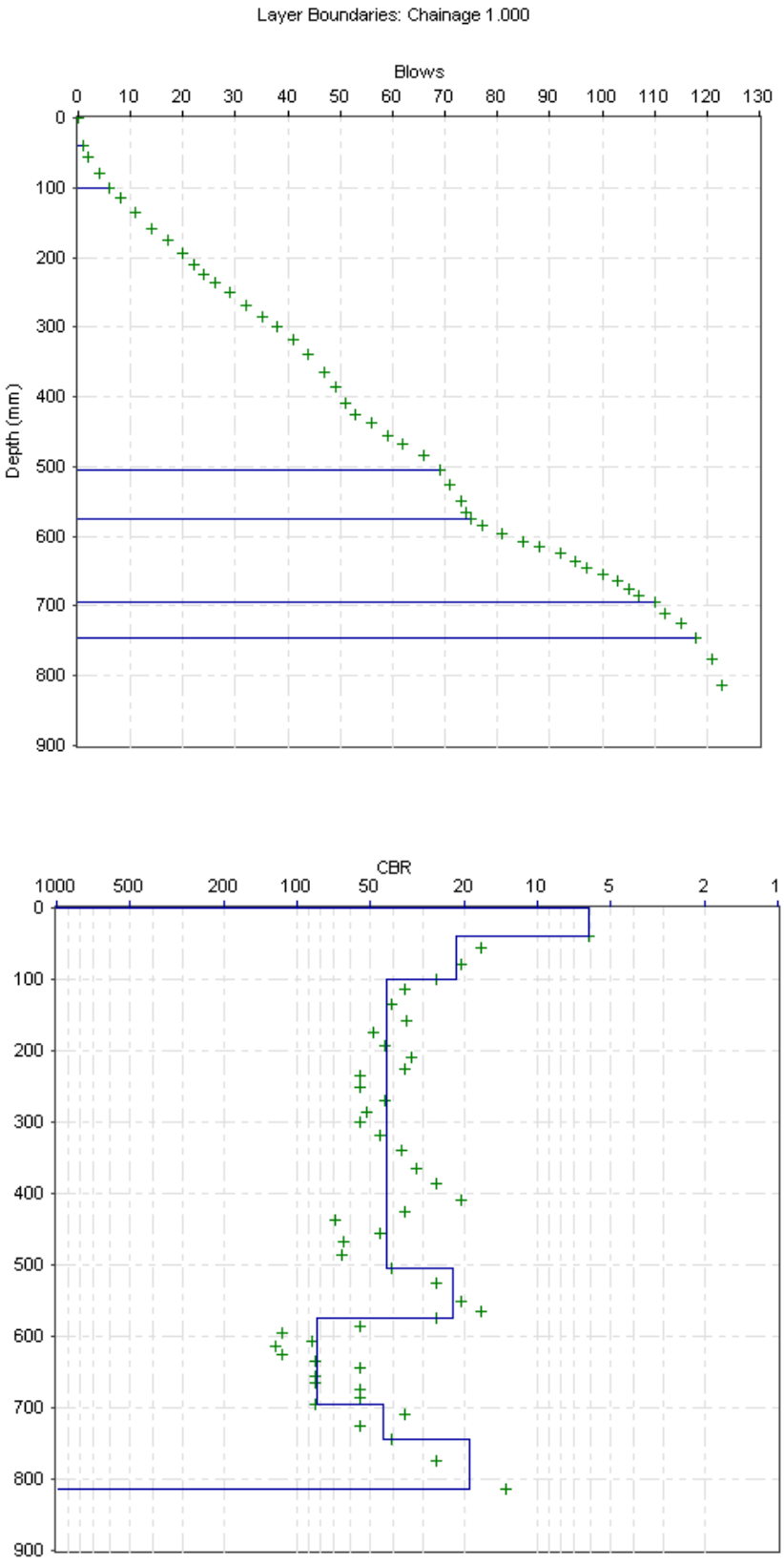
Dynamic Cone Penetrometer (TRL) - DCP 2



Dynamic Cone Penetrometer (TRL) - DCP 3



Dynamic Cone Penetrometer (TRL) - DCP 4



Dynamic Cone Penetrometer (TRL) - DCP 5