soiltechnics

environmental and geotechnical consultants

Proposed Wickes store
Orchard Way
Torquay

Ground Investigation Report

Cedar Barn, White Lodge, Walgrave, Northamptonshire NN6 9PY

t: 01604 781877 **e**: mail@soiltechnics.net
f: 01604 781007 **w**: www.soiltechnics.net

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GROUND INVESTIGATION REPORT

Soiltechnics Ltd. Cedar Barn, White Lodge, Walgrave, Northampton. NN6 9PY.
Tel: (01604) 781877 Fax: (01604) 781007 E-mail: mail@soiltechnics.net

Report originators

Prepared by	Darryl Neylon B.Sc (Hons) FGS AMIEnvSc	darryl.neylon@soiltechnics.net Geo-environmental Engineer, Soiltechnics Limited
Supervised by	Karen Boothby B.Sc,(Hons) (Open), MIEnvSc.	karen.boothby@soiltechnics.net Senior Geo-environmental Engineer, Soiltechnics Limited
Supervised by	Seb Crolla B.Sc, (Hons), MIEnvSc., FGS.	seb.crolla@soiltechnics.net Associate Director, Soiltechnics Limited
Reviewed by	Dr Matthew Hooper B.Sc. (Hons)., M.Sc., Ph.D., MIEnvSc., F.G.S.	matt.hooper@soiltechnics.net Director, Soiltechnics Limited

Aerial photograph of site

Report status and format

Report section	Principal coverage	Report status	
		Revision	Comments
1	Executive summary		
2	Introduction		
3	Desk study information and site observations		
4	Fieldwork		
5	Laboratory testing		
6	Ground conditions encountered		
7	Engineering assessment		
8	Chemical contamination		
9	Gaseous contamination		
10	Effects of ground conditions on building materials		
11	Classification of waste soils under the Waste Acceptance Criteria		
12	Further investigations		
13	Remediation statement		
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List of drawings

Drawing	Principal coverage	Status	
		Revision	Comments
01	Site location plan		
02	Plan showing existing site features and location of exploratory holes		
03	Plan showing site development proposals and location of exploratory points		
04	Plan showing existing site features, development proposals ground conditions encountered and potential construction risks associated with platform construction		
05	Section showing construction of standpipes installed in boreholes BH01 and BH02		

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A	Definitions of geotechnical terms used in this report
B	Definitions of geo-environmental terms used in this report
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N	Copies of statutory undertakers' replies
O	Copy of correspondence received from the Local Authority Building Control and/or Environmental Health Officers
P	Copy of desk study information produced by Envirocheck

1 Executive summary

1.1 General

1.1.1 We recommend the following executive summary is not read in isolation to the main report which follows.

1.2 Site description, history and development proposals

1.2.1 The site is located on the southern flank of a narrow bottom valley carrying a tributary of the Allen Brook the channel of which is located some 50m north-east of the site. The site is located in a predominantly commercial area towards the north western outskirts of Torquay, topography slopes down 5-10^{o} from the south-west to the north-west of the site with a drop-in level of approximately 10m across the site.

1.2.2 A review of historical Ordnance survey maps indicates the site has remained undeveloped prior to our site investigation.

1.2.3 We understand the scheme will comprise the construction of a commercial warehouse unit with a footprint of approximately 50m by 35m across the ground floor. The program includes associated hardstanding, car parking and access roads and a mezzanine floor within the warehouse unit.

1.2.4 The scheme will require significant cut and fill earthworks prior to construction to create a level building platform. It is understood that cut in the order of 5m is required in the western area of the site and fill of 3m is required in the eastern area.

1.3 Ground conditions encountered

1.3.1 The exploratory excavations encountered a profile of soils considered to be either Watcombe Breccia Formation or Made Ground / Alluvium overlying the Watcombe Breccia Formation.

1.3.2 Groundwater seepages were encountered in trial pits within the Alluvium and Watcombe Breccia Formation at depths in the range of 1.4m to 2.4m below ground level.

1.3.3 Groundwater was measured on one return visit to site in two locations at approximately 0.7m below ground level.

1.4 Foundation solution

1.4.1 The variation in strength/density characteristics of the Watcombe Breccia Formation soils, the high water table, and thickness of the Made Ground following cut and fill will make trench type foundations unsuitable for carrying building loads. It is understood that a piled foundation will be adopted.

1.4.2 Groundwater will require careful consideration and further investigations are recommended to determine the risk of groundwater adversely affecting the construction phase.

1.5 Chemical and gaseous contamination

1.5.1 Ground conditions at the site pose a low risk if harm to human and environmental receptors.

1.5.2 Measures to protect against ground gases (methane, carbon dioxide and radon) are not required for new buildings at the site.

1.6 Landfill classification

1.6.1 Classification of soils under the Waste Acceptance Criteria indicates the general Made Ground soils are suitable for disposal as inert waste.

1.6.2 Naturally deposited Alluvium and Watcombe Breccia Formation are suitable for disposal as inert waste.

2 Introduction

2.1 Objectives

2.1.1 This report describes a ground investigation carried out for a proposed Wickes Store at Orchard Way, Torquay TQ2 7FF.

2.1.2 The objective of the ground investigation was to establish ground conditions at the site, sufficient to identify possible foundation solutions for the development and provide parameters necessary for the design and construction of foundations.

2.1.3 The investigation included an evaluation of potential chemical and gaseous contamination of the site leading to the production of a risk assessment in relation to contamination.

2.1.4 Our brief also included investigations and testing to allow classification of soils at the site to be disposed of to landfill.

2.1.5 Our brief included testing to determine the moisture content to dry density relationship for proposed cut and fill operations across the site.

2.1.6 The investigation has also been produced to support a planning application for the site by satisfying National Planning Policies Framework sections 120 and 121 or if the project has the benefit of a planning permission, potentially discharge conditions which relate to ground conditions.

2.2 Client instructions and confidentiality

2.2.1 The investigation was carried out in January 2018 and reported in February 2018 acting on instructions received from our client, Travis Perkins.

2.2.2 This report has been prepared for the sole benefit of our above named instructing client, but this report, and its contents, remains the property of Soiltechnics Limited until payment in full of our invoices in connection with production of this report.

2.2.3 Our original investigation proposals were outlined in our e-mail correspondence to Travis Perkins of 29th September 2018. The investigation was subsequently amended on site to account for actual ground conditions encountered. Difficult ground conditions and restricted accessibility meant that only two of the proposed four boreholes could be completed during the investigation.

2.3 Site location and scheme proposals

2.3.1 The National Grid reference for the site is 288840, 66300. A plan showing the location of the site is presented on Drawing 02.

2.3.2 We understand the scheme will comprise the construction of commercial warehouse unit with a footprint of approximately 52m by 35m across the ground floor together with associated hardstanding, car parking and access roads. Proposals also include a mezzanine floor within the warehouse unit.

2.3.3 We understand the development will require significant earthworks to create a level building platform, it is proposed to use cut from the southern extents of the site and place the arisings as engineered fill to the north of the site. The estimated volume of cut and fill is in the region of 6200m^3, proposed cut levels of up to 4m and fill levels of up to 3m.

2.3.3 We have received layout drawings of the proposed scheme with the layout presented on Drawing 03.

2.4 Report format and investigation standards

2.4.1 Sections 2 to 6 of this report describe the factual aspects of the investigation with Section 7 presenting an engineering assessment of the investigatory data. Section 8 provides a risk assessment of chemical contamination based on readily available historic records, inspection of the soils and laboratory testing. Section 9 provides a similar risk assessment in relation to gaseous contamination with Section 10, a risk assessment relating to construction materials likely to be in contact with the ground. Section 11 provides a classification of waste soils for off-site disposal under the waste acceptance criteria.

2.4.2 This investigation integrates both contamination and geotechnical aspects. The investigation was carried out generally, and where practical following the recommendations of BS EN 1997:2 2007 '*Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and Testing*'. Sections 2 to 6 form a Ground Investigation Report as set out in BS EN 1997:2 2007 '*Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and Testing*'

2.4.3 The investigation process also followed the principles of BS10175: 2011 *'Investigation of potentially Contaminated Sites – Code of Practice'*. In view of the client's requirement for rapid implementation of the investigation, the following elements, defined in BS10175, have been completed and incorporated in this report.

a) Phase I — Preliminary investigation (desk study and site reconnaissance)
b) Phase II — Exploratory and main (intrusive) investigations

2.4.4 The extent and result of the preliminary investigation (desk study) is reported in Section 3. Fieldwork combined the exploratory investigation and main investigation stages into one phase with the extent of these works described in Sections 4 and 6 of this report. Any supplementary investigations deemed necessary are identified in Section 12. Section 13 provides information on any remedial strategy and specification if required.

2.5 Status of this report

2.5.1 This report is final based on our current instructions.

2.5.2 This investigation has been carried out and reported based on our understanding of best practice. Improved practices, technology, new information and changes in legislation may necessitate an alteration to the report in whole or part after publication. Hence, should the development commence after expiry of one year from the publication date of this report then we would recommend the report be referred back to Soiltechnics for reassessment. Equally, if the nature of the development changes, Soiltechnics should be advised and a reassessment carried out if considered appropriate.

2.6 Report distribution

2.6.1 This report has been prepared to assist in the design and planning process of the development and normally will require distribution to the following parties, although this list may not be exhaustive:

Table summarising parties likely to require information contained in this report

Party	Reason
Client	For information / reference and cost planning
Developer / Contractor / project manager	To ensure procedures are implemented, programmed and costed
Planning department	Potentially to discharge planning conditions
Environment Agency	If ground controlled waters are affected and obtain approvals to any remediation strategies
Independent inspectors such as Building Control	To ensure procedures are implemented and compliance with building regulations
Project design team	To progress the design
Principal Designer (PD)	To advise in construction risk identification and management under the Construction (design and management) regulations
Waste recycling operators (if appropriate)	For recycling or reducing hazardous properties (if and where appropriate)

Table 2.6

3 Desk study information and site observations

3.1 General

3.1.1 We have carried out a desk study which was limited to a review of readily available information including:

a) Review of published Ordnance Survey maps dating back to 1889 at various published scales

b) Inspection of geological maps produced by the British Geological Survey together with relevant geological memoirs

c) Consultation with Statutory Undertakers

d) Site reconnaissance

e) Other relevant published documents

3.1.2 We have obtained old Ordnance Survey maps using the Envirocheck database system. In addition to retrieval of historical and current Ordnance Survey data, Envirocheck provide information compiled from outside agencies including: -

- 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
- Health Protection Agency

3.1.3 The study did not extend to research of meteorological information or consultation with other interested parties such as English Heritage (ancient monuments), Ordnance Survey (survey control points), Planning Authorities or Archaeological Units.

3.1.4 A copy of records produced by Envirocheck is presented in Appendix P. Envirocheck produce a wealth of factual database information. Although we can provide a discussion on each of the database topics, this would produce a very lengthy document, but some of these discussions would not be relevant to the aims of this report. As a consequence we have extracted some of the relevant topics and discussed them in this section of the report.

3.1.5 The data presented in the following report sections has primarily been extracted from the Envirocheck report.

3.2 Description of the site

3.2.1 The site is located on the southern flank of a narrow valley carrying a tributary of Allen Brook, the channel of which is located some 50m to the north-east of the site. The site is located in a predominantly commercial area at the north-western outskirts of Torquay. Topography at the site slopes down 5-10^{o} from the south-west to the north-east with a fall in level of approximately 10m across the site.

3.2.2 At the time of our investigation the site comprised of an area of open field within a larger parcel of land to the south of Riviera Way and east of Hamelin Way. The site is bound to the east by a commercial car dealers and to the south by Orchard Way with commercial developments beyond. Site boundaries are defined by a mix of timber fencing, trees and marshes associated with the Allen Brook tributary.

3.2.3 Trees up to 4m were observed along the northern and eastern site boundaries of the larger parcel, tree surgeons were on site at the same time of our investigation and it is understood they had removed several trees in the northern area of the site.

3.2.4 A plan showing observed site features and location of exploratory points is presented on Drawing 02. The following photographs indicate the condition of the site at the time of our investigation.

Photograph 1

The north-eastern boundary of the site looking east

Photograph 2

The central area of the site looking south-east

Photograph 3

The central area of the site looking south-west

3.3 Injurious and invasive weeds and asbestos

3.3.1 Injurious and invasive weeds

3.3.1.1 The following weeds are controlled under the Weeds Act 1959:

- Common Ragwort
- Spear Thistle
- Creeping or Field Thistle
- Broad leaved Dock
- Curled Dock

3.3.1.2 Whilst it is not an offence to have the above weeds growing on your land, you must:

- Stop them spreading to agricultural land, particularly grazing areas or land used for forage, like silage and hay
- Choose the most appropriate control method for the your site
- Not plant them in the wild

Should you allow the spread of these weeds to another parties land, Natural England could serve you with an Enforcement Notice. You can also be prosecuted if you allow animals to suffer by eating these weeds.

3.3.1.3 In addition to the above, you must not plant in the wild or cause certain invasive and non-native plants to grow in the wild as outlined in the Wildlife and Countryside act 1981. It is an offence under section 14(2) of the act to *'plant or otherwise cause to grow in the wild'* any plants listed in schedule 9, part II. This can include moving contaminated soil or plant cuttings. The offence carries a fine or custodial sentence of up to 2 years. The most commonly found invasive, non-native plants include:

- Japanese knotweed
- Giant hogweed
- Himalayan balsam
- Rhododendron ponticum
- New Zealand pigmyweed

You are not legally obliged to remove these plants or to control them. However, if you allow Japanese knotweed to spread to another parties land, you could be prosecuted for causing a private nuisance.

3.3.1.4 The presence of such weeds on site may have considerable effects on the cost / timescale in developing the site. Japanese knotweed can cause significant damage to buildings, roads and pavements following development, if untreated prior to development.

3.3.1.5 Our investigations exclude surveys to identify the presence of injurious and invasive weeds. It should be noted that the tree surgeons present on site positively identified Japanese Knotweed amongst some trees adjacent to the south of the site in addition to the southern boundary of the larger parcel of land. We recommend specialists in the identification and procedures to deal with injurious and invasive weeds are appointed prior to commencement of any works on site or if appropriate purchase of the site.

3.3.2 Asbestos

3.3.2.1 Our investigations exclude surveys to identify the presence or indeed absence of asbestos on site. It should be noted however, that where intrusive investigations were undertaken we did not observe any obvious evidence of potential asbestos containing materials. This information does not constitute a site specific risk assessment and we recommend specialists in the identification and control / disposal of asbestos are appointed prior to commencement of any works on site or, if appropriate, purchase of the site.

3.4 History of the site

3.4.1 An attempt to trace the history of the site has been carried out by obtaining copies of old Ordnance Survey maps provided by Envirocheck. The recent history of the site based on published Ordnance Survey maps is summarised in the following table:

Summary description of site history from Ordnance Survey maps		
Date	**Onsite**	**Offsite**
1889-1906	Site is recorded as open field, a field boundary runs through the centre of the site from south to north.	The site is bound to the south and west by orchards. A brook is recorded 25m north of the site. A railway track is recorded some 50m north of the site, parallel with the north-eastern site boundary. An 'old quarry' is recorded some 200m south-east of the site.
1906-1954	No significant change.	Manor House recorded some 50m south of the site. Old quarry no longer recorded. Kingskerswell Reservoir recorded some 900m north of the site.
1964-1976	Field boundary no longer recorded.	Substation is recorded some 100m east of the site. Significant residential encroachment some 150m south-east of the site.
1991	No significant change.	Manor House recorded as 'Higher Court Farm'. Significant development of the road infrastructures of Riviera Way and Hamelin Way, including an embankment associated with Hamelin Way. Coniferous trees replaced orchard to the south of the site.
1993-2006	As above.	No significant change
2017	As above	Orchard way recorded adjacent to the southern boundary of the site with commercial developments recorded south of Orchard Way.

Table 3.4.1

3.5 Geology and geohydrology of the area

3.5.1 Geology of the area

3.5.1.1 Envirocheck reproduce geological map extracts taken from the British Geological Survey (BGS) digital geological map of Great Britain at 1:50,000 scale (ref Appendix P). A summary of the recorded geological information for the site is presented in the following table:

Summary of Geology and likely aquifer containing strata

Strata	Bedrock or superficial	Approximate thickness	Typical soil type	Likely permeability	Aquifer designation
Alluvium (North-east half of site)	Superficial	4-8m	Clay, Silt, Sand and Gravel	Permeable	Secondary A Aquifer (r)
Watcombe Breccia Formation	Bedrock	25m	Breccia and sandstone interbedded	Permeable	Secondary A Aquifer (r)
Torbay Breccia Formation	Bedrock	25m	Sandstone interbedded with breccia	Permeable	Secondary A Aquifer (a)

Table 3.5.1

(r) recorded aquifer designation
(a) assumed aquifer designation

3.5.1.2 Superficial deposits are the youngest geological deposits formed during the Quaternary, which extends back about 2.6 million years. They rest on older deposits or rocks referred to as bedrock. Soil types and assessments of permeability are based on geological memoirs, in combination with our experience of investigations in these soil types.

3.5.1.4 Secondary A aquifers are predominantly permeable layers capable of supporting water supplies at a local rather than strategic scale. In some cases, Secondary A aquifers can form an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

3.5.2 Water abstractions

3.5.2.1 Envirocheck reports two active groundwater abstractions and one surface water abstraction within 1km of the site. The closest groundwater abstraction lies 166m north-west of the site with usage recorded as Agricultural Spay Irrigation. The closest surface water abstraction lies 135m north of the site with usage also recorded as Agricultural Spay Irrigation.

3.5.2.2 The site is not located within a zone protecting a potable water supply abstracting from a principal aquifer (i.e. a source protection zone).

3.5.3 Coal mining and brine extraction

3.5.3.1 The site is not recorded to be within an area affected by past or present coal mining, or minerals worked in association with coal or brine extraction (within the Cheshire Brine Compensation District).

3.5.4 Shallow mining and natural subsidence hazards

3.5.4.1 The British Geological Survey present hazard ratings for shallow mining and natural subsidence hazards. The site has the following ratings;

Table summarising mining and subsidence hazards

Hazard	Rating
Mining hazard in non-coal mining areas	Rare
Potential for collapsible ground stability hazard	Very low
Potential for compressible ground stability hazard	**Moderate**
Potential for ground dissolution stability hazard	No hazard
Potential for landslide ground stability hazard	Low
Potential for running sand ground stability hazard	Low
Potential for shrinking or swelling clay ground stability hazard	Very low

Table 3.5.4

3.5.4.2 Envirocheck records a moderate potential for compressible ground stability at the site. The geological map of the area records the site is underlain by Alluvium deposits, which are likely to represent the elevated hazard rating. We did not encounter what we would consider Alluvium deposits during our investigation.

3.5.4.3 In addition to the above hazard ratings, a report completed by Ove Arup and Partners in December 1991, commissioned by the Department of the Environment (DoE) indicates where mining should be borne in mind when considered planning and development of land. The site is not recorded as lying in an area of conclusive rock mining as indicated by the report.

3.5.5 Borehole records

3.5.5.1 The British Geological Survey (BGS) retain records of boreholes formed from ground investigations carried out on a nationwide basis. The location of boreholes with records held by the BGS is recorded on the borehole map contained in Appendix P. We do not normally obtain copies of these records but can do on further instructions. There is normally a charge made by the BGS for retrieving and copying these records.

3.6 Landfill and infilled ground

3.6.1 A number of registered/historic landfill sites are recorded in the area. The following table summarises these landfill sites:

Summary of Landfill sites

Landfill name	Type	Location	Waste authorised	Licence status
Scotts Bridge	Historical and registered	67m N and 141m E	Inert and industrial waste Asbestos Sheet & Pipes	Closed
Kerswell Gardens	Historical and registered	328m N	Not supplied	Site not yet started
S R Lancaster	Historical and registered	635m NE	Inert waste	Cancelled

Table 3.6.1

3.6.2 Envirocheck records three areas of potentially infilled land (water) within 1km of the site. The closest of which is recorded 606m to the south-east of the site. No details regarding the use of the infilled land are provided.

3.6.3 In addition, Envirocheck record two BGS mineral sites within 1000m of site, the closest of which lies 236m south-east of site. Both mineral sites are recorded as opencast quarrying of the Watcombe and Torbay Breccia Formation.

3.7 Radon

3.7.1 Envirocheck use the British Geological Survey database to review reported radon levels in the area in which the site is located to establish recommended radon protection levels for new dwellings. The database records the site as being located where **no protection** is recommended.

3.7.2 The Building Research Establishment publication applies to all new buildings, conversions and refurbishments whether they be for domestic or non-domestic use. For non-domestic buildings, the guidance supplements the requirements for radon protection at work specified in the Ionising Radiations Regulations 1999, legislation made under the Health and Safety at Work Act administered by the Health and Safety Executive (HSE). Further information is contained in the HSE/BRE guide "*Radon in the Workplace".*

3.7.3 It is noteworthy that the BRE and BGS / HPA information is based on statistical analysis of measurements made in dwellings in combination with geological units, which are known to emit radon. Consequently, there is a risk for actual radon levels at the site to exceed the levels assessed by the BGS / HPA / BRE. Currently, the only true method of checking actual radon levels is by measurement within a building on the site over a period of several months. It should be noted that it is not currently a requirement of the Building Regulations to test new buildings for radon, however the BRE recommends testing on completion or occupation of all new buildings (domestic and non-domestic), extensions and conversions. Should you wish to undertake radon monitoring following completion of the development, we can provide proposals.

3.8 Flood risk

3.8.1 The north-eastern boundary of the site is located within a fluvial flood plain. The north-east and east of the site is also located within a high to low risk area of surface water flooding and in an area for potential groundwater flooding to occur at the surface.

3.8.2 It should be noted that this information does not constitute a site specific Flood Risk Assessment (FRA), and a full FRA may be required for the development to support a planning application or satisfy planning conditions.

3.9 Enquiries with statutory undertakers

3.9.1 We have contacted the following Statutory Undertakers (SUs) to obtain copies of their records in order to avoid damaging their apparatus during our fieldwork activities: -

a) BT Openreach Ltd
b) National Grid Gas plc
c) South West Water
d) Western Power Distribution
e) Wales and West utilities
f) ES Pipelines

Copies of responses received prior to publication of this report are presented in Appendix N. These records have been obtained solely for the purposes described above. Some of these records have been obtained from the Internet and from our database without contacting the statutory undertaker direct. Occasionally, SU information is recorded on drawings larger than A3, and thus cannot be easily presented in this report. In such cases we will copy the correspondence but not incorporate the drawing in this report, and maintain the records on our office file.

3.9.2 In addition, we have visited the Linesearch web site (www.linesearch.org) which provides a report on national grid networks (National Gas and Electricity Transmission Networks). Again a copy of their report is presented in Appendix N.

3.9.3 Normally Statutory Undertakers drawings record the approximate location of their services. We recommend further on site investigations be undertaken to confirm the position of the apparatus and thus establish the effect on the proposed development and the necessity or otherwise for the permanent or temporary diversion of the service to allow the construction of the development to safely and successfully proceed.

3.9.4 It should be noted that a water supply line crosses the site. The shut off valve was located on site and switched off, the exposed service pipe capped on site.

3.9.5 It should be noted that statutory undertakers' records normally exclude private services.

3.10 Enquiries with local authority building control and environmental health officers

3.10.1 We have contacted Local Authority Building Control regarding their records relating to the site. At the time of issue, we are awaiting a response.

3.10.2 We have contacted Local Authority Environmental Health Officers regarding their records relating to the site. They have remarked that the site and surrounding area is not considered "contaminated land" as defined by part 2A of the EPA 1990, nor is any further action being considered under the same legislation. They are unaware of any remediation work being carried out in the vicinity, and from the information they hold, there are no landfills at or close to the site.

4 Fieldwork

4.1 General

4.1.1 Fieldwork was carried out between Wednesday 3rd and Friday the 5th of January 2018 and comprised the following activities:

- Excavation of thirteen exploratory trial pits
- Excavation of two exploratory boreholes formed using rotary borehole techniques

4.1.2 A plan of the site showing observed/existing site features, development proposals and the position of exploratory points is presented on Drawing 02. The positions of the exploratory points have been surveyed using dimensional surveys.

4.1.3 The extent of fieldwork activities and position of exploratory points were defined by Soiltechnics.

4.1.4 Exploratory points were positioned to avoid known locations of underground services, to avoid possible location of proposed foundations but were also positioned to provide a reasonable coverage of the site. Prior to commencement of exploratory excavations an electronic cable locating tool was used to scan the area of the excavation. If we received a response to this equipment then the excavations would be relocated.

4.1.5 All soils exposed in excavations were described in accordance with BS EN ISO 14688 *'Identification and Classification of soil'* and BS EN ISO 14689 *'Identification and classification of rock'.*

4.2 Site restrictions

4.2.1 At the time of our investigation, ground conditions at the site were unfavourable with heavy rainfall resulting in waterlogged ground reducing the accessibility for the tracked and four wheel drive rotary equipment. Two of the proposed four boreholes were completed, the exploratory excavations were located to provide the best coverage across the site.

4.3 Exploratory trial pits

4.3.4 Trial pits TP01 to TP13 were excavated to a maximum depth of 3.7m using a 13t 360° tracked excavator. The excavations were backfilled with excavated material compacted using the back of the excavator bucket. Whilst we attempted to reinstate the excavation to its original condition some short-term settlement of the backfilling materials may occur. Due to the waterlogged ground at the site, considerable surface damage was unavoidable during the tracking and reinstatement of the trial pits. A Geotechnical Engineer supervised the excavations.

4.3.5 Sampling and logging was carried out as trial pit excavations proceeded but were not entered at depths exceeding 1.2m, or where trial pit sides were deemed unstable. The density of granular soils encountered in excavations was gauged by the ease of excavation.

4.3.7 Soil samples for subsequent laboratory determination of concentration of chemical contaminants were taken from the sides of trial pits and stored in new plastic containers, which were labelled and sealed. Samples from below suitable access depths into trial pits were taken as a sub sample from soil contained in the excavator bucket. If as a consequence of visual or olfactory evidence, a sample was suspected to be contaminated by organic material, the sample was stored in an amber glass jar with a PTFE sealing washer.

4.3.9 Soil samples for subsequent 'physical and classification' laboratory testing were taken from the side of trial pits or from bulk samples taken from the excavator bucket. The sample was placed in a plastic bag and subsequently sealed and labelled. Samples for moisture content determination were placed in sealable tubs and appropriately labelled. Moisture content samples were taken to the laboratory for testing within 24 hours of sampling.

4.3.10 Soil samples were obtained to meet quality class 3 to 5 as described in BS EN I997-2:2007. Sample sizes were appropriate for the laboratory test being considered.

4.3.14 A pocket penetrometer was/was also used in the cohesive soils encountered. This tool is deemed to measure the apparent ultimate bearing capacity of the soil under test. The pocket penetrometer is calibrated in kg/cm^2. The reading can be approximately converted to equivalent undrained shear strength by multiplying the results by a factor of 50. Tests were carried out in the sides of trial pits when access can be safety achieved otherwise testing was carried out on excavated intact clods. The results are reported in columns to the right of trial pit results. The pocket penetrometer is not covered by British Standards. This tool has the advantage that it can be used to determine the approximate insitu undrained shear strength of stony cohesive soils.

4.3.15 A summary of pocket penetrometer results obtained from the cohesive soils encountered in exploratory excavations are presented in graphical format on Drawing 04.

4.3.16 Trial pit records are presented in Appendix D.

4.4 Rotary drilling

4.4.1 Rotary open holing

4.4.1.1 Rotary boreholes BH01 and BH02 were initially formed by open hole drilling using a tricone (rock roller) bit to depths of 3m and 7m respectively. Open hole drilling involves blown air flushing drill cuttings to the surface. Only the rate of advance of the drill bit, the colour and texture of the cuttings brought to the surface gives any indication of the strata penetrated. Certainly no useable geotechnical parameters can be obtained using these methods.

4.4.2 Rotary core drilling

4.4.2.1 Rotary core drilling was carried out using a double tube core barrel fitted with a tungsten or diamond core bit. The double tube barrel consists of two concentric barrels. The outer is rotated by drill rods and at its lower end, carries the coring bit. The inner barrel is mounted on a swivel so that it does not rotate during the drilling process. The core cut by the coring bit passes up into the inner barrel and at the end of the coring run the core barrel assembly is lifted to the surface. The core is prevented from dropping out of the core barrel by a catcher mechanism fitted in the lower part of the inner barrel.

4.4.2.2 Lubrication is provided to the coring bit via the annulus between the inner and outer barrels. The lubricant is normally compressed air but can be water or a mixture of both. The lubricant also aids transport of cutting bits to the surface.

4.4.2.3 Coring was carried out using a core barrel to produce a nominal 116mm diameter core.

4.4.3 Core preservation

4.4.3.1 The core samples are normally 1 to 1.5m long reflecting the core barrel length. Every effort was made to maintain the core in a good condition once extracted from the core barrel. The cores were placed in a specially made core box and labelled. The cores were generally preserved following the procedures detailed in BS EN ISO 22475-1:2006.

4.4.4 Logging

4.4.4.1 Core samples were logged in accordance with EN ISO 14689-1:2003 *'Identification and classification of rock Part 1: Identification and description'*. Rotary core records are presented in Appendix E.

4.4.5 Standpipes

4.4.1 Combined gas and groundwater monitoring standpipes were installed in boreholes BH01 and BH02. The standpipes were installed following the recommendations of BS EN ISO 22475-1:2006 '*Geotechnical Investigation and Testing – Sampling methods and groundwater measurements – Part 1: Technical Principles for execution'* and BS8576:2013 *'Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)'*. Details of the standpipe installation are recorded on Drawing 05.

4.4.2 Water levels in the standpipes have been measured during a return visit to the site. The water level was measured using a measuring tape calibrated in 1mm intervals with an electronic end piece, which emits an alarm sound in contact with water. Water levels are measured from ground levels at the borehole position.

4.5 Measurement of landfill type gases in gas monitoring standpipes

4.5.1 The concentrations of landfill type gases collected within gas monitoring standpipes installed in boreholes BH01 and BH02 was measured using a portable infra-red gas analyser (model GA5000, manufactured by Geotechnical Instruments). Initially the gas analyser was connected to the gas valve on the top of the standpipe to allow the flow rate to be measured. Essentially this is a measurement of gas pressure produced in the standpipe, which is compared with atmospheric pressure at the time of measurement to produce an equivalent gas 'flow' in l/hr. The equipment used is capable of measuring to an accuracy of 0.1l/hr; below this the gas analyser records zero flow. Following BS8485:2015 '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings* (clause 6.3.4), we assume flows of 0.1l/hr when the gas analyser reads zero, thus producing a pessimistic gas flow rate in our assessment of ground gases.

4.5.2 Following measurement of 'flow' the gas analyser pumps gases contained in the standpipe through the analyser. Initial readings of gas concentrations are noted manually, followed by subsequent recordings at regular time periods until 'steady state' concentrations are achieved. The analyser records 'peak' and 'steady' concentrations of the following gases:

- Methane (CH_4)
- Carbon dioxide (CO_2)
- Oxygen (O_2)

4.5.3 The ambient atmospheric temperature and barometric pressure was also recorded at the site. To determine if the atmospheric pressure is rising or falling we interrogate the internet on a daily basis.

4.5.4 Methane in concentrations of between 5 to 15% in air is potentially explosive. The 5% methane concentration in air is defined as the Lower Explosive Limited (LEL). The gas analyser measures a percentage of the LEL. For example, 10% LEL equates to 10% of 5%, i.e. 0.5% methane concentration in air.

4.5.5 Records of gas monitoring data are presented in Appendix J.

4.6 Sampling strategies

4.6.1 Geotechnical

4.6.1.1 In general we adopted a judgemental sampling strategy in relation to geotechnical aspects of the investigation. The location and frequency of sampling was carried out in consideration of the following:

i) Topography
ii) Geology (including Made Ground)
iii) Nature of development proposals

4.6.2 Environmental

4.6.2.1 Details of sampling with respect to contamination issues are described in Section 8.

4.6.3 Sample retention

4.6.3.1 Samples are stored for a period of one month following issue of this report, unless otherwise requested.

5 Laboratory testing

5.1 Classification and physical testing

5.1.1 Laboratory testing was carried out on samples retrieved from site. The method of testing is recorded on the laboratory test certificate. The following table summarises the classification and physical testing scheduled;

Table summarising classification and physical testing

Exploratory point	Depth (m)	Soil type	Testing scheduled
BH01	7.1 – 7.4	Watcombe Breccia Formation	Uniaxial compression of strength testing of rock cores
BH01	8.25 – 8.5		
BH01	12.35 – 12.6		
BH01	13.8 - 14.05		
BH02	7.9 – 8.2		
BH02	10 – 10.3		
CS01	--	Made Ground	Dry density and moisture content relationship using 2.5kg hammer
CS02	--		
TP01	0.90	Watcombe Breccia Formation	Liquid limit/plasticity limit and plasticity index/ moisture content
TP09	1.0	Alluvium	
TP12	0.8	Alluvium	
TP12	1.50		
TP01	1.80	Watcombe Breccia Formation	Particle size distribution (by wet sieving)
TP07	1.20		
TP11	1.6 - 1.9		
TP12	1.80		
TP02	1.50	Made Ground	Moisture content
TP02	2.10		
TP02	2.60	Watcombe Breccia Formation	
TP03	1.2	Made Ground	
TP05	1.80	Watcombe Breccia Formation	
TP06	0.60	Made Ground	
TP08	0.6		
TP08	1.2 - 1.5	Watcombe Breccia Formation	
TP11	0.8	Made Ground	
TP11	1.3	Watcombe Breccia Formation	
TP13	0.3	Made Ground	

Table 5.1.1

5.1.2 Laboratory test certificates are presented in Appendix F.

5.2 Chemical testing

5.2.1 Chemical testing was carried out based on ground conditions and with reference to the contamination Initial Conceptual Model as presented in Section 8. The test methods are recorded on the chemical test certificates. The following table summarises the chemical testing scheduled;

Table summarising chemical testing

Exploratory point	Depth (m)	Medium/soil type	Testing scheduled (Refer to Appendix A for details).
TP02	0.2	Made Ground	SOIL Suite 1
TP04	0.2	Watcombe Breccia Formation	
TP06	0.2	Made Ground	
TP07	0.2		
TP09	0.2		
TP08	0.3	Made Ground	SOIL Suite 7
BH01	4.8	Watcombe Breccia Formation	SOIL Suite 8
BH01	13.2		
TP04	1.5		
TP13	0.3	Made Ground	
TP04	3.4	Groundwater	WATER Suite 9
TP10	0.4	Alluvium	SOIL Suite 13
TP01	0.1	Watcombe Breccia Formation	Asbestos presence/absence
TP02	0.2	Made Ground	
TP05	0.2		
TP06	0.7		
TP07	0.5		

Table 5.2.1

5.2.2 Laboratory test certificates for chemical testing are presented in Appendix G.

6 Ground conditions encountered

6.1 Soils and rocks

6.1.1 Each exploratory excavation encountered a similar profile of soils considered to be Made Ground overlying Watcombe Breccia Formation deposits, it should be noted that not all exploratory excavations encountered Made Ground.

6.1.2 Made Ground

6.1.2.1 Made Ground was encountered in TP02, TP03, TP05 to TP09, TP11 and TP13 to depths in the range of 0.6m to 2.2m (37.2mAOD to 45.5mAOD). Made Ground comprised of red brown gravelly clayey to very clayey fine to medium sand. Gravel consists of fine to medium sub-angular sandstone, breccia and frequent quartz, limestone, brick, china and plastic.

6.1.3 Alluvium

6.1.3.1 Alluvial soils were encountered in trial pits TP08, 09, 10 and 12 to the north-east of the site, these soils were encountered to depths in the range of 1m to 2.1m (33.7 to 38.25 mAOD) and comprised very soft to stiff low to very high strength red to orange brown slightly gravelly sandy to very sandy clay. Gravel consists of fine to coarse sub-angular sandstone. Sand was fine to coarse grained.

6.1.3.2 The following table summarises geotechnical parameters for the Alluvial soils:

Table summarising soil testing and derived geotechnical parameters

Geotechnical parameter	Method	Value range	Characteristic value	Comments	Notes
Plasticity index	Laboratory testing	14 to 21	21	Chosen as highest result	1
Undrained shear strength (kN/m^2)	Insitu testing	21 to 79kN/m^2	54	Chosen as average result Medium strength	2
Consistency index	Laboratory testing	Firm to stiff	Soft	Based on field observations	1
Density index	Insitu observations	Loose	Loose	-	-

Table 6.1.3.2

1. Laboratory testing presented in Appendix G
2. Raw data presented in Appendix C

6.1.4 Watcombe Breccia Formation

6.1.4.1 The Watcombe Breccia Formation was encountered in all exploratory excavations, except TP08 to depths in excess of 14.5m (21.7 mAOD). The Watcombe Breccia Formation was encountered as coarse locally fine soils and rock at depth.

6.1.4.2 Coarse Watcombe Breccia Formation soils were encountered to depths in excess of 3.7m (33.6m mAOD to 45.1m mAOD) in trial pit excavations and to a depth of 6.2m (32.1m mAOD) in BH01. Coarse soils comprised loose to medium dense red brown slightly to very clayey gravelly to very gravelly fine to coarse sand. Gravel consists of fine to coarse sub-angular sandstone and breccia.

6.1.4.3 The Watcombe Breccia Formation was encountered as rock in the two exploratory boreholes, rock formations extended beyond the termination depths of the boreholes. The rock comprised weak red poorly sorted breccia and well sorted sandstone with frequent grading sequences from coarse to fine. Breccia clasts are fine to coarse sub-rounded grains amongst a medium grained sand matrix.

6.1.4.4 The following table summarises geotechnical parameters for the Watcombe Breccia Formation soils:

Table summarising soil testing and derived geotechnical parameters

Geotechnical parameter	Method	Value range	Characteristic value	Comments	Notes
Plasticity index	Laboratory testing	9.69	9.69	One test value	1
Water content (%)	Laboratory testing	14 - 17	-	-	1
Undrained Shear strength (kN/m^2)	Insitu testing	79 to 225	100	Taken as lower average result High to very high strength category.	2
Compressive strength (MPa)	Uniaxial testing	2.3 to 5.7	-	-	1
Uniformity coefficient from particle size distributions	Laboratory testing	-	-	Soils too clayey to determine a D60/D10 value	1
Consistency index	Insitu observations	Fim to very stiff	Stiff	-	
Density index	Insitu observations	Loose to medium dense	Loose	-	

Table 6.1.4.1

3. Laboratory testing presented in Appendix G
4. Raw data presented in Appendix C

6.1.4 Summary

6.1.4.1 The following table summarises the geology encountered:

Table summarising soil types

Strata	Depth to top (m)	Depth to bottom (m)	Thickness (m)	Summary description
Made Ground	0	0.6 to 2.2 (1.1) 37.2 to 45.5 mAOD	0.6 to 2.2 (1.1)	Red brown gravelly clayey to very clayey fine to medium sand
Alluvium	0 to 1.15 (0.65) 34.85 to 36.95 mAOD	1.1 to 2.1 (1.65) 33.7 to 35.15 mAOD	0.6 to 1.75 (1.3)	Very soft to firm low to medium strength red slightly sandy clay and loose very clayey sand
Watcombe Breccia Formation (fine)	0.6 to 2.2 (1.1) 37.2 to 45.5 mAOD	1.0 to 2.1 (1.6) 33.7 to 38.25 mAOD	0.4 to 1.75 (1.35)	Very soft to stiff low to very high strength red to orange brown slightly gravelly sandy to very sandy clay
Watcombe Breccia Formation (coarse)	1.0 to 2.1 (1.6) 33.7 to 38.25 mAOD	3.4 to 6.2 (4.8) 30.0 to 42.35 mAOD	>3.4	Loose to medium dense red brown slightly to very clayey gravelly to very gravelly fine to coarse sand
Watcombe Breccia Formation (rock)	3.4 to 6.2 30.0 to 42.35 mAOD	Not identified	Not identified	weak red poorly sorted breccia and well sorted sandstone with frequent grading sequences from coarse to fine

Table 6.1.4

Figures in brackets are average values

6.1.5 With the exception of Made Ground, the investigation generally confirmed published geological records.

6.3 Groundwater

6.3.1 Groundwater inflows were observed in some / many of the exploratory excavations. A summary of our observations is tabulated below:

Table summarising groundwater observations

Exploratory point	Date of observation	Depth (m) below ground levels	Depth (mAOD)	Observations
TP01	03-01-2018	2.3	37.7	Seepage flowing at a rate of approximately 5 l/min
TP04	03-01-2018	2.4	40.4	Seepage flowing at a rate of approximately 2 l/min
TP04	03-01-2018	3.3	39.5	Groundwater measured 1 hour after completion
TP07	03-01-2018	2.5	32.5	Seepage flowing at a rate of approximately 5 l/min
TP09	03-01-2018	1.5	34.3	Seepage flowing at a rate of approximately 20 l/min

Table summarising groundwater observations				
Exploratory point	**Date of observation**	**Depth (m) below ground levels**	**Depth (mAOD)**	**Observations**
TP11	04-01-2018	2.1	38.6	Seepage flowing at a rate of approximately 10 l/min
TP12	04-01-2018	1.55	35.4	Seepage flowing at a rate of approximately 10 l/min
TP13	04-01-2018	1.4	38.6	Minor seepage
TP13	04-01-2018	2.1	37.9	Seepage flowing at a rate of approximately 15 l/min
BH01	04-01-2018	1.0	35.2	Measured groundwater level during drilling
BH01	05-01-2018	0.5	35.7	Measured groundwater on completion of drilling
BH01	09-02-2018	0.72	35.48	Monitoring observation
BH02	05-01-2018	1.0	38.1	Measured groundwater level during drilling
BH02	05-01-2018	0.6	38.5	Measured groundwater on completion of drilling
BH02	09-02-2018	0.77	38.33	Monitoring observation
Table 6.3.1				

6.3.2 It should be noted that water levels will vary depending generally on recent weather conditions and only long-term monitoring of levels in standpipes will provide a measure of seasonal variations in groundwater levels.

6.4 Evidence of contamination

6.4.1 During excavation of our exploratory points, no evidence of contamination was noted.

6.5 Obstructions and instability

6.5.1 The following table summarises obstructions and instability encountered during our exploratory excavations;

Table summarising obstructions and instability observations

Exploratory point	Depth of obstruction	Description of obstruction and/or instability
TP01	2 to 3m	Collapse of pit wall widening trial pit by 0.3m
TP03A	0.4m	Excavation through a 25mm blue plastic water pipe, service was active. Shut-off valve located, and trial pit relocated to avoid additional damage.
TP04	2.2 to 2.4m	Collapse of pit wall widening trial pit by 0.2m on each side.
TP07	0.7 to 1.8m	Collapse of pit wall widening trial pit by 0.6m on western side. Trial pit terminated due to instability of the walls.
TP08	0 to 1.2m	Collapse of pit wall widening trial pit by 0.4m on northern side and 0.5m on southern side. Trial pit terminated due to instability of the walls.
TP09	0 to 1.6m	Collapse of pit wall widening trial pit by 0.6m. Trial pit terminated due to instability of the walls.
TP10	0.3 to 1.4m	Collapse of pit wall widening trial pit by 0.4m on each side. Trial pit terminated due to instability of the walls.
TP11	0 to 2.0m	Collapse of pit wall widening trial pit by 0.6m on western side.
TP12	0 to 2.2m	Collapse of pit wall widening trial pit by 0.5m on northern side. Trial pit terminated due to instability of the walls.
TP13	0 to 2.1m	Collapse of pit wall widening trial pit by 0.6m.

Table 6.5.1

7 Geotechnical Appraisal

7.1 General description of the development

7.1.1 The following assessments are made on the investigatory data presented in the preceding sections of this report and are made with reference to specific nature of the development. Should scheme proposals change then it may be necessary to review the investigation and report.

7.1.2 The project will comprise the construction of a commercial warehouse unit with a footprint of approximately 50m by 35m across the ground floor together with associated hardstanding, car parking and access roads. Proposals include a mezzanine flor within the warehouse unit.

7.1.3 The development will require significant earthworks to create a level building platform, at this stage we understand that the cut and fill exercise is not finalised, but broadly will comprise of cutting from the southern extents of the site and place the arisings as engineered fill to the north of the site. The proposed cut levels are some 5m to 6m with fill heights up to 2m to 3m in the north.

7.2 Building regulations and this report section

7.2.1 Building Regulations

Current Approved Document A of the building Regulations references Eurocodes and their UK National Annexes as practical guidance in meeting part A requirements. Approved document A advises there may be alternative ways of achieving compliance with requirements where it can be demonstrated that the use of withdrawn standards no longer maintained by the British Standards Institution continues to meet Part A requirements.

7.2.2 This report section

This chapter of the report provides both a foundation strategy for the proposed development and geotechnical design parameters to comply with Eurocode 7 (BSEN1997-1:2004 *'Geotechnical Design – part 1 General Rules'* and the corresponding UK National Annex). This chapter also provides building foundation design parameters ('Traditional Methods') which relate (in part) to withdrawn British Standards. It is for the foundation designer to select the design methodology and demonstrate compliance with part A requirements.

7.2.3 Geotechnical terms

Definitions of geotechnical terms used in the following paragraphs are provided in Appendix A.

7.3 The geological model

7.3.1 Trial pit excavations and boreholes formed at the site, encountered a reasonably consistent profile of soils which are summarised in the following table:

Summary of ground conditions encountered at the site (present)		
Strata	**Summary soil type**	**Depth to base of strata**
		Range
Made Ground	Watcome Breccia Formation Derived. Slightly gravelly sandy clay	0.6 - 2.2m
Alluvium	Firm to stiff red slightly gravelly sandy clay	1.0 – 2.1m
Watcombe Breccia Formation (Coarse) WBFc	Slightly gravelly clayey fine to coarse sand	3.4 - 6.2 (BH01)
Watcombe Breccia Formation (Rock) WBFr	Weak to medium strength breccia.	>14.5m
Table 7.3.1		

7.3.2 Groundwater seepages were encountered in the trial pit excavations at depths in the range of 1.4m to 2.5m, groundwater was measured at 0.5m below ground level in the standpipe installations of BH01 and BH02 on monitoring visits. We envisage groundwater will potentially be a significant restraint on the construction of the development and will require further investigation and thus potentially careful consideration throughout the construction phase.

7.3.3 Following the cut and fill exercise to create a level construction platform, understood to be around 39m to 40m AOD. We anticipate Made Ground will be effectively removed from the south-west of the site with the formation in this area and through the centre of the site being WBFc, overlying WBFr deposits, further investigations will be required to establish the level of rock head which may be close or locally above the proposed platform in the west of the site. To the north-east of the site ground conditions will comprise Made Ground engineered fill overlying Made Ground and Alluvium with WBFc and WBFr at depth.

7.4 Building foundation solution

7.4.1 Following the cut and fill exercise the building will be located on variable deposits ranging from WBFc deposits to deposits of Made Ground 2-3m (engineered fill) overlying existing Made Ground 1m, cohesive Alluvial deposits 1m, with WBFc and WBFr deposits at depth, on this basis it is understood that a piled foundation will be adopted.

7.4.2 Piled foundations are discussed further in the following report sections.

7.4.3 Piled foundations

7.4.3.1 A piled foundation solution would transmit superstructural loads down through the Made Ground, Alluvium and Watcombe Breccia Formation soils into the Watcombe Breccia Formation bedrock at depth to obtain end bearing support. The difficulty of driving or boring piles through the Made Ground and Watcombe Breccia Formation would have to be considered by any specialist piling company and will affect the method of pile installation.

7.4.3.2 Piles would obtain end bearing support in the bedded Watcombe Breccia Formation. We recommend any support from the Made Ground is ignored. It is important to note the Watcombe Breccia Formation soils include groundwater which will affect the method of pile installation.

7.4.3.3 Pile design and installation

7.4.3.3.1 We recommend the design and installation of the piles are determined by a specialist piling contractor who has experience in pile installation in these or similar ground conditions and may be able to interpret the observed ground conditions in a different and potentially more beneficial manner. We recommend the specialist piling contractor assumes responsibility for the choice, design and installation of the piles.

7.4.3.3.2 We recommend piling be carried out following the *"Specification for Piling and Embedded Retaining Walls"* produced by the Institution of Civil Engineers.

7.4.3.3.3 It is likely that a 'piling mat' will have to be constructed in advance of piling operations. This will be designed following the Building Research Establishment publication '*Working Platforms for tracked plant: good practice guide to the design, installation, maintenance and repair of ground supported working platforms'.* We will be pleased to assist in the design and specification of such a platform on further instructions.

7.5 Platform construction

7.5.1 Based on investigations undertaken to date there are a number of potential issues that may give rise to construction difficulties in forming the platform, while the following may not be exhaustive, these are considered at this stage to be the main risks identified:

- Groundwater rising to above excavation level
- Flood water/ surface water inflow promoting instability
- Excavation collapse of retaining wall
- Retaining wall construction
- Difficulty in excavation of rock
- Embedment of retaining structure into rock
- Dissolution features (discussed in section 7.10)
- Suitability of fill material for reuse
- Compressible Made Ground/Alluvium below engineered fill
- Slope failure base of slope due to loading/water movement
- Water management

7.5.2 Water and stability

7.5.2.1 Based on envirocheck records indicating the site is prone to flooding from surface and groundwater, our fieldwork observations of groundwater levels measured during return monitoring visits, groundwater seepages during Trial Pit excavation and trench collapse during excavation, refer Drawing 04, We are of the opinion that water may make construction of any excavation successful.

7.5.2.2 Trial Pit excavations locally become unstable between 2.0m and 2.5m below ground level; this approximately coincides with the observation of seepages entering the Trial Pits likely promoting collapse. From groundwater levels measured during return monitoring which included purging and recharge of the standpipes, groundwater was measured to be less than 1m below ground level; with envirocheck records indicating that water can be present at or above surface level there is a risk of stability of any excavation at any depth.

7.5.2.3 Level loggers have been installed in the existing standpipes to attempt to characterise groundwater conditions, however, further standpipe installations are recommended.

7.5.3.4 Based on the above there is a risk of successfully constructing the retaining wall to the south-west of the site without encountering significant instability. Subject to further investigations construction options could include reduced level dig with a large a batter as possible towards the south-west to maintain stability, sacrificial or permanent sheet pile retaining wall, excavation to formation level, installation of drainage, formation of permanent retaining wall if sacrificial sheet piles used. Other options may include permeation grouting for stability in temporary conditions. We recommend a test excavation is undertaken to determine surface stability initially, including with groundwater control.

7.5.3 Excavation and embedment into rock

7.5.3.1 Exploratory excavations encountered bedded rock in BH01, BH02 and TP03A, there is a potential that these may potentially prove difficult to excavate into for traditional mechanical plant requiring the use of breaking equipment to successfully achieve depths required, and or difficult to drive into for piling purposes.

7.5.4 Compressible Made Ground/Alluvium below engineered fill

7.5.4.1 To the north-east of the site low strength Made Ground and Alluvial deposits were encountered to depths of around 2m, these deposits are compressible and may be prone to low angle failure or failure when loaded with the proposed engineered fill. Subject to the final design of the fill further investigations to determine mechanism of failure and level of settlement will be necessary.

7.5.5 Water management

7.5.5.1 The main mechanism of failure for the identified risks is the presence of water in the soils, in addition to this it is likely that future site use will potentially be affected by flooding, on this basis it will be of critical importance that the site drainage scheme has the capacity to control the water entering and flowing through the site and allow for appropriate discharge. At this stage the volume of water entering the site is unknown and would be subject to further investigation.

7.6 Influence of trees and other major vegetation

7.6.1 Soil classification and new foundation design

7.6.1.1 The results of plastic and liquid limit determinations performed on samples of the Alluvium and Watcombe Breccia Formation indicate these deposits are soils of medium and low volume change potential when classified in accordance with National House Building Council (NHBC) Standards, Chapter 4.2. Piled foundations will extend through these soils into non-shrinkable deposits at depth.

7.7 Ground Floor Construction

7.7.1 If a piled foundation is selected then a suspended floor could also be adopted supported off piled foundations.

7.8 Service Trench Excavations

7.8.1 Excavations extending to depths greater than 1.4m (subject to further investigation) are at an increasing risk of encountering water inflows, which will promote progressive instability in trench sides requiring continuous trench sheet shoring to maintain an open excavation. We anticipate water will be controlled with nominal pumping techniques.

7.8.2 Excavations extending to depths greater than 3m are at an increasing risk of encountering bedded WBFr deposits, which will probably require the use of breaking equipment to loosen the deposit prior to excavation.

7.8.3 We recommend any trench excavation requiring human entry is shored as necessary to conform with current best practice, and accepted by the Health and safety Executive (HSE) and in particular, following guidance provided in the HSE publication '*Health and safety in construction (HSG 150*)' (www.hse.gov.uk)

7.9 Drainage and Infiltration Potential

7.9.1 It is possible that the predominantly granular deposits of the Watcombe Breccia soils could dispose of stormwater using infiltration systems, however, dissolution features are a known hazard in the area and thus any additional water flux from stormwater drainage could potentially promote dissolution and instability of the soils and rock at depth. On this basis we recommend that infiltration systems are not adopted at the site and the site is drained to the tributary of the Allen Brook some 50m north-east of the site.

7.10 Dissolution Features

7.10.1 Regional geology of the Torquay area show dissolution features are common throughout the underlying Limestone geology. Dissolution features in general comprise the following:

- Sinkhole, formed by dissolution of near surface soils reducing their volume and creating a surface depression.
- Dissolution pipe, a cone or pipe like cavity typically in filled with soils which has subsided into the cavity, with the infill chalk much weaker than the surrounding chalk.
- Swallow holes, a surface feature where a void in the soils continuously or intermittently 'swallows' wholly or partially a surface stream.

7.10.2 Assessment of the risk to foundations posed by dissolution features

7.10.2.1 Dissolution features pose a hazard to foundations because of the presence of one or more of the following:

1. Large variations in intact soil horizon
2. Loose soils or superficial deposits infilling pipes
3. Cavities or caves within the soils
4. Dissolution widened discontinuities in the underlying rock affecting its load carrying capacity

It should be noted that these features are generally located above the groundwater table level.

7.10.2.2 Clearly the risk that these hazards present to a building relates to its vulnerability, which in turn relates to the foundation type. A building on shallow spread type foundations and ground bearing floors is more vulnerable than piled foundations extending through the base of these features supporting a suspended ground floor slab.

7.10.2.3 Research described in CIRIA report C574 concludes that the majority of recent ground subsidence occurring was induced by man. The most common activities triggering subsidence are as follows

- Dynamic and static loading
- Leaking drains
- Leaking water supply pipes
- Water flows from soakaways
- Overzealous garden watering in dry weather

7.10.3 Risk assessment and mitigation

7.10.3.1 Unfortunately in many cases it is not possible to confidently discount the presence of dissolution features, but we have assessed the risk based on the following:

Item	Observation / enquiry	Assessed risk
Surface features	No obvious evidence of any surface depressions in topography local to the site	Low
Variation in density of near surface soils	No significant variation in density of near surface soils	Low
Variation in intact soil and rock horizon	No significant variation in intact soil and rock horizon	Low
Adverse movement in nearby buildings	No adverse movement in neighbouring properties close to the site (viewed from public roads / footways only)	Low
Envirocheck data base	Assessed risk considered low	Low
Enquiries to local authority building control	Awaiting on response	--

Table 7.7.3

7.10.3.2 Based on the above, the risk of the site being subject to dissolution features is considered low. Although the risk is considered low, clearly there is a residual risk that dissolution features could be encountered in the construction phase, identified by voiding or locally loose soil, in which case Soiltechnics shall be advised to determine a solution.

7.10.4 Risk mitigation measures

7.10.4.1 We recommend infiltration systems are not adopted at the site and that installation of water supply pipe and drainage systems are undertaken with care to prevent leaks affecting underlying soils.

7.11 Pavement Foundations

7.11.1 Criteria for design of the pavement foundation.

7.11.1.1 The thickness of the pavement foundation (typically unbound granular materials- or sub-base and capping materials) is derived from a combination of the following:

- Number of passes of standard (80kN) axles from construction traffic (HGV). I.e. construction traffic loading which the foundation is required to carry.
- The location of the water table.
- Weather conditions at the time of construction.
- The strength of the subgrade, determined by measurement of the California Bearing Ratio (CBR).

7.11.1.2 For road designs meeting the requirements of the Highways Agency, then subgrade CBR will derive a foundation layer thickness relating to differing subgrade stiffness's. (refer interim advice note 73/06).

7.11.2 Methods of determination of CBR values

7.11.2.1 The following table identifies common methods of determination of CBR values

Common methods of CBR determination

Method	reference	Outline methodology	Advantages	Disadvantages
Direct on soil in CBR mould	BS1377 and Interim advice note 73/06 (2009)	Soil sample in steel mould. Can be undisturbed or disturbed (recompacted in mould). Load measured to force 50mm diameter steel plunger 2.5 and 5mm into soil to derive CBR	BS procedure Department for transport procedure	CBR measured at water content at time of test. CBR may not reflect changes in water content during life of pavement. Unsuitable for very coarse grained (> 20mm) soils
Plate bearing test	Interim advice note 73/06 (2009)	Load required to displace a 762mm diameter steel plate 1.25mm into the subgrade to derive a CBR	Department for transport procedure. Suitable for coarse grained soils	CBR measured at water content at time of test. CBR may not reflect changes in water content during life of pavement. Reasonably slow procedure.
Dynamic cone	Interim advice note 73/06 (2009)	Record number of blows of 8kg drop weight falling 575mm to drive 20mm 60-degree steel cone 50 to 550mm into the subgrade.	Department for transport procedure. Reasonably rapid assessment.	CBR measured at water content at time of test. CBR may not reflect changes in water content during life of pavement. Unsuitable for very coarse-grained soils
Soil classification characteristics	LR 1132 structural design of bituminous roads (Transport Research laboratory)	Measurement of plasticity or particle side distributions, and knowledge of location of water table required to derive CBR for varying construction conditions	CBR derive for subgrade during life of pavement. Simple testing. Relates to long term research and experience at the TRL	Interim Advice note 73/06 (section 5.5) says this should only be used samples cannot be taken for laboratory testing.

Undrained shear strength	TRRL report 889 Strength of clay fill subgrades: its prediction in relation to road performance.	CBR = Cu/23, where Cu is the undrained shear strength (kN/m2).	Cu could be measured by hand held shear vane rapidly and in great quantities. Relates to long term research and experience at the TRL	Cu measured at water content at time of test. Derived CBR may not reflect changes in water content during life of pavement. Unsuitable for coarse grained soils

Table 7.11.2

7.11.2.2 Methodology can sometimes be dictated by design manuals of a local highway authority who may adopt the road network and would probably favour methods described in Interim advice note 73/06.

7.11.2.3 As the project will not include roads which will be offered for adoption, we have determined CBR values based on soil classification and undrained shear strength data.

7.11.3 Location of the pavement formation

7.11.3.1 We anticipate that the proposed access road, car park and associated hardstanding areas will be located at or about existing ground levels with formation located on Alluvium or Watcombe Breccia Formation or engineered fill soils.

7.11.4 Derivation for subgrade CBR from soil classification data

7.11.4.1 Equilibrium CBR (California Bearing Ratio) values (with reference to Transport and Road Research Laboratory (TRRL) Report LR1132 '*Structural design of Bituminous Roads'*) are derived from knowledge of soil classification data (plasticity index for soils exhibiting cohesion (clay type) and particle size distribution for granular soils), the location of the water table pavement thickness, and weather conditions at the time of construction. It is anticipated that excavations to formation levels will encounter a mixture of both granular and cohesive soils. Granular soils will provide numerically high CBR values, but cohesive soils will typically provide significantly lower values. Assuming an average plasticity index of say 20 for cohesive soils, a low water table, a 'thin' pavement the following equilibrium CBR values are derived for varying construction conditions

Equilibrium CBR values for differing construction conditions*		
Poor	**Average**	**Good**
CBR = 2.5%	CBR = 4%	CBR = 4.5%

Table 7.11.2

*These values have been adjusted to account for the high-water table at the site.

We recommend these CBR values be utilised for design purposes and reassessed immediately prior to construction. It should also be noted that the thickness of the pavement foundation also relates to the amount and loading from construction traffic, which is discussed in detail in the Transport and Road Research Laboratory (TRRL) Report LR1132 '*Structural design of Bituminous Roads'*.

7.11.5 Settlement

7.11.5.1 Made Ground deposits at the site exhibit a degree of variation in compactness. Some long-term settlement of hardstandings will occur due to consolidation of the Made Ground deposits and from applied loads, particularly uniformly distributed loads. It is difficult to accurately predict levels of settlement, as potentially applied loading patterns are not known. Assuming a constantly applied uniformly distributed load of say 10kN/m^2, settlement in the order of 10mm could occur within 5 to 10 years of construction. Equally, some differential settlement could occur in the long term, if hardstandings are not uniformly loaded. We suggest that pavements under transient (vehicular) loads are unlikely to generate significant levels of settlement.

7.11.6 Treatment of formation

7.11.6.1 Once formation levels have been established it is recommended that the formation be trimmed and rolled following current requirements of the Highways Agency Specification for Highways Works (clause 616) (refer www.dft.gov.uk/ha/standards/mchw/vol1) Such a process will identify any soft areas, which we recommend be either excavated out and backfilled with a suitable well compacted material similar to those exposed in the sides of the resulting excavation, or large cobbles of a good quality stone rolled into the formation to stabilise the 'soft' area.

7.11.7 Subgrade frost susceptibility

7.11.7.1 The Alluvium and Watcombe Breccia Formation soils are considered frost susceptible and this may override the CBR criteria for pavement foundation design purposes.

7.11.8 Moisture susceptibility

7.11.8.1 The silty nature of the Alluvium, Watcombe Breccia Formation, Made Ground and Engineered Fill (Derived from WBF) will render them moisture susceptible with small increases in moisture content giving rise to a rapid loss of support to construction plant. We therefore recommend, as soon as formation is trimmed and rolled, that sub-base is laid in order to avoid deterioration of the subgrade in wet or frosty conditions.

7.12 Reuse of excavated soils from the site

7.12.1 Soils excavated from the site can be reused as bulk filling to achieve levels for the proposed store, if reused at their natural moisture content. Laboratory test results indicate that the Alluvium, Made Ground, Watcombe Breccia Formation soils exhibits moisture condition values (MCV) of between 12% and 13%. These results fall in the range of 8 to 14, which are commonly accepted values indicating these cohesive soils are acceptable for reuse in bulk earthworks. Based on a combination of soil descriptions (clays) and these MCV values we are of the opinion that the near surface Watcombe Breccia Formation and Made Ground soils can be classed as Dry Cohesive and Stony Cohesive Material (Class 2B) in accordance with the current Highways Agency '*Specification for Highway Works'* (600 series) – table 6/1 (refer www.dft.gov.uk/ha/standards/mchw/vol1). We recommend this specification is adopted for earthworks associated with the project.

7.12.2 We anticipate the bulk of the excavated materials will be generated from the near surface Made Ground and Watcombe Breccia Formation. These soils are susceptible to rapid deterioration (loss of strength) with only small increases in water content, potentially rendering the soils unacceptable for reuse and incapable of adequately supporting construction and compaction plant.

7.12.3 We recommend an earthworks specification is completed prior to the construction phase to outline the cut and fill operations including but not limited to the total cut/fill volumes, proposed material movements, methodology for compaction and the testing of engineered fill to be directly compared with maximum dry density and moisture content following placement and compaction.

7.12.4 We can provide further advice on this and provide fees for producing an Earthworks Specification on further instructions.

8 Chemical contamination

8.1 Contaminated land, regulation and liabilities

8.1.1 Statute

8.1.1.1 Part IIA of the Environment Protection Act 1990 became statute in April 2000. The principal feature of this legislation is that the hazards associated with contaminated land should be evaluated in the context of a site-specific risk based framework. More specifically contaminated land is defined as:

> *"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:*
>
> *a) Significant harm is being caused or there is a significant possibility of such harm being caused; or*
> *b) Pollution of controlled waters is being or is likely to be caused".*

8.1.1.2 Central to the investigation of contaminated land and the assessment of risks posed by this land is that:

i) There must be contaminants(s) at concentrations capable of causing health effects (*Sources).*
ii) There must be a human or environmental receptor present, or one which makes use of the site periodically *(Receptor)*; and
iii) There must be an exposure pathway by which the receptor comes into contact with the environmental contaminant *(Pathway).*

8.1.1.3 In most cases the Act is regulated by Borough or District Councils and their role is as follows:

i) Inspect their area to identify contaminated land
ii) Establish responsibilities for remediation of the land

iii) See that appropriate remediation takes place through agreement with those responsible, or if not possible:
- by serving a remediation notice, or
- in certain cases carrying out the works themselves, or
- in certain cases by other powers

iv) keep a public register detailing the regulatory action which they have taken

8.1.1.4 For "special" sites the Environment Agency will take over from the Council as regulator. Special sites typically include:-

- Contaminated land which affects controlled water and their quality
- Oil refineries
- Nuclear sites
- Waste management sites

8.1.2 Liabilities under the Act

8.1.2.1 Liability for remediation of contaminated land would be assigned to persons, organisations or businesses if they caused, or knowingly permitted contamination, or if they own or occupy contaminated land in a case where no polluter can be found.

8.1.3 Relevance to predevelopment conditions

8.1.3.1 For current use, Part IIA of the Environmental Protection Act 1990 provides the regulatory regime. The presence of harmful chemicals could provide a 'source' in a 'pollutant linkage' allowing the regulator (local authority or Environment Agency) to determine if there is a significant possibility of harm being caused to humans, buildings or the environment. Under such circumstances the regulator would determine the land as 'contaminated' under the provision of the Act requiring the remediation process to be implemented.

8.1.4 Relevance to planned development

8.1.4.1 The developer is responsible for determining whether land is suitable for a particular development or can be made so by remedial action. In particular, the developer should carry out an adequate investigation to inform a risk assessment to determine:

a) Whether the land in question is already affected by contamination through source – pathway – receptor pollutant linkages and how those linkages are represented in a conceptual model
b) Whether the development proposed will create new linkages e.g. new pathways by which existing contaminants might reach existing or proposed receptors and whether it will introduce new vulnerable receptors, and
c) What action is needed to break those linkages and avoid new ones, deal with any unacceptable risks and enable safe development and future occupancy of the site and neighbouring land?

8.1.4.2 Building control bodies enforce compliance with the Building Regulations. Practical guidance is provided in Approved documents, one of which is Part C, '*Site preparation and resistance to contaminants and moisture'* which seeks to protect the health, safety and welfare of people in and around buildings, and includes requirements for protection against harm from chemical contaminants.

8.1.5 Pollution of controlled waters

8.1.5.1 Part IIA of the Environment Protection Act 1990, defines pollution of controlled waters as

> *'The entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'*

8.1.5.2 Paragraphs A36 and A39 of statutory guidance (DETR 2000) further define the basis on which land may be determined to be contaminated land on the basis of pollution of controlled waters.

> *'Before determining that pollution of controlled waters is being, or likely to be, caused, the Local Authority should be satisfied that a substance is continuing to enter controlled waters, or is likely to enter controlled waters. For this purpose, the local authority should regard something as being likely when they judge it more likely than not to occur'*
>
> *'Land should not be designated as contaminated land where:*
>
> *a) A substance is already present in controlled waters:*
> *b) Entry into controlled waters of that substance from the land has ceased, and*
> *c) It is not likely that further entry will take place.*
>
> *Substances should be regarded as having entered controlled waters where:*
>
> *a) They are dissolved or suspended in those waters; or*
> *b) If they are immiscible with water, they have direct contact with those waters, or beneath the surface of the waters'*

8.1.5.3 Controlled waters are defined in statute to be:

> *'territorial waters which extend seawards for 3 miles, coastal waters, inland freshwaters, that is to say, the waters in any relevant lake or pond or of so much of any relevant river or watercourse as is above the freshwater limit, and groundwaters, that is to say, any waters contained in underground strata.'*

8.1.6 Further information

8.1.6.1 The above provides a brief outline as regards current statute and planning controls. Further information can be obtained from the Department for the Environment, Food and Rural Affairs (DEFRA) and their Web site www.defra.gov.uk.

8.2 Objectives and procedures

8.2.1 Objectives

8.2.1.1 This report section discusses investigations carried out with respect to chemical contamination issues relating to the site. The investigations were carried out to determine if there are any liabilities with respect to Part IIA of the Environment Protection Act. As stated in Section 2.4.2, the investigation process followed the principles of BS10175: 2011 *'Investigation of potentially contaminated sites – Code of Practice',* with the investigation combining a desk study (preliminary investigation) together with the exploratory and main investigations (refer BS10175: 2011 for an explanation).

8.2.1.2 This section of the report produces *'Conceptual models'* based on investigatory data obtained to date. The conceptual model is constructed by identification of *contaminants* and establishment of feasible *pathways* and *receptors.* The conceptual model allows a *risk assessment* to be derived. Depending upon the outcome of the risk assessment it may be necessary to carry out remediation and/or further investigations with a view to eliminating, reducing or refining the risk of harm being caused to identified receptors. If appropriate, our report will provide recommendations in this respect.

8.2.1.3. Clearly we must consider the current pre-development condition, establishing risks which may require action to render the site safe to all relevant (current) receptors meeting the requirements of current legislation (Part IIA of the Environmental Protection Act 1990).

8.2.1.4 Definition of terms used in the preceding paragraph and subsequent parts of this section of the report are presented in Appendix B.

8.2.2 Procedure to assess risks of chemical contamination

8.2.2.1 For the purposes of presenting this section of this report, we have adopted the following sequence in assessing risks associated with chemical contamination.

Table outlining sequence to assess risk associated with chemical contamination

Conceptual model element	Contributory information	Outcome
Receptor	Development categorisation	Identification of receptors at risk of being harmed Method of analysing test data Criteria for risk assessment modelling
Pathways	Geology and ground conditions Development proposals	Identification of critical pathways from source to receptor
Source	Previous site history Desk study information Site reconnaissance Fieldwork observations	Testing regime Identification of a chemical source Analysis of test data and other evidence

Table 8.2.2

8.2.2.2 We have adopted, in general, the procedures described in CIRIA C552 *'Contaminated land risk assessment - a guide to good practice'* in deriving a risk assessment. Initially we have carried out a 'phase 1 assessment' based on desk study information and site reconnaissance, to produce an initial conceptual model and thus a preliminary risk assessment. This model / assessment is then used to target fieldwork activities and laboratory testing, with the results of this part of the investigation used to allow a phase 2 assessment to be produced by updating the conceptual model and refining the risk assessment.

8.3 Development characterisation and identified receptors

8.3.1 Site characterisation

8.3.1.1 The nature of the site has a significant influence on the likely exposure pathways between potentially contaminated soils and potential receptors. The following table summarises elements which characterise the site based on site observations and desk study information.

Summary of site characteristics

Element	Source / criteria	Characteristic
Current land use	Observations	Open field accessible to the public.
Future land use	Advice	Commercial warehouse and retail unit
Site history	Desk study	Open fields until present day
Geology	Desk study/ Site investigation	Watcombe Breccia Formation or Made Ground derived from the Watcombe Breccia Formation at crop. Rock encountered at 6 to 7m depth.
Ground water	Aquifer potential	Secondary A aquifer in the Alluvium and Watcombe Breccia Formation an
	Abstractions	Closest is recorded 166m north-west of the site with water used for Agricultural Spray Irrigation.
	Source protection zone	Site not within source protection zone
Surface waters	Location	Tributary of the Allen Brook located 50m north-east of the site.
	Abstractions	Closest lies 135m north with water used for Agricultural Spray Irrigation.

Table 8.3.1

8.3.2 Identified receptors

8.3.2.1 The principal receptors subject to harm caused by any contamination of the proposed development site are as follows.

Principle Receptor	Detail
Humans	Users of the current site
	End user of the developed site
	Construction operatives and other site investigators
Vegetation	Plants and trees, both before and after development
Controlled waters	Surface waters (Rivers, streams, ponds and above ground reservoirs)
	Ground waters (used for abstraction or feeding rivers / streams etc)
Building materials	Materials in contact with the ground

Table 5.3.2

This section of the report assesses those receptors listed above. Section 10 provides a risk assessment in relation to building materials.

8.3.3 Human receptors

8.3.3.1 The Contaminated Land Exposure Assessment (CLEA) model can be used to derive guideline values, against which land quality data can be compared to allow an assessment of the likely impacts of soil contamination on humans. The parameters used within the model can be chosen to allow guideline values to be derived for a variety of land uses and exposure pathways. For example, a construction worker is likely to be exposed in different ways and for different durations than an adult in a residential setting.

8.3.3.2 The site is currently unsecured open ground. While it is feasible that members of the public would access the site, this would likely be on such a sporadic basis and for such short periods of time that it would not be practical (or indeed meaningful) to designate such persons as 'site users'. A current site user is therefore not considered to be present.

8.3.3.3 Following completion of the proposed commercial development the critical site user (receptor) would be an adult. This criterion has been used in the conceptual model for the future site use. Our assessment also considers construction operatives as adult receptors.

8.3.4 Vegetation receptors

8.3.4.1 Soil contaminants can have an adverse effect on plants if they are present at sufficient concentrations. The effects of phytotoxic contaminants include growth inhibition, interference with natural processes within the plant and nutrient deficiencies.

8.3.4.2 There is currently vegetation on site and the proposed development is likely to include soft landscaping. Vegetation is therefore considered to be a potential sensitive receptor.

8.3.5 Water receptors

8.3.5.1 The site is underlain by a secondary A aquifer within the Watcombe Breccia Formation. The nearest groundwater abstraction is located 166m north-west of the site. Groundwater is therefore considered to be a potential sensitive receptor.

8.3.5.2 The nearest watercourse is the tributary of the Allen Brook located 50m north-east and downgradient of the site. On this basis, surface waters are considered to be a potential sensitive receptor.

8.3.6 Summary of identified receptors

8.3.6.1 Based on the above assessments, the following table summarises identified and critical receptors.

Table summarising identified (viable) receptors				
Principle Receptor	**Detail**	**Viable and critical receptors**		
		Viability and justification		**Critical receptor**
Humans	Users of the current site	No	Site unsecured but not 'in use'.	-
	End user of the developed site	Yes	Commercial property	Adult
	Construction operatives and other site investigators	Yes	Required for development	Adult
Vegetation	Current site	Yes	Trees on site	Vegetation
	Developed site	Yes	Trees to remain	Vegetation
Controlled waters	Surface waters (Rivers, streams, ponds and above ground reservoirs)	Yes	Allen Brook 50m north-east	Surface waters
	Ground waters (used for abstraction or feeding rivers / streams etc)	Yes	Site over Secondary A aquifer. No SPZ. Closest abstraction is 166m away.	Groundwater
Building materials	Materials in contact with the ground	Yes	Assessed in report section 10	Building materials
Table 8.3.6				

8.4 Identification of pathways

8.4.1 Pathways to human receptors

8.4.1.1 Guidance published by the Environment Agency in Science Report SC050021/SR3 *'Updated technical background to the CLEA model'* provides a detailed assessment of pathways and assessment and human exposure rates to source contaminants. In summary, there are three principal pathway groups for a human receptor:

Table summarising likely pathways	
Principal pathways	**Detail**
Ingestion through the mouth	Ingestion of air-borne dusts
	Ingestion of soil
	Ingestion of soil attached to vegetables
	Ingestion of home grown vegetables
Inhalation through the nose and mouth.	Inhalation of air-borne dusts
	Inhalation of vapours
Absorption through the skin.	Dermal contact with dust
	Dermal contact with soil
Table 8.4	

8.4.1.2 The site is to be developed for commercial use. The presence of a building and hardstanding across the majority of the site will severely restrict pathways for the exposure of site users to potentially contaminated soils. However, the majority of the pathways are considered to be present within the areas of soft landscaping. Pathways associated with the consumption of home-grown vegetables are not considered relevant for site users or construction operatives.

8.4.1.3 A summary of our pathway assessment is presented in Section 8.4.4.

8.4.2 Pathways to vegetation

8.4.2.1 Guidance published by the Environment Agency in Science Report SC050021/SR (Evaluation of models for predicting plant uptake of chemicals from soil) provides a detailed assessment of plant uptake pathways. In summary, plants are exposed to contaminants in soils by the following pathways:

- Passive and active uptake by roots.
- Gaseous and particulate deposition to above ground shoots.
- Direct contact between soils and plant tissue.

8.4.2.2 All of the above routes of exposure are considered to be present for vegetation.

8.4.3 Pathways to controlled waters

8.4.3.1 A number of pathways exist for the transport of soil contamination to controlled waters. A summary of these pathways is presented below:

- Percolation of water through contaminated soils.
- Near-surface water run-off through contaminated soils.
- Saturation of contaminated soils by flood waters.

8.4.3.2 Horizontal run-off through the Made Ground and Watcombe Breccia Formation is possible and given the close proximity of the nearest watercourse, this is considered to be a viable pathway.

8.4.3.3 The Watcombe Breccia Formation were observed to be coarse soils and groundwater was encountered in many of the excavations. Based on these observations, it is considered likely that percolation of water through contaminated soils could impact the groundwater beneath the site.

8.4.3.4 The site is located adjacent to a fluvial flood plain and is considered at low risk of surface water flooding. On this basis saturation of contaminated soils by flood waters is considered a viable pathway.

8.4.4 Summary of identified likely pathways

8.4.4.1 Based on the above assessments, the following table summarises likely pathways of potential chemical contaminants at the site to identified receptors.

Table of likely pathways

Receptor group	Critical receptor	Pathway
Proposed site users and construction operatives	Adult	Ingestion of air-borne dusts
		Ingestion of soil
		Inhalation of air-borne dusts
		Inhalation of vapours
		Dermal contact with dust
		Dermal contact with soil
Vegetation		Root uptake, deposition to shoots and foliage contact.
Controlled waters	Groundwater	Percolation of water through contaminated soils
		Saturation of contaminated soils by flood waters
	Surface water	Near-surface water run-off through contaminated soils

Table 8.4.4

8.5 Assessment of sources of chemical contamination

8.5.1 Introduction

8.5.1.1 Initially, potential sources of contamination are assessed using the following elements of the investigation process.

- History of the site
- Desk study information
- Site reconnaissance
- Geology
- Fieldwork

These elements will dictate a relevant soil/water testing regime to quantify possible risks of any identified contaminative sources which may harm identified receptors.

8.5.2 Source assessment – History of the site

8.5.2.1 The history of the site and its immediate surroundings based on published Ordnance Survey maps is described in Section 3.

8.5.2.2 Based on published historical maps, there is no evidence to indicate the site has been subject to activities likely to result in a source of chemical contamination.

8.5.2.3 Railway lines are recorded 50m to the north-east of the site, however these are considered too remote from the site to represent a potential source of contamination. A car dealership and service centre is recorded adjacent to the east of the site after 2016. As this new business is highly likely to have been constructed to current environmental protection standards, it is considered very unlikely this will represent a current or significant future source of contamination.

8.5.3 Source assessment – Desk study information

8.5.3.1 Envirocheck presents a detailed database of environmental information in relation to the site including;

- Pollution incidents
- Landfill sites
- Trading activities

8.5.3.2 Based on the Envirocheck data (refer Appendix P) the area surrounding the site has a record of six minor and one significant incidents to controlled waters within 500m of the site. The closest minor incident records the pollutant as Rubble/Litter or Solids and is recorded 35m north-west and upstream of the site. The closest significant incident records the pollutant as Surface Water and is recorded 479m to the east of the site. Both incidents record freshwater stream/river as the receiving watercourse. The last recorded pollution incident was recorded in 1994. Given the elapse in time between the pollution incidents to the present day, the risk of contamination migrating to the subject site is considered low-likelihood.

8.5.3.3 Envirocheck records three historic landfill sites 1000m of the site. The closest historical landfill is recorded 67m east of the site and waste included inert and industrial waste. The last input is recorded as July 1991. These activities are potential sources of contamination and the risk of contamination migrating to the site subject site is considered likely.

8.5.3.4 Envirocheck records a number of trading activities within 500m of the site. The closest activity is recorded 188m north of the site and comprises an active lawnmower and garden machinery sales and services outlet. Other activities within 250m include sports equipment manufacturers and an inactive recycling centre some 200m south-east and 230m south west respectively. These activities are potential sources of contamination although given the distance from site, the risk of contamination migrating to the site subject site is considered low-likelihood.

8.5.4 Source assessment – Site reconnaissance

8.5.4.1 A full description of the site and observed adjacent land uses is provided in Section 3 of this report. A plan summarising observations made on site during our site reconnaissance visit is presented on Drawing 02.

8.5.4.2 We did not observe any obvious evidence of any current or recent activities on site or adjacent sites likely to result in a potential source of chemical contamination.

8.5.5 Source assessment – Geology

8.5.5.1 The geological map of the area indicates that the site is underlain by Alluvium and Watcombe Breccia Formation deposits. Typically, and in our experience, these strata do not exhibit any abnormal concentrations of naturally occurring chemical contaminants.

8.5.6 Source assessment - Fieldwork observations

8.5.6.1 Made Ground was observed to depths of 2.2m. Based on the site history and our observations of these soils, Made Ground soils represent a low likelihood of a source of contamination.

8.5.6.2 None of the exploratory excavations exposed soils or groundwater displaying visual or olfactory evidence to indicate the presence of a source of chemical contamination.

8.5.7 Source assessment - summary

8.5.7.1 Based on the paragraphs above, we have identified the following potential sources of contamination:

Table summarising results of source assessment

Source	Origin of information	Possible contaminant	Probability of risk occurring	Likely extent of contamination
On site				
Made Ground soils	Site investigation	Organics and inorganics	Low likelihood	Southern extents of the site
Adjacent sites				
None identified	-	-	-	-

Table reference 8.5.7

8.6 Initial Conceptual Model

8.6.1 Based on our assessment of potential contaminative sources, identified receptors and viable pathways to receptors described in preceding paragraphs, we have produced an initial conceptual model in the form of a table which is presented in Appendix I.

8.6.2 Based on the conceptual model the initial assessment of risk of chemical contamination causing harm to identified receptors exceeds the low category, requiring further investigation by laboratory testing of soil samples.

8.6.3 The risk to controlled waters is considered low and controlled waters, have not therefore been considered further in this report.

8.7 Laboratory testing

8.7.1 Testing regime

8.7.1.1 In order to carry out a quantitative assessment, we have scheduled testing to measure the concentration of commonly occurring inorganic and organic contaminants.

8.7.1.2 The following table summarises the chemical testing scheduled as well as a rationale for the testing;

Table summarising scheduled testing

Exploratory point	Depth (m)	Strata/ medium	Targeted sampling?	Scheduled testing	Rationale
TP02	0.2	Made Ground	N	SOIL Suite 1	General site coverage
TP04	0.2	Watcombe Breccia Formation	N		
TP06	0.2	Made Ground	Y		
TP07	0.2		Y		
TP09	0.2		Y		
TP08	0.3	Made Ground	Y	SOIL Suite 7	
TP04	3.4	Groundwater	N	WATER Suite 9	
TP10	0.4	Alluvium	N	SOIL Suite 13	
TP01	0.1	Watcombe Breccia Formation	N	Asbestos presence/absence	
TP02	0.2	Made Ground	N		
TP05	0.2		N		
TP06	0.7		N		
TP07	0.5		Y		

Table 8.7.1.2

8.7.1.3 Obviously, additional testing (quantity and types) would allow a more accurate risk assessment to be made. The results of laboratory determination of concentration of chemical contaminants are presented in Appendix G.

8.7.2 Criteria for assessment of test data – Human receptors

8.7.2.1 Assessment of laboratory test data has been carried out with reference to current nationally recognised documents listed in the final page of Appendix A. Due to changes in guidance on contaminated land, items 6-8 and item 10 in the document listing above have been withdrawn. In the absence of alternative guidance however we have used these documents. Where new guidance is available, this has been followed in preference to superseded guidance.

8.7.2.2 The Land Quality Management (LQM) and the Chartered Institute of Environmental Health (CIEH) have derived Suitable for Use Levels (S4ULs) which are presented in *'The LQM/CIEH S4ULs for Human Health Risk Assessment'* (2015). S4ULs have been used as a screening tool to assess the risks posed to the health of humans from exposure to soil contamination in relation to appropriate land uses. Where published S4ULs are not available, we have adopted C4SLs (Category 4 Screening Levels) produced by DEFRA or SGVs (Soil Guideline Values) as appropriate. In the absence of any of these criteria we have adopted Soil Screening Values (SSV) derived by Soiltechnics and by Atkins (SSV^{ATK}). The CLEA model used to derive SSVs has been used with toxicology data presented by the EA, LQM/CIEH and Atkins (in that order of preference). SSVs produced by Atkins are presented on their $ATRISK^{SOIL}$ website.

8.7.2.3 S4ULs, C4SLs, SGVs, SSVs and SSV^{ATK}s represent 'intervention values'; indications to an assessor that soil concentrations above these levels might present an unacceptable risk to the health of site users. These guideline values have been produced using conceptual exposure models, which use assumptions and are applied to differing end uses of land. If the values are exceeded, it does not necessarily imply there is an actual risk to health and site-specific circumstances should be taken into account. Conversely, where a critical pathway or chemical form of the contaminant has not been evaluated, a risk may be present even if the adopted guideline value has not been exceeded.

8.7.2.4 For evaluation of test data in relation to polycyclic aromatic hydrocarbon (PAH), phenols and total petroleum hydrocarbon (TPH) contamination, we have compared measured concentrations with corresponding S4ULs. The S4UL fractions are dependent on the Soil Organic Matter (SOM) content of the soils. We have adopted the relevant guideline values based on SOM testing.

8.7.2.5 We have followed procedures outlined by the CIEH to compare measured concentrations of metals and PAH contaminants against guideline values. TPH contamination results are compared directly with the relevant guideline values. The guidance presents an approach to data analysis and includes the examination of data for potential outliers, assessment of the normality of the test data and the calculation of a 95% Upper Confidence Limit (UCL). The UCL provides an estimate of the population mean, based on test data, with a 95% confidence that the actual mean does not exceed this value. The UCL is compared to the guideline value for the site.

8.7.2.6 We have adopted a commercial land use for current and proposed site users.

8.7.3 Criteria for assessment of test data – Construction operatives

8.7.3.1 In the absence of guidelines we have adopted industrial guideline values for assessment of construction operatives.

8.7.4 Criteria for assessment of test data – Vegetation

8.7.4.1 Guidance published by Forest Research in "*BPG Note 5 - Best Practice Guidance for Land Regeneration*" suggests that a residential without plant uptake or industrial/commercial CLEA model should be adopted for this receptor although specific guideline values are provided for copper and zinc at 130mg/kg and 300mg/kg respectively. As a practice we have adopted the industrial / commercial CLEA model for assessment of test data for vegetation.

8.7.4.2 It is difficult to quantify the phytotoxity of a contaminant as large variations exist between plant tolerances, soil effects and synergistic/antagonistic reactions between chemicals. Due to the complexities of the effects of soil contamination on different plant species, we recommend that the test results presented in this report are passed to a landscape architect for the selection of suitable planting.

8.7.5 Criteria for assessment of test data – Controlled waters

8.7.5.1 At this stage, laboratory analysis specific to controlled water receptors has not been scheduled. This will be reviewed on analysis of data relating to total concentrations of contaminants.

8.7.6 Evaluation of test data – Human receptors

8.7.6.1 Tables summarising and analysing test data are presented in Appendix H. The following table summarises the outcome of the analyses.

Table summarising assessment of test data for human receptors

Analysis tables	Receptor group	Critical receptor	CLEA model	Inorganic contaminants	Organic contaminants
1, 2 and 5	Current and future site users and Construction Operatives	Adult	Industrial / commercial	No exceedances	No exceedances

Table 8.7.6.1

8.7.6.2 Organometals were not measured at concentrations above the limit of detection in any of the samples analysed.

8.7.6.3 Asbestos was not detected in any of the samples submitted for screening.

8.7.6.4 Based on the above, laboratory testing has not identified any measured concentrations of contaminants which exceed current guideline values for human receptors. Based on the above evaluation, the concentrations of contaminants measured on soil samples taken from the site are considered unlikely to exhibit significant contamination from a perspective of human receptors

8.7.7 Evaluation of test data – Vegetation

8.7.7.1 Comparison of test data with guideline values is presented on Tables 4 and 6 in Appendix H. None of the measured concentrations exceed the adopted guideline values. On this basis, we are of the opinion that measured concentrations are unlikely to exhibit significant contamination with respect to vegetation.

8.7.7.2 It is difficult to quantify the phytotoxity of a contaminant as large variations exist between plant tolerances, soil effects and synergistic/antagonistic reactions between chemicals. Due to the complexities of the effects of soil contamination on different plant species, we recommend that the test results presented in this report are passed to a landscape architect for the selection of suitable planting.

8.8 Updated conceptual model

8.8.1 Having now completed analysis of laboratory testing, we can now update our conceptual model which is presented in Appendix I.

8.8.2 Based on the updated conceptual model none of the assessed risks exceed the low category and on this basis no remedial action is considered necessary at this stage to render the site fit for purpose.

8.9 Risk assessment summary and recommendations

8.9.1 Based on our assessments described above, we can provide the following summary and recommendations for each identified receptor.

8.9.2 Current and proposed site users

8.9.2.1 As no source of significant chemical contamination has been identified on site, we are of the opinion that the site represents a low risk of causing harm to the health of identified current users of the site.

8.9.3 Construction operatives and other site investigators

8.9.3.1 The risk of damage to health of construction operatives and other site investigators is, in our opinion, low. As a precautionary approach, however, we recommend adequate hygiene precautions are adopted on site. Such precautions would be:-

- Wearing protective clothing particularly gloves to minimise ingestion from soil contaminated hands.
- Avoiding dust by dampening the soils during the works.
- Wearing masks if processing produce dust.

8.9.3.2 Guidance on safe working practices can be obtained from the following documents

- The Health and Safety Executive Publication *"Protection of Workers and the General Public during the Development of Contaminated Land"* (HMSO) and

- *"A Guide to Safer Working on Contaminated Sites"* (CIRIA Report 132).

8.9.3.3 In addition, reference should be made to the Health and Safety Executive. In all cases work shall be undertaken following the requirements of the Health and Safety at Work Act 1974 and regulations made under the Act including the COSHH regulations.

8.9.4 Controlled waters

8.9.4.1 As no source of significant chemical contamination has been identified on site, we are of the opinion that the site represents a low risk of causing harm to water receptors

8.9.5 Vegetation

8.9.5.1 As no source of significant chemical contamination has been identified on site, we are of the opinion that the site represents a low risk of causing harm to vegetation.

8.10 Statement with respect to National Planning Policy Framework

8.10.1 Based on investigations completed to date with respect to chemical contamination, we are of the opinion the proposed development will be safe and suitable for use for the purpose for which it is intended (without the need for any remedial action) thus meeting the requirements of the National Planning Policy Framework section 121, and compliant with the Building Regulations Part C, '*Site preparation and resistance to contaminants and moisture*'

8.11 On Site Monitoring

8.11.1 We have attempted to identify the potential for chemical contamination on the site, however, areas, which have not been investigated at this stage, may exhibit higher levels of contamination. If such areas are exposed at any time during construction we will be pleased to re-attend site to assess what action is required to allow the development of safely proceed.

9 Gaseous contamination

9.1 Legislative framework

9.1.1 There is currently a complex mix of documentation relating to legislative and regulatory procedures on the issue of contamination and it is not considered a purpose of this report to discuss the detail of these regulations. Essentially, Government Policy is based on *'suitable for use approach',* which is relevant to both the current and proposed future use of land. For current use Part IIA of the Environmental Protection Act 1990 provides the regulatory regime (see Section 8.1 above). The presence of harmful soil gases could provide a 'source' in a 'pollutant linkage' allowing the regulator (Local Authority) to determine if there is a significant possibility of harm being caused to humans, buildings or the environment. Under such circumstances the regulator would determine the land as 'contaminated' under the provision of the Act requiring the remediation process to be implemented with the Environment Agency responsible for enforcement.

9.1.2 The Town and Country Planning (General Development Procedure) Order 1995, requires the planning authority to consult with the Environment Agency before granting planning permission for development on land within 250 metres of land which is being used for deposit of waste, (or has been at any time in the last 30 years) or has been notified to the planning authority for the purposes of that provision.

9.1.3 Building control bodies enforce compliance with the Building Regulations. Practical guidance is provided in Approved documents, one of which is Part C, '*Site preparation and resistance to contaminants and moisture'* which seeks to protect the health, safety and welfare of people in and around buildings and includes requirements for protection against harm from soil gas.

9.2 General

9.2.1 The following assessment relates to the potential for, and the effects of, gases generated by biodegradable matter. A separate, but related class of problem involves migration of vapour phase of hydrocarbons resulting from spillages of petroleum and solvents, but this is addressed under organic contamination in Section 8. The potential for the development to be affected by radon gas is considered in Section 3 above. The principal ground gases are carbon dioxide (CO_2) and methane (CH_4). The following table provides a summary of the effects of these gases when mixed with air.

Significant gas concentrations in air

Gas	Concentration by volume	Consequence
Methane	0.25%	Ventilation required in confined spaces
	5 - 15%	Potentially explosive when mixed with air
	30%	Asphyxiation
	75%	Death after 10 minutes
Carbon Dioxide	0.5%	8 hour long term exposure limit (LTEL) (HSE workplace limit)
	1.5%	15 min short term exposure limit (STEL) (HSE workplace limit)
	>3%	Breathing difficulties
	6 – 11%	Visual distortion, headaches, loss of consciousness, possible death
	>22%	Death likely to occur

Table 9.2.1

9.2.2 Following the current Building Regulations Approved Document C1, Section 2 '*Resistance to Contaminants*' (2004 incorporating 2010 and 2013 amendments) a risk assessment approach is required in relation to gaseous contamination based on the source-pathway-receptor conceptual model procedure. We have adopted procedures described in the following reference documents for investigation and assessments of risk of the development being affected by landfill type gases (permanent gases) and if appropriate the identification of mitigation measures.

- BS10175:2011 *'Investigation of potentially contaminated sites- Code of Practice'*
- BS8576:2013 '*Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)'*
- BS8485:2015 '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'*
- CIRIA Report C665 '*Assessing risks posed by hazardous ground gases to buildings*' (2007)
- CL:AIRE Research Bulletin RB17 *'A pragmatic approach to ground gas risk assessment'* (November 2012)

Whilst we have followed the guidance and recommendations of BS8576, we have used BS8485:2015 to derive recommendations for protective works.

9.2.3 An assessment of the risk of the site being affected by ground gases is based on the following aspects:

a) Source of the gas
b) Investigation information
c) Migration feasibility
d) Sensitivity of the development and its location relative to the source

9.3 Assessment of source of gases

9.3.1 General sources

9.3.1.1 The following table summarises the common sources of ground gases and parameters affecting the generation of ground gases:

Source and control of gases	
Type	**Parameters affecting the rate of gassing**
Landfills	Portion of biodegradable material, rate reduces with time
Mineworkings	Flooding reduces rate of gassing
Dock silt	Portion of organic matter
Carbonate deposits	Ground / rainwater (acidic) reacts with some carbonates to produce carbon dioxide.
Made Ground	Thickness of Made Ground and proportion of degradable organic matter
Naturally deposited soils/rocks	Portion of organic matter

Table 9.3.1

The rate of decomposition in gas production is also related to atmospheric conditions, pH, temperature, and water content / infiltration.

9.3.1.2 As the site is not within a dockland environment or an area affected by mineworkings, and near surface soils do not exhibit high carbonate content, then potential gas sources are limited to landfills and/or soils with a high proportion of organic matter.

9.3.2 Landfill and infilled ground sources

9.3.2.1 Waste Management Paper 27 (1991) produced by the Department of the Environment '*Control of Landfill Gases'* contains the recommendation to avoid building within 50m of a landfill site actively producing large quantities of landfill type gases and to carry out site investigations within a zone 250m beyond the boundary of a landfill site. No distinction is made between sites of differing ground conditions, but the paper does not advocate the site is safe beyond the 250m zone, dependant, of course, upon the type of landfill and potential for migration of landfill gases.

9.3.2.2 A number of registered/historic landfill sites are recorded in the area. The following table summarises these landfill sites:

Summary of Landfill sites				
Landfill name	**Type**	**Location**	**Waste authorised**	**Licence status**
Scotts Bridge	Historical and registered	67m N and 141m E	Inert, construction and demolition, asbestos Sheet & Pipes	Closed
Kerswell Gardens	Historical and registered	328m N	Inert waste Asbestos	Superseded
S R Lancaster	Historical and registered	635m NE	Inert waste	Cancelled

Table 3.6.1

3.6.2 Envirocheck records three areas of potentially infilled land (water) within 1km of the site. The closest of which is recorded 606m to the south-east of the site. No details regarding the use of the infilled land are provided.

3.6.3 In addition, Envirocheck record two BGS mineral sites within 1000m of site, the closest of which lies 236m south-east of site. Both mineral sites are recorded as opencast quarrying of the Watcombe and Torbay Breccia Formation.

9.3.2.4 Based on the above, landfilland infilled ground records suggest a low likelihood of a presence of a source of ground gasses in the area worthy of further consideration.

9.3.3 Soil conditions

9.3.3.1 None of the soils observed in exploratory excavations, in our opinion, exhibit significant concentrations of organic matter which are likely to produce elevated quantities of carbon dioxide and / or methane gas.

9.3.4 Source assessment summary

9.3.4.1 The following table summarises the possibility of a source of landfill type gases.

Source assessment summary		
Potential source origin	**Viability of source**	**Evidence**
Landfills	Low likelihood	Desk study information Restored opencast quarry 250m from site – source of backfill not known.
Mineworkings	Unlikely	Desk Study information Geological conditions not amenable
Dock silt	Unlikely	Site remote from dockland environment
Carbonate deposits	Unlikely	Recorded and observed soil conditions do not indicate high concentrations of carbonates
Made Ground	Unlikely	Made Ground <2m thick, considered to be naturally derived
Soils / rocks	Low liklihood	Alluvium soils recorded though soils exposed in exploratory excavations do not exhibit high concentrations of organic matter

Table 9.3.4

9.3.4.2 Based on the above it there is a possibility of a source of potential landfill gases which may affect the subject site. On this basis, it is considered necessary to consider possible pathways for migration of ground gases from this potential source to the site.

9.4 Gas migration

9.4.1 Exploratory excavations encountered a reasonably consistent deposit of Alluvium overlying the Watcombe Breccia Formation to depths of in excess of 15m, both formations in our opinion are relatively permeable and would provide little resistance to both lateral and vertical migration of landfill type gases. In addition, based on published geological records the Watcombe Breccia Formation extend from the subject site to the former landfill site to the east and the former mineral sites. On this it is considered possible that the potential source of landfill type gases (identified in Section 9.3 above) would feasibly migrate to the subject site.

9.5 Conceptual model

9.5.1 Based on the above, there is a potential source of landfill type gases (albeit low-likelihood), and a feasible migration pathway to the site via potentially permeable Watcombe Breccia Formation deposits. Our conceptual model is tabled below. At this stage, it is not considered necessary to implement a monitoring regime following procedures described in BS8576:2013, however we have installed ground gas monitoring standpipes at the site to enable a precautionary quantitative risk assessment.

Conceptual model		
Potential source origin	**Potential pathway**	**Receptors at risk**
Alluvium deposits	Site partially underlain by Alluvium deposits	End users Construction operatives Buildings
Landfills and infilled ground	Via Alluvium and/or Watcombe Breccia Formation	End users Construction operatives Buildings

Table 9.5.1

9.6 Development categorisation

9.6.1 With reference to BS8485:2015 (table 3), the proposed building type would be classified as *'Type C- Commercial/public'.*

9.7 Monitoring observations

9.7.1 Two standpipes have been installed at the site in accordance with BS9576:2013, Section 9 (refer Drawing 05). We have returned to site on one occasion to obtain measurements of landfill type gases at atmospheric conditions in the range of 1012 to 1017mb and a temperature of 4°C. Essentially, we detected concentrations of methane of 0.1% and concentrations of carbon dioxide measured in the range of 0.3 to 1.1%. If flows were detected during our monitoring visits then these are recorded, but where no flow is detected then we have assumed flow at the detection limit of the monitoring equipment at 0.1l/s.

9.7.2 Gas monitoring results are summarised in Appendix J.

9.8 Classification of site characteristic gas situation

9.8.1 Using test data and with reference to Table 2 of BS8485:2015, the site would be classified as characteristic gas situation **one**.

9.8.2 Clearly further monitoring will increase the accuracy of this risk assessment, however in our opinion an in view of our assessment of the significance of potential ground gas sources, data collected to date is sufficient to demonstrate a low risk.

9.9 Gas protective measures

9.9.1 Based on monitoring observations to date, development categorisation (section 9.6 above) and the site characteristic gas situation (section 9.8 above) and with reference to Table 4 of BS8485:2015, the development does not require any gas protective measures.

9.10 Statement with respect to National Planning Policy Framework

9.10.1 Based on investigations completed to date with respect to gaseous contamination, we are of the opinion the proposed development will be safe and suitable for use for the purpose for which it is intended (without the need for any remedial action) thus meeting the requirements of the National Planning Policy Framework section 121, and compliant with the Building Regulations Part C, '*Site preparation and resistance to contaminants and moisture.*

10 Effects of ground conditions on building materials

10.1 General

10.1.1 Building materials are often subjected to aggressive environments which cause them to undergo chemical or physical changes. These changes may result in loss of strength or other properties that may put at risk their structure integrity or ability to perform to design requirements. Aggressive conditions include:-

- Severe climates
- Coastal conditions
- Polluted atmospheres
- Aggressive ground conditions

This report section only considers aggressive ground conditions, with other items considered outside our brief and scope of investigations.

10.1.2 In aggressive ground conditions, the potential for contaminant attack depends on the following:-

- The presence of water as a carrier of chemical contaminants, (except free phase organic contamination)
- The availability of the contaminant in terms of solubility, concentration and replenishment rate
- Contact between the contaminant and the building material
- The nature of the building materials and its capability of being attacked by contaminants

In general the thicker the building material the less likelihood there is for contaminant attack to cause damage to the integrity of the structure.

10.2 Reference documents

10.2.1 Following the Environment Agency publication *'Model Procedures for the Management of Land Contamination'* (Contaminated Land Report 11) the following documents have been referred to in production of the following report paragraphs.

- *'Performance of Building Materials in Contaminated Land'* report BR255 (Building Research Establishment 1994).
- *'Risks of Contaminated Land to Buildings, Building Materials and Services. A Literature Review'* - Technical Report P331 (Environment Agency 2000).
- *'Guidance on assessing and managing risks to buildings from land contamination'* - Technical Report P5 035/TR/01).
- Building Regulations Approved document C - site preparation and resistance to contaminants and moisture (Office of the Deputy Prime Minister, 2004).
- *'Concrete in aggressive ground'* Special Digest 1: 2005 (Building Research Establishment).

10.3 Hazard identification and assessment

10.3.1 The identification of hazards is based on the findings of this investigation primarily relating to former land uses (potential for chemical contamination, and likely type of contamination) and laboratory determination of concentration of chemical contaminants. Clearly, the scope of laboratory testing is determined with respect to former land uses, contaminants which may cause harm to human health and water resources.

10.3.2 Based on the above, the scope of our testing regime is described in Sections 8. We have utilised this test data in production of the following risk assessments in relation to building materials, in conjunction with test data targeting the effects of chemical attack on concrete in contact with the ground, as described in BRE Special Digest 1.

10.3.3 The identification of hazards from contamination and subsequent assessment of risks is based on the following:-

- The contaminants present on site.
- The nature of the contaminant (i.e. calcium sulphate is much less soluble than sodium or magnesium sulphate and is, therefore, less of a concern with regards sulphate attack).
- The concentration of contaminants - in general the higher the concentration the greater the hazard.
- The solubility of the contaminants - contaminants which are not soluble will not generally react with materials.
- The permeability of the soils - i.e. case by which fluids can transport contaminants to the building.

10.3.4 The process of risk assessment for building materials is concerned with identification of the hazard (contaminants at the site - a source) and subsequently how the contaminants can reach the building (pathway) and how they can react with the building (receptor). Thus the risk assessment is produced based on the source - pathway - receptor model.

10.4 Provision of test data to specifiers/manufacturer/installer

10.4.1 The following risk assessments are based on current published data. We strongly recommend, however, that information gained from this investigation are provided to specifiers/manufacturers/installers of building materials/service ducts/apparatus who may have more up to date research to confirm the ability of the product to resist the effects of chemical contaminants at the site for the desired lifespan of the product.

10.5 Risks assessments for individual building materials

10.5.1 The following/typical sections contain risk assessments for various building materials likely to be incorporated in developments. Other materials which we are not aware of may also be used in developments and in contact with the ground and, therefore, recommend the suppliers are consulted with respect to ground conditions at this site and their opinion sought as to the ability of the product to resist chemical conditions determined at the site.

10.6 Concrete - General mechanisms of attack

10.6.1 There are a number of mechanisms by which contaminants attack concrete including the following:-

- Hydrolysis of the hardened concrete.
- Degradation as a result of exchange reactions between calcium in calcium hydroxide (free lime hydrate) and ions in aggressive solutions.
- Expansive reactions as a result of chemical reaction or salt crystallisation.

10.7 Concrete - Sulphate attack

10.7.1 Hazard

10.7.1.1 Sulphate attack on concrete is characterised by expansion, leading to loss of strength, cracking, spalling and eventual disintegration. There are three principal forms of sulphate attack, as follows:-

- Formation of gypsum through reaction of calcium hydroxide and sulphate ions.
- Ettringite formation through reaction of tricalcium alluminate and sulphite irons.
- Thaumasite formation as a result of reactions between calcium silicate hydrates, carbonate ions (from aggregates) and sulphate ions.

10.7.2 Assessment

10.7.2.1 The hazard of sulphide attack is addressed by reference to procedures described in Building Research Establishment (BRE) Special Digest 1: 2005 '*Concrete in Aggressive Ground*' to establish a design sulphate class (DS) and the '*aggressive Chemical Environment for Concrete*' (ACEC). These procedures have been followed during our investigation and are described in the following paragraphs.

10.7.3 Desk Study Information

10.7.3.1 The first step in the procedure is to consider specific elements of the desk study. These are tabulated below.

Summary of desk study information

Element	Interrogation	Outcome	SD1: 2005 reference
Geology	Likelihood of soils containing pyrites	**Unlikely**	Box C6
Past industrial uses	Brownfield site?	**No**	C2.1.2

Table 10.7

10.7.3.2 A brownfield site is defined in SD1: 2005 as a site, or part of a site which has been subject to industrial development, storage of chemicals (including for agricultural use) or deposition of waste, and which may contain aggressive chemicals in residual surface materials, or in ground penetrated by leachates. Where the history of the site is not known, it should be treated as brownfield until there is evidence to classify it as natural.

10.7.3.3 Based on the above it is necessary to follow the procedures described in figure C4 *('natural ground sites except where soils may contain pyrite').*

10.7.4 Assessment of Design Sulphate Class

10.7.4.1 The sulphate concentration in a 2:1 water/soil extract was measured in one sample of Made Ground and three samples of the Watcombe Breccia Formation. The highest test result has been calculated as the characteristic value (refer to table 10.7.4). The measured values are not considered to be significantly variable.

10.7.4.2 Alluvium at the site is considered to be Watcombe Breccia Formation derived and, in our opinion, test values from samples of the Watcombe Breccia Formation are directly applicable to the Alluvium deposits and no further consideration or testing is necessary.

10.7.4.1 The sulphate concentration (mg/l SO_4) was measured on one groundwater samples obtained from the Watcombe Breccia Formation. The highest determined value has been calculated as the characteristic value (refer to table 10.7.7).

10.7.5 Assessment of groundwater mobility

10.7.5.1 With reference to SD1: 2005, Section C3.2, we are of the opinion that ground and site characteristics suggest 'mobile groundwater' conditions.

10.7.6 Assessment of pH

10.7.5.1 Following SD1: 2005, Section C5.1.1 (step 4) only a 'small number' of samples have been tested and thus the characteristic value for pH within Made Ground and Watcombe Breccia Formation equates to the lowest measured values of 6.5 and 6.5 respectively.

10.7.4.1 Following SD1: 2005, Section C5.1.1 (step 4) the characteristic value for pH with groundwater at the site is 7.5.

10.7.7 Assessment of aggressive chemical environment for concrete (ACEC)

10.7.7.1 Based on the design sulphate class, characteristic value of pH and assessment of groundwater mobility, and with reference to table C1 of SDI: 2005, the ACEC class for each soil type is presented in Table 10.7.7 below.

Summary of concrete classification

Soil type	No. of samples	Characteristic pH	Groundwater mobility	Characteristic TPS	Characteristic sulphate (mg/l)	DS class	ACEC class
Made ground	1	6.5	Mobile	N/A	10	DS-1	AC-1
Watcombe Breccia Formation	3	6.5	Mobile	N/A	10	DS-1	AC-1
Groundwater samples	1	7.5	N/A	N/A	24	DS-1	AC-1

Table reference 10.7.7

10.8 Concrete - Chloride attack

10.8.1 Hazards

10.8.1.1 There are a number of ways in which chlorides can react with hydrated cement compounds in concrete. These are as follows:-

- Chlorides react with calcium hydroxide in the cement binder to form soluble calcium chloride. This reaction increases the permeability of the concrete reducing its durability.

- Calcium and magnesium chlorides can react with calcium aluminate hydrates to form chloroaluminates which result in low to medium expansion of the concrete.

- If concrete is subject to wetting and drying cycles caused by groundwater fluctuations, salt crystallisation can form in concrete pores. If pressure produced by crystal growth is greater than the tensile strength of the concrete, the concrete will crack and eventually disintegrate.

10.8.2 Risk assessment

10.8.2.1 Chlorides of sodium, potassium, and calcium are generally regarded as being non-aggressive towards mass concrete; indeed brine containers used in salt mines have been known to be serviceable after 20 years service. Depending upon the type of concrete, and the cement used up to 0.4% chloride is allowed in BS8110: Part 1.

10.8.2.2 In view of the past use of the site we consider the likelihood of elevated concentrations of chlorides in the ground is not likely to occur and on this basis have not specifically measured concentrations of chlorides and, in our opinion, the risk of buried concrete being affected by chlorides is considered low.

10.9 Concrete - Acid attack

10.9.1 Hazards

10.9.1.1 Concrete being an alkaline material is vulnerable to attack by acids. Prolonged exposure of concrete structures to acidic solutions can result in complete disintegration.

10.9.2 Risk assessment

10.9.2.1 The rate of acid attack on concrete depends upon the following:-

- The type of acid
- The acid concentration (pH)
- The composition of the concrete (cement/aggregate)
- The soil permeability
- Groundwater movement

British Standard BS8110: Part 1 classifies extreme environment as one where concrete is exposed to flowing groundwater that has a pH<4.5. The standard also warns that Portland Cement is not suitable for acidic conditions with a pH of 5.5 or lower.

10.9.2.2 The pH of the soil/groundwater was measured exceeding 5.5 and on this basis the risk of concrete being affected by acidic conditions is considered low.

10.10 Concrete - Magnesium attack

10.10.1 Hazards

10.10.1.1 Magnesium salts (excepting magnesium hydrogen carbonate) are destructive to concrete. Corrosion of concrete occurs from cation exchange reactions where calcium in the cement paste hydrates and is replaced with magnesium. The cement looses binding power and eventually the concrete disintegrates.

10.10.2 Risk assessment

10.10.2.1 In practise 'high' concentrations of magnesium will be found in the UK only in ground having industrial residues. Following BRE Special Digest 1:2005, measurement of the concentration of magnesium is recommended if sulphate concentrations in water extract or groundwater exceed 3000mg/l. Once measured the concentration of magnesium is considered further in BRE Special Digest in establishing the concrete mix to resist chemical attack.

10.10.2.2 Sulphate concentrations did not exceed 3000mg/l

10.10.2.4 We have measured the concentration of magnesium in a groundwater sample at the site which produced a results of 2.8mg/l. In addition, the site has no history which provides evidence of the uses of magnesium on site, and in overall conclusion the risk of concrete being affected by magnesium is considered low.

10.11 Concrete - Ammonium attack

10.11.1 Hazards

10.11.1.1 Ammonium salts, like magnesium salts act as weak acids and attack hardened concrete paste resulting in softening and gradual decrease in strength of the concrete.

10.11.2 Risk assessment

10.11.2.1 UK guidance is not available on the concentration of ammonium which may affect concrete. BS EN 206-1: 2000 '*Concrete - Part 1: Specification, performance, production and conformity*' does, however, provide exposure classes for concrete in contact with water with varying concentrations of ammonia for the design/specification for concrete mixes.

10.11.2.2 We have measured the concentration of ammonia in a groundwater sample at the site, and there is a potential possibility that concrete for the building may be in contact with groundwater during its life. The concentration of ammonia was measured at 0.43mg/l. In addition, the site has no history which provides evidence of the uses of ammonia on site, and in overall conclusion the risk of concrete being affected by ammonia is considered low.

10.12 Concrete blocks

10.12.1 Hazards

10.12.1.1 Precast aggregate concrete blocks and autoclaved aerated concrete blocks are commonly used in the construction of shallow foundations. Concrete blocks are potentially attacked by the same contaminants and ground conditions which affect dense concrete.

10.12.2 Risk Assessment

10.12.2.1 In general, the mechanism of attack on concrete blocks is the same for hardened concrete. We recommend parameters for ground conditions for concrete described in the preceding paragraphs for concrete blockwork in contact with the ground/groundwater and the blockwork manufacturers confirmation sought for applicability of their product.

10.13 Clay Bricks/Pipes

10.13.1 Clay Bricks are highly durable materials which have been used in buildings for many centuries. Fire clay pipe material can also be considered similarly resistant to contaminants.

10.13.2 Hazards

10.13.2.1 Dissolution of clay brick in a potentially serious cause of deterioration. The extent of dissolution depends upon the solubility of the glassy material (produced by firing of the clay) contained in the brick. The acidic nature of the glass phase will produce low solubility in a neutral and acidic environment, but can be soluble in a basic environment.

10.13.2.2 A potentially more serious hazard for brickwork is the crystallisation of soluble salts within the brick pore structure. Salts are transported by water to the interior of the brick originating from the external environment or by rehydration, however, are only likely to occur when there is a gradient from a wet interior to a drying surface. The potential, therefore, for salt crystallisation in the ground is, therefore, low.

10.13.3 Risk Assessment

10.13.3.1 There seems to be little published information as regards the resistance to clay bricks/pipes in aggressive ground conditions, however, clay bricks are generally considered very durable. We recommend manufacturers' advices are sought with respect to their resistance to ground conditions encountered at this site. **OR** As no significant concentrations of chemical contaminants have been identified at this site in combination with near neutral pH conditions it is considered unlikely that ground conditions are sufficiently aggressive to cause damage to brickwork/clay pipes.

10.13.3.2 Some basic guidance is provided in BS5628-3: 2005 '*Code of Practice for the Use of Masonry - Part 3: Materials and components, design and workmanship*' with regards to resistance of masonry to resist the effects of sulphate attack.

10.14 Mortar

10.14.1 Mortars are based on building sands mixed with cement and/or lime as a binder. In the UK Portland cements and masonry cement are commonly used. Masonry cements are a mixture of Portland Cements and fine mineral filler (i.e. Limestone) with an air entraining agent.

10.14.2 Hazards

10.14.2.1 Mortar is subject to the same agents for deterioration as concrete with the major cause of deterioration being sulphate attack.

10.14.3 Risk assessment

10.14.3.1 Sulphates can originate from soils/groundwater or from the bricks themselves. Calcium, magnesium, sodium and potassium sulphates are present in almost all fired-clay bricks. Water can dissolve a fraction of these sulphates and transport them to the mortar.

10.14.3.2 Currently, we are not aware of any guidance on the resistance of mortars to sulphate attack. The Building Research Establishment report that the sulphate resistance of mortar was improved by the use of sulphate resisting Portland cements and lime. Some guidance is also provided in BS5628-3: 2005 '*Code of Practice for the use of Masonry - Part 3: Materials and components, design and workmanship'.*

10.14.3.2 Based on ground conditions determined at the site the risk of significant sulphate attack on mortars (Based on testing/analysis of sulphates in relation to concrete - refer Section 10.7) is considered low.

10.15 Metals - general

10.15.1 There are a number of metals which are used in buildings either as piles, services, non structural and, indeed, structural components. The most common metals used in buildings are steel, stainless steel, copper, lead, zinc, aluminium and cast iron. All these metals can deteriorate through corrosion process. Corrosion can affect metals in a variety of ways depending upon the nature of the metal and the environment to which it is subjected. In most common forms of corrosion are:-

- Electrochemical - the most common form of corrosion in an aqueous solution
- Chemical corrosion - occurs when there is a direct charge transfer between the metal and the attacking medium (examples are oxidation, attack by acids, alkalis and organic solvents)
- Microbial induced corrosion

10.16 Metals - Cast iron

10.16.1 Cast iron is a term to describe ferrous metals containing more than 1.7% carbon and is used extensively in the manufacture of pipes.

10.16.2 Hazards

10.16.2.1 Generally, cast iron has a good resistance to corrosion by soils, however, corrosion can occur due to the following mechanisms:-

1) Generation of large scale galvanic cells caused by differences in salt concentrations, oxygen availability or presence of stray electrical currents.

2) Hydrochloric acid will cause corrosion at any concentration and temperature. Dilute sulphuric, nitric and phosphoric acids are also aggressive as also are well aerated organic acids.

10.16.3 Risk assessment

10.16.3.1 Testing can be carried out on site to measure the resistivity and redox potential of soils which can assist in deriving recommendations for protection of cast iron components using coatings, burial trenches, or isolation techniques. Currently, however, there is no specific guidance and we recommend advice is sought from manufacturers.

10.16.3.2 Guidelines produced by the Water Research Centre (WRc) on the use of ductile iron pipes, state that highly acidic soils (pH <5) are corrosive to cast iron pipe even when protected by a zinc coating or polythene sleeving. WRc also indicate that groundwater containing >300ppm chloride may corrode even protected cast iron pipes.

10.16.3.3 On the basis that the pH of soils at the site are not less than 5, and groundwater is unlikely to be in contact with cast iron elements, then the risk of ductile cast iron pipes being affected by acid/chloride attack is considered low. We have not carried out any redox/resistivity testing (considered outside our brief) and thus we cannot comment further with regards to the risks of galvanic action.

10.17 Metals - Steel piles

10.17.1 Hazards

10.17.1.1 The corrosion of steel requires the presence of both oxygen and water. In undisturbed natural soils the amount of corrosion of driven steel piles is generally small. In disturbed soils (made ground) however, corrosion rates can be high and normally twice as high as those for undisturbed natural soils.

10.17.2 Risk Assessment

10.17.2.1 Guidance on the use of steel piles in different environments is provided in British Steel's piling handbook which includes calculating the effective life of steel piles. There is no specific guidance, however, for contaminated soils in this publication. Coatings can be provided to the pile surface but experience has shown that some coatings can be damaged during driving, particularly in ground which can contain hard materials such as brick/concrete/stone.

10.18 Metals - Stainless steel

10.18.1 Hazards

10.18.1.1 Stainless steel is used in a number of building components including services, pipework, reinforcement bars and wall ties. There is little knowledge, however, of the performance of stainless steel in aggressive environments.

10.18.2 Risk assessment

10.18.2.1 Stainless steel can withstand pH of 6.5 to 8.5, but the chlorine content of a soil increases the risk of corrosion. At concentrations of 200mg/l type 304 stainless steel can be used, but for concentrations of 200 to 1000mg/l type 316 should be used in preference to type 304, but for concentrations greater than 1000mg/l type 316 should always be used.

10.18.2.2 At this site the pH of the soils was near neutral (within the range of 6.5 to 8.5) and it is considered unlikely that groundwater will be in contact with stainless steel components (unless we are advised otherwise) thus the risk of ground conditions at the site affecting stainless steel is considered low.

10.19 Metals - Galvanised steel

10.19.1 Hazards

10.19.1.1 Galvanising steel is a means of protecting steel from aggressive environments; however, zinc galvanising can be corroded by salts and acids.

10.19.2 Risk assessment/remedial action

10.19.2.1 There is no current specific guidance on the effects of aggressive ground conditions on galvanised steel, however, some research indicates zinc alloys are generally more resistant than pure zinc coatings in aggressive conditions.

10.20 Metals - Copper

10.20.1 Hazards

10.20.1.1 Copper is commonly used for gas and water supplies. Copper is generally resistant to corrosion in most natural environments, but in contaminated ground copper can be subject to corrosion by acids, sulphates, chlorides and ground containing cinders/ash. Wet peat (pH 4.6) and acid clays (pH 4.2) are considered aggressive conditions to promote corrosion to copper.

10.20.2 Risk assessment

10.20.2.1 There is no specific published guidance on what constitutes aggressive conditions to copper except very acid/peaty conditions.

10.20.2.2 There are no significantly acidic or peaty conditions in near surface soils at the site or, indeed, significant concentrations of ash/cinders. On this basis the risk of significant corrosion to copper in contact with the ground is considered low.

10.21 Metals - Lead

10.21.1 Hazards

10.21.1.1 Lead is used in tanking, flashings, damp proof courses, etc. Lead is a durable material which is resistant to corrosion in most environments. Lead damp proof courses can be subject to attach from the lime released by Portland Cement based mortar and concrete. In the presence of moisture, a slow corrosive attack is initiated on lead sheet. In such cases a thick coat of bitumen should be used to protect the lead damp proof course.

10.21.2 Risk assessment

10.21.2.1 There is no current guidance on the performance of lead in contact with contaminated soils, however, acids and alkalis (lime) could be aggressive towards lead.

10.21.2.2 At the site pH conditions are not considered significantly extreme and this it is considered unlikely that ground conditions at the site would significantly affect lead.

10.22 Plastics - General

10.22.1 The range of plastics in construction is wide and increasing. The deterioration of plastics varies with the individual material and the environment to which it is exposed. In general, plastics deteriorate through degradation of their polymer constituent, but loss of plasticizer and other additives can render plastics ultimately unserviceable.

10.23 Plastic membranes and geotextiles

10.23.1 Plastic membranes and textiles are used in the construction industry as damp proof courses, gas resistant membranes, cover systems and liners. They are typically used to restrict the movement of gas or water into buildings, building materials or components or to separate differing soil types. Typically materials used for membranes are polyethylene (PE) and poly vinyl chloride (PVC).

10.23.2 Hazards

10.23.2.1 Membranes of PE and PVC are attacked by a variety of acids and solvents. PE has a poor corrosion resistance to oxidising acids (nitric and sulphuric) at high concentrations. Hydrochloric acid (HCl) does not chemically attack PE but can have a detrimental effect on its mechanical properties. Alkalis, basic salts, ammonia solutions and bleaching chemicals such as chlorine will cause deterioration of PE. PE is resistant to non oxidising salt solutions.

10.23.2.2 PVC is degraded by the action of oxidising acids. Nitric acid is particularly aggressive towards PVC. PVC does not deteriorate under the action of neutral or alkaline solutions.

10.23.3 Risk assessment

10.23.3.1 There is no published guidance on quantitative assessment of the risks to PE or PVC although there is a lot of advice on how contaminants react with these plastics. In general, the more concentrated the contamination the greater the risk to plastic membranes/geotextiles.

10.23.3.2 Based on the investigatory data obtained to date, and in consideration of the hazards described above, there is no evidence of significant concentrations of acids or alkalis, indicating the risks of ground conditions at the site affecting PE and PVC materials are considered low.

10.24 Plastic Pipes

10.24.1 Hazards

10.24.1.1 Plastic pipes are predominantly manufactured from PVC and PE but other materials can be used. In general they perform well but it is known that chemical attack and permeation of contaminants through the pipes can result from use in contaminated land. A published review on plastic pipes reports the following:-

- Polyethylene (PE) - good resistance to solvents, acids and alkalis
- Poly vinyl chloride (PVC) - most common form of pipe. Good general resistance to chemical attack but can be attacked by solvents such as ketones, chlorinated hydrocarbons and aromatic polypropylene (PP) - chemically resistant to acids, alkalis and organic solvents but not recommended for use with storing oxidising acids, chlorinated hydrocarbons and aromatics.

- Poly vinylidene fluoride (PVDF) - inert to most solvents, acids and alkalis as well as chlorine, bromide and other halogens
- Polytetrafluoroethylene (PTFE) - one of the most inert thermoplastics available. PTFE has good chemical resistance to solvents, acids and alkalis

A survey carried out by the Water Research Centre (WRc) on reported incidents of permeation (more than 25), only two involved PVC with these incidents relating to spillages of fuel.

10.24.2 Assessment

10.24.2.1 A survey carried out by the Water Research Centre (WRc) on reported incidents of permeation (more than 25), only two involved PVC with these incidents relating to spillages of fuel.

The UK Water Industry research (UKWIR) have published a document entitled *'Guidance for the selection of Water supply pipes to be used in Brownfield sites'.* The publication defines brownfield sites as

'Land or premises that have been used or developed. They may also be vacant, or derelict. However they are not necessarily contaminated'

10.24.2.2 The subject site has not previously been developed and is not considered to be a brownfield site as defined by the UKWIR publication. In addition laboratory test data for polycyclic aromatic hydrocarbons produced no concentrations above detectable limits. Based on this evidence we are of the opinion that no special precautions are likely to be required for water supply pipe. We recommend South West Water is however consulted on this to gain their opinion and requirements

10.25 Electrical cables

10.25.1 Hazards

10.25.1.1 Electrical cables are generally protected by plastic sleeves. These sleeves are potentially subject to chemical and permeation in similar modes as plastic pipes. Medium and low voltage cables are often laid directly into the ground and are thus at risk of attack by contaminants. High voltage cables tend to be laid in trenches backfilled with 'clean' materials.

10.25.2 Risk assessment/remedial action

10.25.2.1 The selection of appropriate sheathing material is important to provide resistance to ground conditions at the site and recommend manufacturers' advices are sought.

10.26 Rubbers

10.26.1 Hazards

10.26.1.1 Rubbers are crosslinked polymeric materials containing a number of additives such as carbon black, fillers, antioxidant and vulcanising agents. The corrosion resistance of rubber is dependant upon the polymeric constituent. The mechanisms by which rubbers deteriorate when placed in aggressive chemical environments are similar to those described for plastics. Oxidation is the principal form of degradation. Whilst rubbers are resistant to strong acids and alkalis, they are rapidly attacked by oxidising agents such as nitric acid and oxidising salts such as copper, manganese and iron.

10.26.1.2 Rubber is also susceptible to attack by certain hydrocarbons and oils. The absorption of these liquids causes the rubber to smell.

10.26.2 Risk assessment/remedial action

10.26.2.1 Information on the effect of a range of chemicals on the physical properties of various rubbers has been produced by the Rubber and Plastics Research Association. This was based on observations carried out following immersion tests using undiluted chemicals, but this has limitations such as the effects of combined chemicals and the effects of dilution.

10.26.2.2 We recommend manufacturers of the rubber materials likely to be in contact with the ground at the site are consulted to confirm, or otherwise, the applicability of their product.

11 Classification of waste soils under the Waste Acceptance Criteria

11.1 The Landfill Directive

11.1.1 The Landfill Directive represents an important change in the way we dispose of waste. It encourages waste minimisation by promoting increased levels of recycling and recovery. The Landfill Directive became law in 1999 and transcribed into the Landfill (England and Wales) Regulations which came into force in 2002. These Regulations were amended in 2005 by introducing criteria to classify soils for disposal to landfill. It is the duty of the waste producer (the client) to classify the soils for this purpose.

11.2 Classification of soil types

11.2.1 Our investigations consider two soil types which may be generated as wastes as part of construction operations, potentially contaminated soil and uncontaminated soil. A full hazard assessment and subsequent testing for waste acceptance criteria is undertaken on soils which are not considered to be naturally deposited or are likely to be affected by artificial contamination. For soils that are unlikely to be affected by artificial contamination (such as natural soils), specific testing in relation to the classification process is not necessary.

11.3 Waste acceptance criteria (WAC)

11.3.1 The Environment Agency publication, *'Framework for the classification of contaminated soils as hazardous wastes'* (July 2004), provides an appropriate procedure for establishing if the soils are hazardous or non-hazardous and applies to soils that are identified as potentially contaminated. Uncontaminated, natural soils are considered separately (see Section 11.6).

11.3.2 Primary classification

11.3.2.1 The first stage is classifying a potentially 'contaminated' soil for disposal to landfill is to establish its chemical status by first identifying potential sources/types of chemical contamination (desk study) followed by intrusive site investigations to obtain samples for undefined testing of soil samples to measure concentrations of chemical contaminants. Such data provides information to partly complete the basic characteristic checklist.

11.3.2.2 Laboratory test data is then compared with the Environment Agency publication '*hazardous waste – Interpretation of the definition and classification of hazardous waste (second edition, version 2.1)'.* Where the waste is suspected to contain oil, we have referred to the Environment Agency draft consultation paper *'How to Find Out if Waste Oil and Wastes that Contain Oil are Hazardous'* (Draft Version 2.5 – October 2006). With reference to these documents a hazard assessment has been carried out to enable categorisation of the material as hazardous or non-hazardous and to subsequently establish the European Waste Catalogue (EWC) code (ref Section 11.3.4 below).

11.3.3 Secondary classification

11.3.3.1 If the soil is deemed hazardous then measurement of organic contaminants and leachable inorganic contaminants is necessary for comparison with values listed in the Environment Agency publication '*Guidance on sampling and testing of wastes to meet landfill waste acceptance procedures'* (April 2005) Table 5.1. Similarly should the soil be deemed as non-hazardous then such testing may also be undertaken to determine if it is potentially inert. This document also provides guidance on sampling materials and frequency as well as test procedures and quality assurance of testing.

11.3.3.2 The above procedures are described with respect to the subject site in the following sections Section 11.4 (primary) and 11.5 (secondary), leading to basic characterisation of soils for disposal. Subject to the results of the categorisation and anticipated development methodology, consideration should be given by the developer to reduce volumes of disposal or treatment to allow reclassification.

11.3.4 European waste catalogue (EWC) coding

11.3.4.1 The EWC 2002 is a catalogue of all wastes, grouped according to generic industry, process or waste type. It is divided into twenty main chapters, each with a two digit code between 01 and 20. Following the EWC, in our opinion, soils considered as part of this investigation would be categorised within 'Group 17' of the EWC catalogue, which comprises 'Construction and Demolition Wastes (including excavated soils from contaminated sites)'.

11.3.4.2 The Catalogue further categorises the waste, such that soils considered as part of this investigation would be classified as either 17 05 04 defined as *'soil and stones (other than those mentioned in 17 05 03)';* or 17 05 03* defined as soil or stones containing dangerous substances (where hazardous wastes are described by entries followed by an asterisk).

11.4 Primary classification

11.4.1 Soil types

11.4.1.1 Based on soils exposed in exploratory excavations, in combination with anticipated construction works, we assume soils requiring off-site disposal will comprise Made Ground, Alluvium and Watcombe Breccia Formation.

11.4.2 Classification as hazardous or non-hazardous waste

11.4.2.1 The Environment Agency publication '*Framework for the classification of contaminated soils as hazardous wastes'* (July 2004) provides the following procedure for establishing if the soils are hazardous or non-hazardous. The first stage in classifying a potentially 'contaminated' soil for disposal is to establish its chemical status by first identifying potential sources/types of chemical contamination (desk study) followed by intrusive site investigations to obtain samples for laboratory testing of soil samples to measure concentrations of chemical contaminants.

11.4.2.2 An assessment of potential source of contamination is presented in Section 8 of this report. Laboratory testing has been set as deemed appropriate to our source assessment.

11.4.2.3 We have carried out an analysis of test data for each chemical contaminant considered in this investigation. A conservative approach has been adopted for the analysis whereby the maximum test value for each contaminant has been adopted as a preliminary screening process to determine if the soils are hazardous or non-hazardous. Should the analysis indicate potentially hazardous properties then a process of zoning by further analysing the site history, geological conditions and analytical data may be undertaken.

11.4.2.4 Laboratory test data measures the concentration of anions, which are unlikely to exist in the pure metallic form in the soil, but probably exist as a compound. Following guidance provided in the Environment Agency Technical Guidance WM3 *'Guidance on the classification and assessment of waste'* (2015), we have reviewed a variety of compounds for each of the metallic and semi metallic elements we have tested.

11.4.2.5 To determine the hazardous waste properties for each element, we have reviewed chemical compounds listed in Table 3.2 of Annex VI of the European Regulation (1272/2008) for Classification, Labelling and Packaging (CLP) of chemicals which has now superseded the Approved Supply List (Published by the Health and Safety Executive) for the classification of hazardous chemicals in the UK. In order to provide a 'worst case' scenario, initially we adopt the most severe hazardous properties (risk phrases) associated with the various compounds for each element under review. If measured concentrations produce a hazardous outcome then the element or elements are reassessed on a site specific basis. For review of organic contamination, we have directly adopted the threshold concentrations for the appropriate organic compounds listed in Table 3.2.

11.4.2.6 The compound or compounds adopted for each element is used to convert the measured metallic concentration to the substance concentration using their respective molecular weights. This derived conversion factor is then used in the threshold concentration spreadsheet (refer paragraph 11.3.2.8 below).

11.4.2.7 Our assessment of each of the chemical substances is maintained on our files and is available for confidential review/audit by the Environment Agency.

11.4.2.8 A spreadsheet detailing the hazard assessment following the procedures described in *'framework for the classification of contaminated soils as hazardous wastes'* is presented in Appendix K.

11.4.2.9 The spreadsheet indicates the soils are **non-hazardous**.

11.5 Secondary assessment

11.5.1 Following '*Guidance on sampling and testing of wastes to meet landfill waste acceptance procedures'* produced by the Environment Agency (Version 1, April 2005) we have scheduled testing of **one** sample to measure the parameters listed in table 5.1 (landfill waste acceptance criteria) included in the above publication. A copy of the test result certificate is presented in Appendix G. The source of the composite sample(s) is detailed below:

Composition of soil samples for classification testing

Strata	Source	Soil Type
Made Ground	TP09 – 0.2m TP05 – 0.2m TP02 – 0.2m TP01 – 0.1m TP06 – 0.7m TP06 – 0.3m TP13 – 0.3m	Red brown gravelly clayey to very clayey fine to medium sand. Gravel consists of fine to medium sub-angular sandstone, breccia and frequent quartz, limestone, brick, china and plastic.

Table 11.5.1

11.5.2 The sample was deemed representative of Made Ground soils as described in Section 5. The sample was formed by combining individual samples taken from exploratory excavations within the Made Ground. The combined sample was then quartered in the laboratory to produce a representative sample for subsequent testing.

11.5.3 Laboratory test data has been compared with the landfill waste acceptable criteria (table 5.1) to allow the secondary assessment to be completed. A copy of table 5.1 is presented in Appendix F with test result data added for ease of comparison.

11.5.4 Comparison of test data with landfill waste acceptance criteria indicates that Made Ground soils are suitable for disposal as **inert waste**.

11.6 Naturally deposited soils not affected by artificial contaminants

11.6.1 With reference to the European Waste Catalogue and table 5.1 of the Environment Agency publication '*a better place – guidance for waste destined for disposal in landfills – version 2 June 2006*', naturally occurring soils not likely to be affected by contamination can be classified as inert waste, with a EWC code of 17 05 04. Should any of the naturally deposited soils be suspected to contain contamination (by virtue of visual of olfactory evidence) upon excavation, then such soils should be stockpiled appropriately and additional testing carried out as considered necessary. Based on evidence obtained during our investigations, we are of the opinion that the Watcombe Breccia Formation and Alluvium deposits at the site are not likely to be affected by chemical contamination and thus can be classified as **inert waste.**

11.7 Basic categorisation

11.7.1 Based on the preceding assessment, we have produced three basic categorisation schedules relating to the Made Ground, Alluvium and Watcombe Breccia Formation deposits, which are presented in Appendix M. This schedule should be provided together with a copy of this report to an appropriately licensed landfill facility to demonstrate the material can be deposited at this facility.

11.7.2 We understand that some landfill sites have licences which have restrictions on concentrations of chemical contaminants and thus we recommend this report is provided to the selected landfill facility to confirm (or otherwise) it can accept the waste. Please be aware that landfill sites are obligated to undertake in house quality assurance tests and thus may require further WAC testing for any soils encountered as part of this investigation. There is no obligation on any landfill operator to accept waste if they choose not to and waste operators may require additional testing of untested waste soils prior to acceptance at landfill in accordance with the landfill regulations.

11.8 Treatment of waste

11.8.1 Treatment of wastes is now a requirement of the landfill directive applied by the Landfill (England and Wales) Regulations 2002. Landfill cannot accept untreated waste (be it hazardous or non-hazardous), thus waste producers have the choice of treating it themselves on site or treating it elsewhere prior to disposal to landfill. The regulations require:

> *'10 – (1) The operator of a landfill shall ensure that the landfill is only used for landfilling waste which is subject to prior treatment unless:*
>
> *a) It is inert waste for which treatment is not technically feasible; or*
>
> *b) It is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment.'*

11.8.2 Regulation 2 defines treatment as: *'physical, thermal, chemical or biological processes (including sorting) that change the characteristics of waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.'*

11.8.3 A treatment option must comply with the definition of treatment. This involves a 'three point test' against which treatment is assessed i.e.

1. It must be a physical, thermal, chemical or biological process including sorting
2. It must change the characteristics of the waste: and
3. It must do so in order to:
    a) Reduce its volume: or
    b) Reduce its hazardous nature: or
    c) Facilitate its handling: or
    d) Enhance its recovery.

11.8.4 Treatment of inert wastes

11.8.4.1 Inert waste does not need to be treated if it is not technically feasible however treatment should reduce the amount of waste which goes to landfill and enhance its recovery (by re-use or recycling). Inert wastes are often suitable for recycling, for example as an aggregate or an engineering fill material. A fact sheet on treatment of inert wastes is available on the following website www.environment-agency.gov.uk

11.8.4.2 Clearly, excavations in the Alluvium and Watcombe Breccia Formation will generate inert wastes which could be reused on site or off site for bulk filling, subject of course to maintenance of an acceptable water content and provided that it is fit for its intended purpose.

11.8.5 Treatment of non-hazardous waste

11.8.5.1 Guidance and indeed examples of treatment is provided in the Environment Agency publication '*Treatment of non-hazardous wastes for landfill - your waste – your responsibility,'* again available on the EA website.

11.9 Reuse of Soils - Materials Management Plans

11.9.1 Where soils are to be moved and reused onsite, or are to be imported to the site, a Waste Exemption or an Environmental Permit is required.

11.9.2 An alternative is the use of a Materials Management Plan (MMP) to determine where soils are and are not considered to be a waste. By following *'The Definition of Waste: Development Industry Code of Practice'* published by CL:AIRE (produced in 2008 and revised in March 2011), soils that are suitable for reuse without the need for remediation (either chemical or geotechnical) and have a certainty of use, are not considered to be waste and therefore do not fall under waste regulations. In addition, following this guidance may present an opportunity to transfer suitable material between sites, without the need for Waste Exemptions or Environmental Permits.

11.9.3 MMPs offering numerous benefits, including maximising the use of soils onsite, minimising soils going to landfill and reducing costs and time involved in liaising with waste regulators.

11.9.4 We can provide further advice on this and provide fees for producing a Materials Management Plan on further instructions.

12 Further investigations

12.1 Further investigations

12.1 Although we have endeavoured to provide a comprehensive investigation for the proposed development within budgetary constraints there are areas, which we recommend further investigations be carried out. These are as follows:

- Review cut and fill exercise with respect to ground conditions encountered
- Determine groundwater levels and flow (inflow) rates
- Determine the depth to rock head in the location of the retaining wall
- Investigate the stability of near surface soils
- Earthworks specification

12.2 We would be pleased to carry out any of the supplementary investigations described above and provide proposals with costings on further instructions.

13 Remediation strategy and specification

13.1 Based on the outcome of chemical and gaseous contamination risk assessments, remedial measures to render the site suitable for use are not required.

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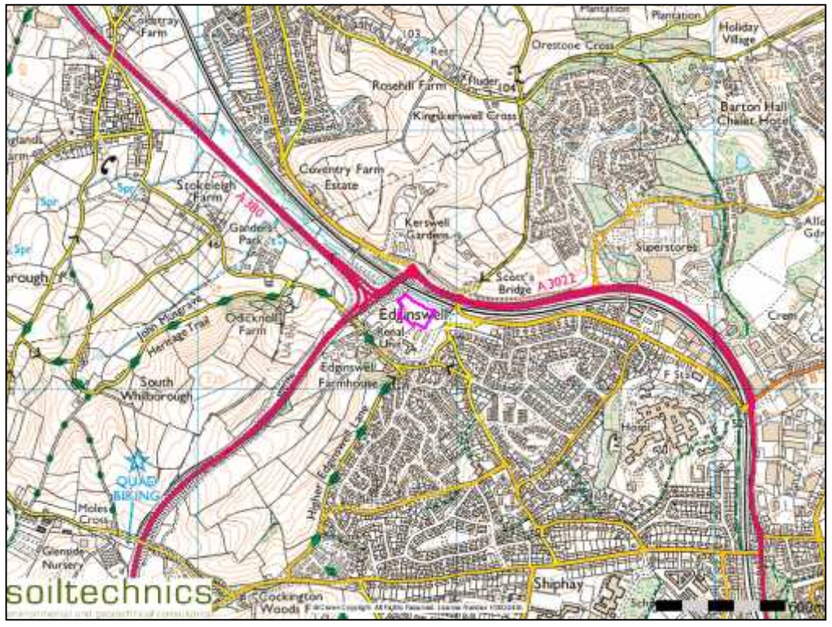
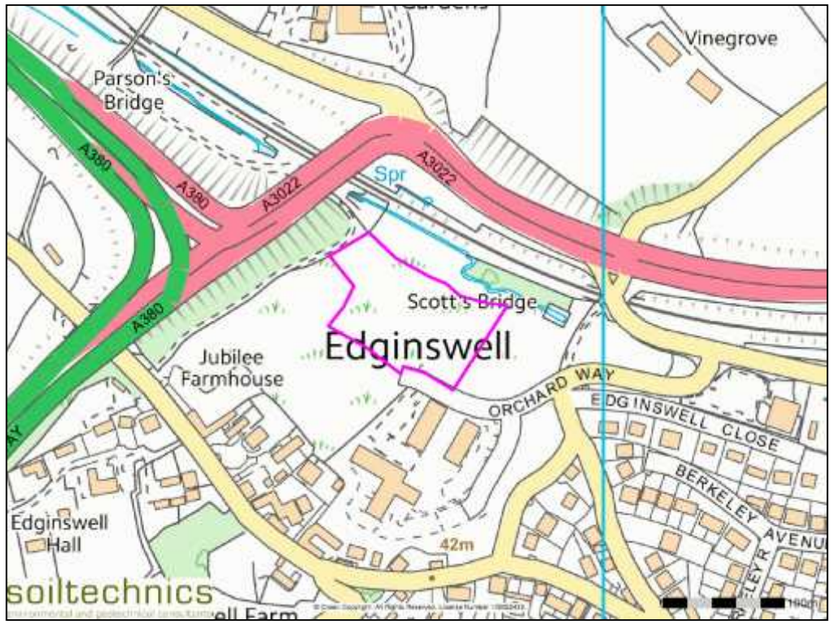
Neighbourhood extract from Ordnance Survey map



Town extract from Ordnance Survey map



Detail extract from Ordnance Survey map

Title	Scale	Drawing number
Site location plan	Not to scale	01

Proposed Wickes store
Orchard Way, Torquay

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Key

- Approximate site boundary
- BH — Approximate location of borehole formed by Cable and Tool percussive techniques
- TP — Approximate location of trial pit excavation

Public footpath
Small channel feature
Fenced-off area of Japanese knotweed
Trees (up to 4m in height)
Water shut-off valve
Water service
Timber post and rail fence (approx. 1.2m in height)
Orchard Way
Car sale garage
Pond
Grass
Soil

Title	Scale	Drawing number
Plan showing existing site features and location of exploratory points	1:250 at A1	02

Report Ref: ST4262-G01
Revision: 0
March 2018

Proposed Wickes store
Orchard Way, Torquay

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Key

- Approximate site boundary
- BH — Approximate location of borehole formed by Cable and Tool percussive techniques
- TP — Approximate location of trial pit excavation

TP12
BH02
TP13
Extent of proposed building
BH01
TP09
TP05
TP04
TP11
TP08
TP10
TP06
TP02
TP01
TP03
TP07
TP03A

Title	Scale	Drawing number
Plan showing development layout and location of exploratory points	1:250 at A1	03

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Proposed Wickes store
Orchard Way, Torquay

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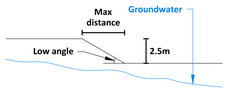
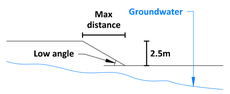
Possible construction sequence 1



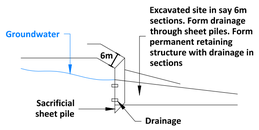
Initial batter bigger the better at a shallow angle as possible upslope to maintain stability. Recommend test excavation ???? by say 2.5m)

Possible construction sequence 2

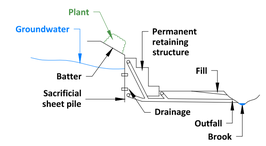


Embed sacrificed sheet pile onto rock. Possible grout to control groundwater.

Possible construction sequence 3



Possible construction sequence 4



Key

- Approximate site boundary
- BH — Approximate location of borehole formed by Cable and Tool percussive techniques
- TP — Approximate location of trial pit excavation
- Openhole
- Made Ground
- Coarse Alluvium (typically soft)
- Coarse Watcombe Breccia Formation (typically medium dense)
- Lithified Watcombe Breccia Formation
- Groundwater
- Groundwater seepage
- From Top — Collapse details

Public footpath
Soil
Grass
Small channel feature
Fenced-off area of Japanese knotweed
Water shut-off valve
NA1
Water service
Orchard Way
Timber post and rail fence *(approx. 1.2m in height)*
Pond
Car sale garage

TP12 36.95 / 36.95 / 35.25 — 35.40
TP13 40.00 / 40.00 / 39.20 — 38.60
TP04 42.80 — 40.40
TP11 40.70 / 39.55 — 38.60
TP02 40.70
TP03 43.85 / 42.30
TP03A
TP05 42.90
TP06 45.5
TP01 40.00 / 38.25 — 37.70
TP07 37.20 / 36.80 — 35.30
TP08 36.25 / 35.15
TP09 35.80 / 34.85 / 34.20 — 34.30
TP10 36.50 / 34.75 / 36.20 / 35.10
BH01 38.20 *(drilling)* / 35.70 *(completion of drilling)* — 35.48 *(monitored following purge)* — 33.20 / 30.00
BH02 38.50 *(completion of drilling)* / 38.10 *(drilling)* — 38.33 *(monitored following purge)* — 39.10 / 32.10

Title
Plan showing existing site features and location of proposals, ground conditions encountered and construction risks associated with platform construction

Scale
1:250 at A1

Drawing number
04

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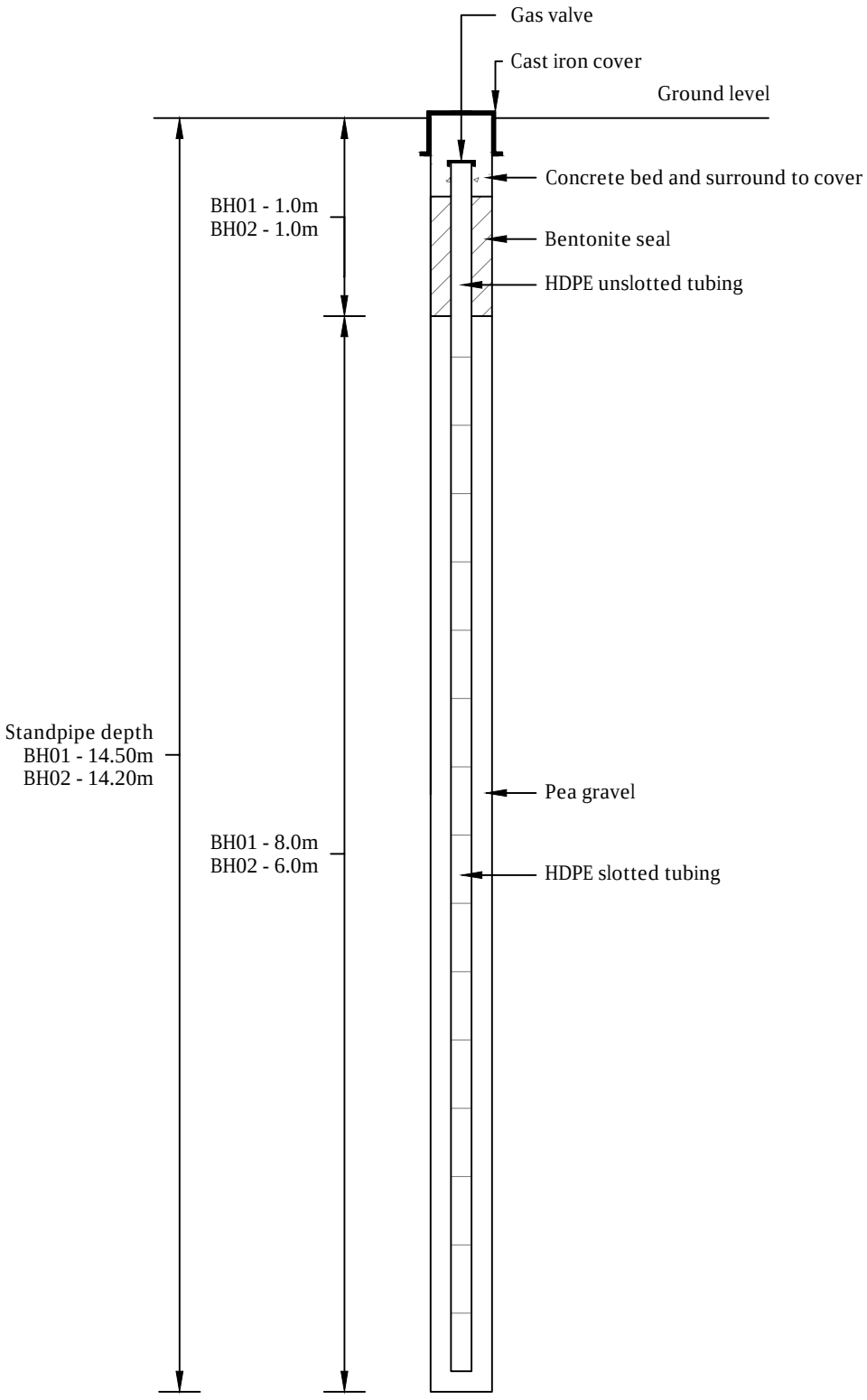

Title	Scale	Drawing number
Section showing construction of gas monitoring standpipes installed in boreholes BH01 and BH02	Not to scale	05

Definition of geotechnical terms used in this report - foundations

Strip foundations.
A foundation providing a continuous longitudinal ground bearing.

Trench fill concrete foundation.
A trench filled with mass concrete providing continuous longitudinal ground bearing.

Pad foundation.
An isolated foundation to spread a concentrated load.

Raft foundation.
A foundation continuous in two directions, usually covering an area equal to or greater than the base area of the structure.

Substructure.
That part of any structure (including building, road, runway or earthwork) which is below natural or artificial ground level. In a bridge this includes piers and abutments (and wing walls), whether below ground level or not, which support the superstructure.

Piled foundations and end bearing piles. A pile driven or formed in the ground for transmitting the weight of a structure to the soil by the resistance developed at the pile point or base and the friction along its surface. If the pile supports the load mainly by the resistance developed at its point or base, it is referred to as an end-bearing pile; if mainly by friction along its surface, as a friction pile.

Bored cast in place pile.
A pile formed with or without a casing by excavating or boring a hole in the ground and subsequently filling it with plain or reinforced concrete.

Driven pile.
A pile driven into the ground by the blows of a hammer or a vibrator.

Precast pile.
A reinforced or prestressed concrete pile cast before driving.

Driven cast in place pile.
A pile installed by driving a permanent or temporary casing, and filling the hole so formed with plan or reinforced concrete.

Displacement piles.
Piled formed by displacement of the soil or ground through which they are driven.

Skin friction.
The frictional resistance of the surrounding soil on the surface of cofferdam or caisson walls, and pile shafts.

Downdrag or negative skin friction. A downwards frictional force applied to the shaft of a pile caused by the consolidation of compressible strata, e.g. under recently placed fill. Downdrag has the effect of adding load to the pile and reducing the factor of safety.

Definition of geotechnical terms used in this report – bearing values

Ultimate bearing capacity.
The value of the gross loading intensity for a particular foundation at which the resistance of the soil to displacement of the foundation is fully mobilised.

Presumed bearing value.
The net loading intensity considered appropriate to the particular type of ground for preliminary design purposes. The particular value is based on calculation from shear strength tests or other field tests incorporating a factor of safety against shear failure.

Allowable bearing pressure.
The maximum allowable net loading intensity at the base of the foundation, taking into account the ultimate bearing capacity, the amount and kind of settlement expected and our estimate of ability of the structure to accommodate this settlement.

Factor of safety.
The ratio of the ultimate bearing capacity to the intensity of the applied bearing pressure or the ratio of the ultimate load to the applied load.

Definition of geotechnical terms used in this report – road pavements

The following definitions are based on Transport and Road Research Laboratory (TRRL) Report LR1132.

Equilibrium CBR values.
A prediction of the CBR value, which will be attained under the completed pavement.

***Thin pavement*.**
A thin pavement (which includes both bound and unbound pavement construction materials 1 in 300mm thick and a thick pavement is 1200mm thick (typical of motorway construction).

Definition of geo-environmental terms used in this report

Conceptual model
Textual and/or schematic hypothesis of the nature and sources of contamination, potential migration pathways (including description of the ground and groundwater) and potential receptors, developed on the basis of the information obtained from the investigatory process.

Contamination
Presence of a substance which is in, on or under land, and which has the potential to cause harm or to cause pollution of controlled water.

Controlled water
Inland freshwater (any lake, pond or watercourse above the freshwater limit), water contained in underground strata and any coastal water between the limit of highest tide or the freshwater line to the three mile limit of territorial waters.

Harm
Adverse effect on the health of living organisms, or other interference with ecological systems of which they form part, and, in the case of humans, including property.

Pathway
Mechanism or route by which a contaminant comes into contact with, or otherwise affects, a receptor.

Receptor
Persons, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by the contaminant(s).

Risk
Probability of the occurrence of, and magnitude of the consequences of, an unwanted adverse effect on a receptor.

Risk Assessment
Process of establishing, to the extent possible, the existence, nature and significance of risk.

Definition of environmental risk/hazard terms used in this report.

Based on CIRIA report C552 '*Contaminated land risk assessment – A guide to good practice*'.

Potential hazard severity definition

Category	Definition
Severe	Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters
Medium	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures.
Mild	Pollution of non sensitive waters, minor damage to buildings or structures.
Minor	Requirement for protective equipment during site works to mitigate health effects, damage to non sensitive ecosystems or species.

Probability of risk definition

Category	Definition
High likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor.
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
Low likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable.

Level of risk for potential hazard definition

Probability of risk	Potential severity			
	Severe	Medium	Mild	Minor
High Likelihood	Very high	High	Moderate	Low/Moderate
Likely	High	Moderate	Low/Moderate	Low
Low Likelihood	Moderate	Low/Moderate	Low	Very low
Unlikely	Low/Moderate	Low	Very low	Very low

Refer sheet 2 for definitions of 'very high' to 'low'

Definition of environmental risk/hazard terms used in this report.

Based on CIRIA report C552 '*Contaminated land risk assessment – A guide to good practice'.*

Risk classifications and likely action required:

Very high risk
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 substantial liability. Urgent investigation and remediation are likely to be required.

High risk
Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the long 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 likely that the harm would be relatively mild. Investigation is normally required to clarify risks and to determine 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
It is a low possibility that harm could arise to a designated receptor. On the event of such harm being realised it is not likely to be severe.

List of documents used in assessment of chemical contamination

No.	Title	Publication reference / publisher
1	Human health toxicological assessment of contaminants in soil	EA Science Report – SC050021/SR2
2	Updated technical background to the CLEA model	EA Science Report – SC050021/SR3
3	CLEA Software (Version 1.03 beta) Handbook	EA Science Report - SC050021/SR4
4	Guidance on comparing Soil Contamination Data with a Critical Concentration	CIEH
5	The LQM/CIEH S4ULs for Human Health Risk Assessment (2015)	LQM/CIEH
6	Assessment of Risks to Human Health from Land Contamination: An overview of the development of soil guideline values and related research	R&D Publication, Contaminated Land Report CLR 7
7	Contaminants of Soil: Collation of Toxicological Data and Intake Values for Humans	R&D Publication, Contaminated Land Report CLR 9
8	The Contaminated Land Exposure Assessment Model (CLEA): Technical Basis and Algorithms	R&D Publication, Contaminated Land Report CLR 10
9	Model Procedures for the Management of Land Contamination	R&D Publication, Contaminated Land Report CLR 11
10	Contaminants in Soil: Collection of Toxicological Data and Intake Values for Human Values	R&D Publications, Tox. 6
11	Soil Guideline Values for Contamination (2002)	R&D Publications, SGV 10
12	Soil Guideline Values (2009)	EA Science Reports – SC050021
13	Atkins ATRISK^{SOIL} (2011)	http://www.atrisksoil.co.uk
14	Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (September 2014)	CL:AIRE

CIEH	Chartered institute of Environmental Health
LQM	Land Quality Management
EA	Environment Agency
CL:AIRE	Contaminated Land: Applications in Real Environments

Testing suite summary

Table summarising testing suites		
Suite	**Parameters**	**Medium**
Suite 1	Arsenic, beryllium, boron, cadmium, chromium (total and VI), copper, lead, mercury, nickel, selenium, vanadium zinc, cyanide (free, total and complex), organic matter content, PAH (16 speciated), pH, phenol (total), TOC	Soil
Suite 2	Arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, PAH (16 speciated), pH, phenol (total), sulfate (water soluble), sulfide, nitrate	Leachate
Suite 3	Arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, PAH (16 speciated), pH, phenol (total), sulfate (water soluble), sulfide, nitrate	Water
Suite 4	TPH Texas Banding Aliphatic/Aromatic Split, PAH (16 speciated), TOC	Soil
Suite 5	TPH Texas Banding Aliphatic/Aromatic Split, PAH (16 speciated)	Leachate
Suite 6	TPH Texas Banding Aliphatic/Aromatic Split, PAH (16 speciated)	Water
Suite 7	TPH Texas Banding Aliphatic/Aromatic Split, TOC, organic matter	Soil
Suite 8	Sulphur (total), sulphate (water and acid soluble), pH	Soil
Suite 9	Sulphate, ammoniacal nitrogen, dissolved magnesium, pH	Water
Suite 10	VOC, SVOC, TOC, organic matter	Soil
Suite 11	VOC, SVOC	Leachate
Suite 12	VOC, SVOC	Water
Suite 13	Organotins dibutyltin/ tributyl-tin/tetrabutyltin/triphenyl-tin, Tetraethyl-lead/tetramethyl-lead	Soil
Suite 14	Organotin	Leachate
Suite 15	Organotin	Water
Suite 16	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, VOC, SVOC	Soil, water, leachate
Suite 17	TPH Texas Banding Aliphatic/Aromatic Split, BTEX, SVOC, VOC, arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, pH, phenol (total), sulfate (water soluble), sulfide, nitrate	Soil, water, leachate
Concrete BRE suite	pH, sulphate (water and acid soluble), magnesium (water soluble), ammonia (water soluble), chloride, nitrate	Soil

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Pocket Penetrometer Results

Location	Depth (m)	Results				Undrained Shear Strength (kN/m^2)	Strength Term	Strata
		1	2	3	Av.			
TP01	0.2	1.25	1.5	2	*1.6*	*79*	High	WATCOMBE BRECCIA FORMATION
	0.5	3.5	4	4	*3.8*	*192*	Very high	WATCOMBE BRECCIA FORMATION
	0.8	3	3.25	3	*3.1*	*154*	Very high	WATCOMBE BRECCIA FORMATION
TP03	3.3	3.5	3.25	3.5	*3.4*	*171*	Very high	WATCOMBE BRECCIA FORMATION
TP07	0.8	4.5	4.5	4.5	*4.5*	*225*	Very high	WATCOMBE BRECCIA FORMATION
TP09	0.1	0.2	0.18		*0.2*	*10*	Very low	MADE GROUND
	0.5	1	1	1	*1.0*	*50*	Medium	MADE GROUND
	0.8	0.25	0.5	0.5	*0.4*	*21*	Low	MADE GROUND
	1	1	1.25	0.75	*1.0*	*50*	Medium	ALLUVIUM
	1.2	0.5	0.5	1	*0.7*	*33*	Low	ALLUVIUM
	1.8	0.5	1	1	*0.8*	*42*	Medium	ALLUVIUM
TP10	0.3	0.5	0.5	0.5	*0.5*	*25*	Low	ALLUVIUM
	0.4	1.5	1.5	1.25	*1.4*	*71*	Medium	ALLUVIUM
	0.8	1	1	0.75	*0.9*	*46*	Medium	ALLUVIUM
	1	1	1	1	*1.0*	*50*	Medium	ALLUVIUM
	1.3	0.5	0.5	0.5	*0.5*	*25*	Low	ALLUVIUM
	1.6	1.5	1.25	1.25	*1.3*	*67*	Medium	ALLUVIUM
TP12	0.3	1.5	1.25	2	*1.6*	*79*	High	ALLUVIUM
	0.8	2	1	1.25	*1.4*	*71*	Medium	ALLUVIUM
	1.2	1.5	1.5	1.75	*1.6*	*79*	High	ALLUVIUM
	1.5	1.5	1.25	1	*1.3*	*63*	Medium	ALLUVIUM

Notes

1. Pocket penetrometer determinations converted to undrained shear strength using a factor of 50.

2. Undrained shear strength is based on average pocket penetrometer determination.

3. Strength terms in accordance with BS EN IS0 14688-2 2004.

Title	Appendix
Table summarising results of pocket penetrometer determinations	C

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto firm to stiff high to very high strength red slightly gravelly sandy CLAY. Sand is fine to medium. Gravel consists of fine to medium sub-angular flint, quartz, and sandstone. (WATCOMBE BRECCIA FORMATION)					PP 0.20	PP=79	0.10		D
					PP 0.50	PP=192	0.60		D
					PP 0.80	PP=154	0.90		D
...from 1m depth, becoming very sandy.							1.00	1.50	B
Loose red slightly gravelly clayey fine to coarse SAND. Gravel consists of fine to medium sub-angular sandstone, limestone and weathered breccia. (WATCOMBE BRECCIA FORMATION)	1.75	38.25		▼			1.80		D
							2.50		D
CONTINUED ON NEXT SHEET									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of southern trial pit side from 2m to 3m depth widening trial pit by 0.3m.

Groundwater observations
Seepage observed at 2.3m (37.7m mAOD) depth, at an approximate rate of 5 litres per minute. Seepage on north-eastern trial pit wall.

Title Trial pit record	**Dimensions (w x l)** 1.00m x 3.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 40.00	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288840mE, 66259mN	**Checked by**	**TP01**

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Loose red slightly gravelly clayey fine to coarse SAND. Gravel consists of fine to medium sub-angular sandstone, limestone and weathered breccia. (WATCOMBE BRECCIA FORMATION)							3.10		D
...from 3m depth, frequent gravel-sized pockets of green grey silty fine to medium SAND. Sand is sub-angular to sub-rounded.									
TRIAL PIT TERMINATED AT 3.40m	3.40	36.60							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of southern trial pit side from 2m to 3m depth widening trial pit by 0.3m.

Groundwater observations
Seepage observed at 2.3m (37.7m mAOD) depth, at an approximate rate of 5 litres per minute. Seepage on north-eastern trial pit wall.

Title Trial pit record	**Dimensions (w x l)** 1.00m x 3.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 40.00	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288840mE, 66259mN	**Checked by**	**TP01**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto loose red slightly gravelly clayey fine to medium SAND with rootlets up to 12mm in diameter to 0.9m depth. Gravel consists of fine to medium sub-angular sandstone and occasional breccia. (MADE GROUND)							0.20		D
							0.50	0.80	B
							0.80	1.20	B
...at 0.9m depth, boulder of square angular sandstone up to 0.3x0.4x0.2m in diameter.									
							1.50		D
							2.10		D
Loose to medium dense red slightly clayey gravelly fine to medium SAND. Gravel consists of fine to coarse angular to sub-angular sandstone and weathered breccia. (WATCOMBE BRECCIA FORMATION)	2.20	40.70					2.20	2.40	B
							2.60		D

CONTINUED ON NEXT SHEET

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 3.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 42.90	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288822mE, 66258mN	**Checked by**	**TP02**

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Proposed Wickes store
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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Loose to medium dense red slightly clayey gravelly fine to medium SAND. Gravel consists of fine to coarse angular to sub-angular sandstone and weathered breccia. (WATCOMBE BRECCIA FORMATION)							3.00		B
...between 3.2m and 3.4m depth, becoming very clayey.							3.20		D
...from 3.3m frequent gravel sized pockets of green grey silty SAND.									
TRIAL PIT TERMINATED AT 3.70m	3.70	39.20							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 3.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 42.90	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288822mE, 66258mN	**Checked by**	**TP02**

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Proposed Wickes store
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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto loose to medium dense red brown slightly gravelly very clayey fine to medium SAND. Gravel consists of fine to medium sub-angular sandstone, quartz and limestone. (MADE GROUND)									
...between 0m and 0.9m depth, rare cobbles of brick and sandstone.							0.40		D
							0.80		B
							1.20		D
Medium dense red brown clayey gravelly fine to medium SAND. Gravel consists of fine to coarse angular sandstone limestone and breccia. (WATCOMBE BRECCIA FORMATION)	1.90	43.85					2.00		B
...from 2.7m depth, frequent gravel sized pockets of green grey silty fine to medium SAND.							2.80		D
CONTINUED ON NEXT SHEET									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 45.75	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288792mE, 66256mN	**Checked by**	**TP03**

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Medium dense red brown clayey gravelly fine to medium SAND. Gravel consists of fine to coarse angular sandstone limestone and breccia. (WATCOMBE BRECCIA FORMATION)					PP 3.30	PP=171	3.30		D
...from 3.0m depth, frequent cobble sized pockets of firm mottled orange brown sandy CLAY.									
Extremely weak medium dense dark purple BRECCIA extracted as slightly clayey GRAVEL. Gravel consists of fine to coarse angular breccia. (WATCOMBE BRECCIA FORMATION)	3.40	42.35					3.50		D
TRIAL PIT TERMINATED AT 3.60m	3.60	42.15							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 45.75	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288792mE, 66256mN	**Checked by**	**TP03**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto loose red slightly clayey gravelly SAND. Gravel consists of fine to medium sandstone and breccia.									
TRIAL PIT TERMINATED AT 0.40m	0.40	45.10							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit relocated. Trial pit encountered 25mm diameter blue plastic water service pipe. Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.60m x 2.50m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 45.50	**Compiled by** KM	**Sheet number** Sheet 1 of 1
Co-ordinates 288799mE, 66248mN	**Checked by**	**TP03A**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto loose red brown slightly gravelly clayey fine to medium SAND. Gravel consists of fine to medium angular sandstone and weathered breccia. (WATCOMBE BRECCIA FORMATION)							0.20		D
							0.70		D
							1.10		D
	1.40	41.40							
Loose red brown clayey gravelly fine to medium SAND. Gravel consists of fine to medium sub-angular to angular sandstone, limestone and breccia. (WATCOMBE BRECCIA FORMATION)				▼			1.50		D
							1.70		B
	2.60	40.20							
Medium dense dark red brown slightly clayey slightly gravelly fine to coarse SAND. Gravel consists of fine to medium sub-angular to angular sandstone, limestone and breccia. (WATCOMBE BRECCIA FORMATION)							2.70		B
CONTINUED ON NEXT SHEET									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Collapse of trial pit sides from 2.2m to 2.4m depth widening trial pit by 0.2m each side.

Groundwater observations

Seepage observed from 2.4m (40.4m mAOD) depth, at an approximate rate of 2 litres per minute. Groundwater measured at 3.3m depth 1 hour after completion.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 42.80	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288799mE, 66284mN	**Checked by**	**TP04**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Medium dense dark red brown slightly clayey slightly gravelly fine to coarse SAND. Gravel consists of fine to medium sub-angular to angular sandstone, limestone and breccia. (WATCOMBE BRECCIA FORMATION)									
...from 3.2m depth, frequent gravel-sized pockets of green grey silty SAND.							3.40		W
TRIAL PIT TERMINATED AT 3.50m	3.50	39.30							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Collapse of trial pit sides from 2.2m to 2.4m depth widening trial pit by 0.2m each side.

Groundwater observations

Seepage observed from 2.4m (40.4m mAOD) depth, at an approximate rate of 2 litres per minute. Groundwater measured at 3.3m depth 1 hour after completion.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 42.80	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288799mE, 66284mN	**Checked by**	**TP04**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto loose dense red brown slightly clayey slightly gravelly fine to medium SAND. Gravel consists of fine to coarse sub-angular plastic, brick, sandstone, quartz and metal. (MADE GROUND)							0.20		D
Loose red brown slightly clayey slightly gravelly fine to medium SAND. Gravel consists of fine to medium sub-angular sandstone and breccia. (MADE GROUND)	0.50	43.20					0.70		ES
Loose to medium dense red brown slightly gravelly very clayey fine to medium SAND. Gravel consists of fine to medium sub-angular to angular sandstone, limestone and breccia. (WATCOMBE BRECCIA FORMATION)	0.80	42.90					1.10		ES
							1.50		ES
Medium dense red brown slightly clayey gravelly fine to medium SAND. Gravel consists of fine to medium sub-angular to angular sandstone and breccia. (WATCOMBE BRECCIA FORMATION)	1.70	42.00					1.80		B
...from 2.6m depth, dark red brown and occasional pockets of green grey silty SAND.							2.60		B
CONTINUED ON NEXT SHEET									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 43.70	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288781mE, 66287mN	**Checked by**	**TP05**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Medium dense red brown slightly clayey gravelly fine to medium SAND. Gravel consists of fine to medium sub-angular to angular sandstone and breccia. (WATCOMBE BRECCIA FORMATION)									
...from 3.2m depth, frequent cobbles of sub-angular breccia.							3.30		B
							3.50		B
TRIAL PIT TERMINATED AT 3.60m	3.60	40.10							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 43.70	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288781mE, 66287mN	**Checked by**	**TP05**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Loose red brown clayey gravelly fine to coarse SAND with frequent cobbles and boulders of sandstone breccia and slate up to 0.4x0.2x0.3m. Gravel consists of fine to coarse sub-angular brick, plastic, sandstone, metal, china and breccia. (MADE GROUND)							0.20		D
							0.70		D
Loose to medium dense red brown slightly gravelly clayey fine to medium SAND. Gravel consists of fine to coarse sub-angular sandstone. (WATCOMBE BRECCIA FORMATION)	0.80	45.50					1.10		D
							2.00		D
Loose to medium dense dark red brown slightly clayey gravelly fine to medium SAND. Gravel consists of fine to coarse sub-angular sandstone and weathered breccia. (WATCOMBE BRECCIA FORMATION)	2.60	43.70					2.80		D
CONTINUED ON NEXT SHEET									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 46.30	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288775mE, 66267mN	**Checked by**	**TP06**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Loose to medium dense dark red brown slightly clayey gravelly fine to medium SAND. Gravel consists of fine to coarse sub-angular sandstone and weathered breccia. (WATCOMBE BRECCIA FORMATION)									
TRIAL PIT TERMINATED AT 3.30m	3.30	43.00							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit sides remained upright and stable upon completion.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 46.30	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288775mE, 66267mN	**Checked by**	**TP06**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto loose red brown very gravelly fine to coarse SAND with frequent cobbles of sub-angular concrete, sandstone and breccia. (MADE GROUND)							0.20		D
							0.50		D
Stiff very high strength red brown slightly gravelly very sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (WATCOMBE BRECCIA FORMATION)	0.60	37.20			PP 0.80	PP=225	0.70		D
Loose red brown slightly gravelly clayey fine to medium SAND. Gravel consists of fine to medium sub-angular sandstone and limestone. (WATCOMBE BRECCIA FORMATION)	1.00	36.80					1.20		D
Medium dense dark red brown clayey gravelly fine to coarse SAND with frequent pockets of green grey silty sand. Gravel consists of fine to coarse sub-angular sandstone and breccia.	1.80	36.00					1.90		D
...from 2.3m depth, becoming slightly clayey.				▼					
							2.60		B
TRIAL PIT TERMINATED AT 2.70m	2.70	35.10							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit terminated due to instability of pit walls. Collapse of trial pit side from 0.7m to 1.8m depth widening trial pit by 0.6m on western side.

Groundwater observations
Seepage observed at 2.5m (35.3m mAOD) depth, filling trial pit at an approximate rate of 5 litres per minute.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 3.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 37.80	**Compiled by** KM	**Sheet number** Sheet 1 of 1
Co-ordinates 288868mE, 66256mN	**Checked by**	**TP07**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto firm red brown slightly gravelly sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (MADE GROUND)							0.30		ES
	0.50	35.75							
Loose red brown black slightly gravelly very clayey fine to medium SAND. Gravel consists of fine to medium sandstone. (ALLUVIUM)							0.60		ES
	1.10	35.15					1.10		ES
Loose red brown clayey gravelly fine to coarse SAND. Gravel consists of fine to coarse sub-angular breccia and sandstone. (WATCOMBE BRECCIA FORMATION)							1.20		D
							1.50		D
	1.80	34.45							
TRIAL PIT TERMINATED AT 1.80m									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit terminated due to instability of pit walls. Collapse of trial pit side to 1.2m depth widening trial pit by 0.4m on northern side and 0.5m on southern side.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 36.25	**Compiled by** KM	**Sheet number** Sheet 1 of 1
Co-ordinates 288893mE, 66285mN	**Checked by**	**TP08**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto firm low to medium strength red brown slightly gravelly sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (MADE GROUND)					PP 0.10	PP=10	0.20		D
							0.40		D
					PP 0.50	PP=50			
							0.70		D
					PP 0.80	PP=21			
Soft low to medium strength soft grey slightly sandy CLAY. (ALLUVIUM)	0.95	34.85			PP 1.00	PP=50	1.00		D
							1.00		D
Soft low orange brown slightly sandy slightly gravelly CLAY. Gravel consists of fine to medium sub-angular sandstone. (ALLUVIUM)	1.15	34.65			PP 1.20	PP=33	1.20		D
							1.20		D
Soft low to medium strength red brown slightly sandy slightly gravelly CLAY. Gravel consists of fine to medium sub-angular sandstone. Sand is fine to medium. (ALLUVIUM)	1.40	34.40		▼					
					PP 1.80	PP=42	1.80		D
Loose to medium dense red brown slightly clayey gravelly fine to coarse SAND. (WATCOMBE BRECCIA FORMATION)	2.10	33.70							
TRIAL PIT TERMINATED AT 2.20m	2.20	33.60							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of northern trial pit wall from 0 to 1.6m widening pit by 0.6m. Trial pit terminated due to instability of pit walls.

Groundwater observations
Seepage observed at 1.5m (34.3m mAOD) depth, filling trial pit at an approximate rate of 20 litres per minute.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 35.80	**Compiled by** KM	**Sheet number** Sheet 1 of 1
Co-ordinates 288870mE, 66301mN	**Checked by**	**TP09**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto firm medium strength red brown slightly gravelly sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (ALLUVIUM)					PP 0.30	PP=25			
					PP 0.40	PP=71	0.40		D
							0.40		ES
Very soft to soft medium strength grey slightly gravelly sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (ALLUVIUM)	0.75	35.75			PP 0.80	PP=46	0.80		D
							0.80		D
					PP 1.00	PP=50			
							1.10		D
							1.10		D
Very soft low to medium strength orange brown slightly gravelly sandy CLAY. Gravel consists of fine to coarse sub-angular sandstone. (ALLUVIUM)	1.20	35.30			PP 1.30	PP=25	1.30		D
							1.30		D
					PP 1.60	PP=67			
Loose to medium dense red brown slightly gravelly very clayey fine to coarse SAND. Gravel consists of fine to coarse sub-angular sandstone. (WATCOMBE BRECCIA FORMATION)	1.75	34.75					1.80		D
							1.80		D
							1.80		D
							2.00		B
							2.00		B
TRIAL PIT TERMINATED AT 2.30m	2.30	34.20							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Instability started at 1.1m Trial pit terminated due to instability of pit walls. Collapse of trial pit sides from 0.3m to 1.4m depth widening trial pit by 0.4m each side.

Groundwater observations
No groundwater encountered.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 36.50	**Compiled by** KM	**Sheet number** Sheet 1 of 1
Co-ordinates 288870mE, 66280mN	**Checked by**	**TP10**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto loose red brown slightly gravelly very clayey fine to medium SAND. Gravel consists of fine to medium sub-angular sandstone. (MADE GROUND)							0.20 0.20		D ES
							0.80 0.80		D D
Loose red brown clayey gravelly fine to coarse SAND. Gravel consists of fine to medium sub-angular to angular sandstone. (WATCOMBE BRECCIA FORMATION)	1.15	39.55					1.30 1.30		D D
Loose dark red brown slightly clayey gravelly fine to coarse SAND. Gravel consists of fine to medium sub-angular to angular sandstone, limestone and weathered breccia. (WATCOMBE BRECCIA FORMATION)	1.50	39.20					1.60 1.60	1.90 1.90	B B
...from 2.3m depth, frequent gravel-sized pockets of green grey silty sand.							2.30 2.30		D D
...from 2.7m depth, becoming medium dense.									
CONTINUED ON NEXT SHEET									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of trial pit sides from 0m to 2.0m depth widening trial pit by 0.6m on western side.

Groundwater observations
Seepage observed at 2.1m (38.6m mAOD) depth, filling trial pit at an approximate rate of 10 litres per minute.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 40.70	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288825mE, 66282mN	**Checked by**	**TP11**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Loose dark red brown slightly clayey gravelly fine to coarse SAND. Gravel consists of fine to medium sub-angular to angular sandstone, limestone and weathered breccia. (WATCOMBE BRECCIA FORMATION)							3.10 3.10		B B
TRIAL PIT TERMINATED AT 3.30m	3.30	37.40							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of trial pit sides from 0m to 2.0m depth widening trial pit by 0.6m on western side.

Groundwater observations
Seepage observed at 2.1m (38.6m mAOD) depth, filling trial pit at an approximate rate of 10 litres per minute.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.50m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 40.70	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288825mE, 66282mN	**Checked by**	**TP11**

Report ref: STP4262-G01 **Revision:** 0

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto high strength firm orange brown slightly gravelly sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (ALLUVIUM)							0.20		ES
					PP 0.30	PP=79	0.20		ES
	0.50	36.45					0.55		D
Firm to stiff medium strength grey slightly gravelly sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (ALLUVIUM)	0.60	36.35					0.55		D
Firm to stiff medium to high strength orange brown slightly gravelly very sandy CLAY. Gravel of fine to medium sub-angular sandstone. (ALLUVIUM)					PP 0.80	PP=71	0.80		D
							0.80		D
					PP 1.20	PP=79			
				▼	PP 1.50	PP=63	1.50		D
							1.50		D
Loose medium strength red gravelly very clayey fine to medium SAND. Gravel consists of fine to medium SAND. Gravel consists of fine to coarse sub-angular to angular sandstone and breccia. (WATCOMBE BRECCIA FORMATION)	1.70	35.25					1.80		D
							1.80		D
TRIAL PIT TERMINATED AT 2.20m	2.20	34.75							

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Trial pit terminated due to instability of pit walls. Collapse of trial pit sides from 0m to 2.2m depth widening trial pit by m 0.5m on northern side.

Groundwater observations
Seepage observed at 1.55m (35.4m mAOD) depth, filling trial pit at an approximate rate of 10 litres per minute.

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 36.95	**Compiled by** KM	**Sheet number** Sheet 1 of 1
Co-ordinates 288812mE, 66339mN	**Checked by**	**TP12**

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
Orchard Way, Torquay

soiltechnics
environmental and geotechnical consultants

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Grass onto very soft red brown slightly gravelly very sandy CLAY. Gravel consists of fine to medium sub-angular sandstone. (MADE GROUND)							0.30 0.30		D D
Loose red brown slightly gravelly clayey fine to coarse SAND. Gravel consists of fine to coarse sub-angular sandstone and breccia. (WATCOMBE BRECCIA FORMATION)	0.80	39.20		▼			0.80 0.80 1.40 1.40		D D D D
CONTINUED ON NEXT SHEET									

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of trial pit sides from 0m to 2.1m widening trial pit by 0.6m.

Groundwater observations
Seepage observed at 1.4m (38.6m mAOD) depth, at very slow rate. Seepage observed at 2.1m (37.9m mAOD) depth at an approximate rate of 15 litres per minute.

Title Trial pit record	**Dimensions (w x l)** 1.00m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 40.00	**Compiled by** KM	**Sheet number** Sheet 1 of 2
Co-ordinates 288802mE, 66307mN	**Checked by**	**TP13**

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
Orchard Way, Torquay

soiltechnics
environmental and geotechnical consultants

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
Loose red brown slightly gravelly clayey fine to coarse SAND. Gravel consists of fine to coarse sub-angular sandstone and breccia. (WATCOMBE BRECCIA FORMATION)									
Loose to medium dense red brown slightly clayey very gravelly fine to coarse SAND. Gravel consists of fine to coarse sub-angular sandstone and breccia. (WATCOMBE BRECCIA FORMATION)	3.20	36.80					3.50		D
TRIAL PIT TERMINATED AT 3.60m	3.60	36.40					3.50		D

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes
Collapse of trial pit sides from 0m to 2.1m widening trial pit by 0.6m.

Groundwater observations
Seepage observed at 1.4m (38.6m mAOD) depth, at very slow rate. Seepage observed at 2.1m (37.9m mAOD) depth at an approximate rate of 15 litres per minute.

Title Trial pit record	**Dimensions (w x l)** 1.00m x 2.00m	
Method 13T tracked excavator	**Logged by** DN	**Date(s)** 03/01/2018 - 05/01/2018
Level (m OD) 40.00	**Compiled by** KM	**Sheet number** Sheet 2 of 2
Co-ordinates 288802mE, 66307mN	**Checked by**	**TP13**

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
Orchard Way, Torquay

soiltechnics
environmental and geotechnical consultants

WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	CORING RUN NO.	CORE DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FRACTURE INDEX (%)	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Open hole.																			
	[Loose to medium dense] red brown slightly gravelly clayey fine to coarse SAND. Gravel consists of fine to medium sub-angular sandstone and breccia. (WATCOMBE BRECCIA FORMATION)	3.00	33.20			1	3.00 - 4.00	100	100	0								3.50		D
						2	4.00 - 5.50	53	53	0								4.80		D
	[Loose to medium dense] red brown slightly clayey gravelly fine to coarse SAND. Gravel consists of fine to medium sub-angular sandstone. (WATCOMBE BRECCIA FORMATION)	6.20	30.00			3	5.50 - 7.00	87	57	14								6.40		D
		6.80	29.40															6.80	7.00	C
	Weak red brown poorly sorted BRECCIA fining upwards to a well sorted SANDSTONE with closely spaced bedding infilled with silt. Breccia consists of medium gravel sized clasts of sub-angular sandstone with a fine to coarse sand matrix. (WATCOMBE BRECCIA FORMATION)	7.45	28.75			4	7.00 - 8.50	97	97	79								7.10	7.41	C
		8.20	28.00															8.25	8.50	C
	Weak red poorly sorted BRECCIA. Breccia consists of fine to medium gravel clasts with a fine to coarse sand matrix. (WATCOMBE BRECCIA FORMATION)	8.50	27.70			5	8.50 - 10.00	12	12	0										
	Weak red poorly sorted BRECCIA. Breccia consists of fine to medium gravel clasts with a medium to coarse sand matrix. (WATCOMBE BRECCIA FORMATION)	10.00	26.20																	
	Weak red well sorted medium to coarse grained SANDSTONE. Poor recovery. (WATCOMBE BRECCIA FORMATION)					6	10.00 - 11.50	13	13	0										
	Weak red moderately sorted BRECCIA. Breccia consists of medium to coarse sized gravel clasts with a medium to coarse gravelly sand matrix.	11.50	24.70																	
	CONTINUED ON NEXT SHEET																			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Percussive techniques used to drill from 0 to 3.8m.

Groundwater observations

Groundwater measured at 1.0m (35.2m mAOD) during drilling and at 0.5m (35.7m mAOD) on completion of drilling. Water added to aid drilling therefore water level may not be representative of groundwater conditions. Groundwater measured at 0.72m (35.48mAOD) following a purge of the borehole on a return monitoring visit completed on 09/02/2018.

Title
Rotary core record

Method	Logged by	Date(s)
Rotary core	DN	03/01/2018 - 04/01/2018
Level (m OD)	**Compiled by**	**Sheet number**
36.20	KM	Sheet 1 of 2
Co-ordinates	**Checked by**	**BH01**
288859mE, 66310mN		

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
Orchard Way, Torquay

soiltechnics
environmental and geotechnical consultants

WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	CORING RUN NO.	CORE DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FRACTURE INDEX (%)	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	CASING DEPTH (m)	WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Weak red moderately sorted BRECCIA. Breccia consists of medium to coarse sized gravel clasts with a medium to coarse gravelly sand matrix. Poor recovery. (WATCOMBE BRECCIA FORMATION)					7	11.50 - 13.00	66	61	61								12.35	12.60	C
	Weak red brown poorly sorted BRECCIA fining upwards to a well sorted SANDSTONE with closely spaced bedding infilled with silt. Breccia consists of fine to medium gravel clasts with a fine to coarse sand matrix. (WATCOMBE BRECCIA FORMATION)	12.90	23.30															13.20		D
	...between 11.6m and 11.65m depth, band of green yellow very poorly sorted BRECCIA.					8	13.00 - 14.50	53	53	53								13.80	14.05	C
	Weak red brown poorly sorted BRECCIA fining upwards to a well sorted SANDSTONE with closely spaced bedding infilled with silt. Breccia consists of fine to medium gravel clasts with a fine to coarse sand matrix. (WATCOMBE BRECCIA FORMATION)	14.50	21.70																	
	...between 13.9m and 13.95m depth, band reduced green yellow well sorted fine to medium SANDSTONE.																			
	BOREHOLE TERMINATED AT 14.50m																			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Percussive techniques used to drill from 0 to 3.8m.

Groundwater observations

Groundwater measured at 1.0m (35.2m mAOD) during drilling and at 0.5m (35.7m mAOD) on completion of drilling. Water added to aid drilling therefore water level may not be representative of groundwater conditions. Groundwater measured at 0.72m (35.48mAOD) following a purge of the borehole on a return monitoring visit completed on 09/02/2018.

Title
Rotary core record

Method	Logged by	Date(s)
Rotary core	DN	03/01/2018 - 04/01/2018
Level (m OD)	**Compiled by**	**Sheet number**
36.20	KM	Sheet 2 of 2
Co-ordinates	**Checked by**	**BH01**
288859mE, 66310mN		

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
Orchard Way, Torquay

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WELL	STRATA				WATER STRIKES	CORING						SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		RUN NO.	CORE DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FRACTURE INDEX (%)	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Open hole.																			
	Weak to medium strength brown red poorly sorted thickly laminated BRECCIA. Breccia consists of medium sized gravel clasts with a medium to coarse sand matrix. (WATCOMBE BRECCIA FORMATION)	7.00	32.10			1	7.00 - 8.50	33	33	28										
	Weak to medium strength brown red very poorly sorted BRECCIA fining upwards to a moderately to well sorted fine to medium SANDSTONE. Breccia consists of fine to coarse gravel sized clasts with a fine to medium sand matrix. (WATCOMBE BRECCIA FORMATION)	8.50	30.60			2	8.50 - 10.00	57	53	39										
	...between 8.5m and 8.9m depth, normally graded sequence with cross lamination.					3	10.00 - 11.50	30	30	23										
		11.50	27.60																	
	CONTINUED ON NEXT SHEET																			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Groundwater observations

Groundwater measured at 1.0m (38.1m mAOD) during drilling and 0.6m (38.5m mAOD) on completion of the borehole. Water added to aid drilling therefore water level may not be representative of groundwater conditions. Groundwater measured at 0.77m (38.33mAOD) following a purge of the borehole on a return monitoring visit completed on 09/02/2018.

Title
Rotary core record

Method	**Logged by**	**Date(s)**
Rotary core	DN	05/01/2018
Level (m OD)	**Compiled by**	**Sheet number**
39.10	KM	Sheet 1 of 2
Co-ordinates	**Checked by**	**BH02**
288801mE, 66315mN		

Report ref: STP4262-G01 **Revision:** 0

Proposed Wickes store
Orchard Way, Torquay

soiltechnics
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WELL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND	WATER STRIKES	CORING RUN NO.	CORE DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FRACTURE INDEX (%)	SPT TESTING TYPE / DEPTH (m)	SPT RESULT	CASING DEPTH (m)	WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Weak to medium strength brown red well sorted fine to medium grained SANDSTONE with closely spaced bedding infilled with silt. (WATCOMBE BRECCIA FORMATION)	12.00	27.10			4	11.50 - 13.00	54	54	54										
	Weak brownish red poorly sorted cross laminated BRECCIA. Breccia consists of medium to coarse grained gravel clasts with a medium grained sand matrix. (WATCOMBE BRECCIA FORMATION)	13.00	26.10																	
	Weak brownish red moderately sorted thinly laminated SANDSTONE with closely spaced bedding infilled with clayey sand. (WATCOMBE BRECCIA FORMATION)	13.40	25.70			5	13.00 - 14.20	77	66	45										
	Weak to medium strength poorly sorted BRECCIA. Breccia consists of medium to coarse grained gravel clasts with a medium grained sand matrix. (WATCOMBE BRECCIA FORMATION)	14.20	24.90																	
	BOREHOLE TERMINATED AT 14.20m																			

Key

D Small Disturbed Sample
B Bulk Disturbed Sample
ES Environmental Sample
W Water Sample
C Core sample
UT Undisturbed Sample

S Standard Penetration Test
C Standard Penetration Test (solid cone)

PP Pocket Penetrometer test
SV Shear Vane test
PID Photo Ionisation Detector test

Notes

Groundwater observations

Groundwater measured at 1.0m (38.1m mAOD) during drilling and 0.6m (38.5m mAOD) on completion of the borehole. Water added to aid drilling therefore water level may not be representative of groundwater conditions. Groundwater measured at 0.77m (38.33mAOD) following a purge of the borehole on a return monitoring visit completed on 09/02/2018.

Title
Rotary core record

Method	Logged by	Date(s)
Rotary core	DN	05/01/2018
Level (m OD)	**Compiled by**	**Sheet number**
39.10	KM	Sheet 2 of 2
Co-ordinates	**Checked by**	**BH02**
288801mE, 66315mN		

Report ref: STP4262-G01 **Revision:** 0

TEST CERTIFICATE

Dry Density / Moisture Content Relationship
Light Compaction

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

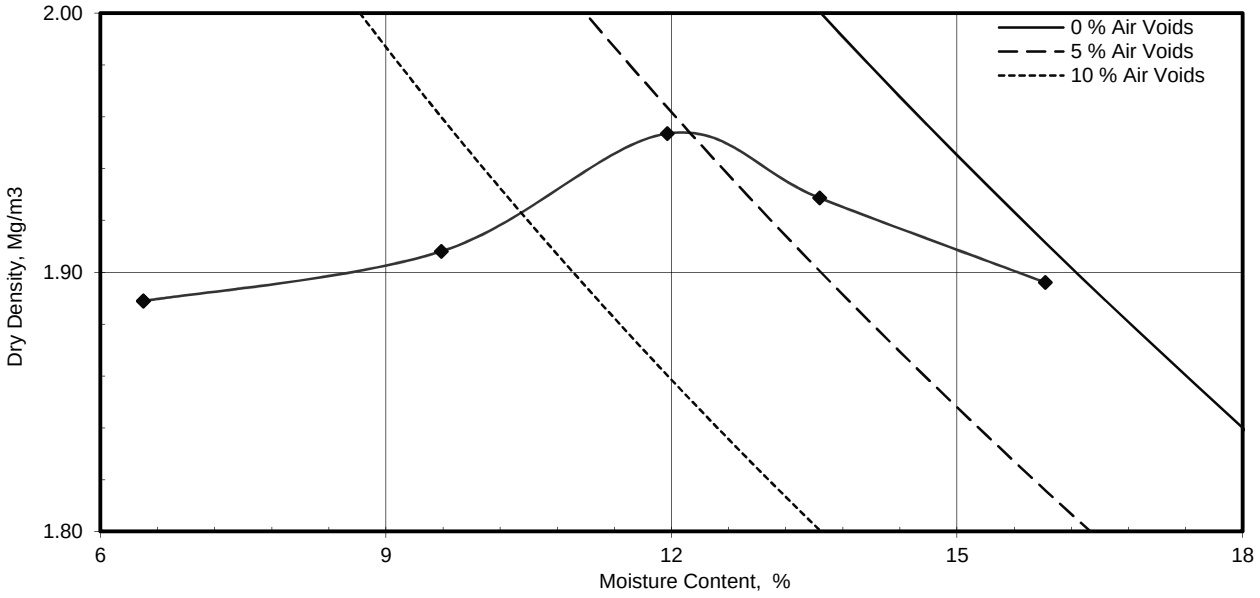
UKAS TESTING 4041

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton NN6 9PY	Job Number:	18-72830
		Date Sampled:	Not Given
		Date Received:	15/01/2018
		Date Tested:	23/01/2018
Contact:	Lauren Wenham	Sampled By:	Not Given
Site Name:	Wickes Torquay		
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference:	888510		
Hole No.:	CS01	Depth Top [m]:	Not Given
Sample Reference:	Not Given	Depth Base [m]:	Not Given
Sample Description:	Reddish brown gravelly very clayey SAND	Sample Type:	B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	5
Particle Density - Assumed	Mg/m³	2.75
As received Moisture Content	%	16
Maximum Dry Density	Mg/m³	**1.95**

Optimum Moisture Content	%	**12**

Remarks: Insufficient material - compacted in proctor mould

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Mark Beastall
Geotechnical
Commercial Manager

Date Reported: 29/01/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Dry Density / Moisture Content Relationship
Light Compaction

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

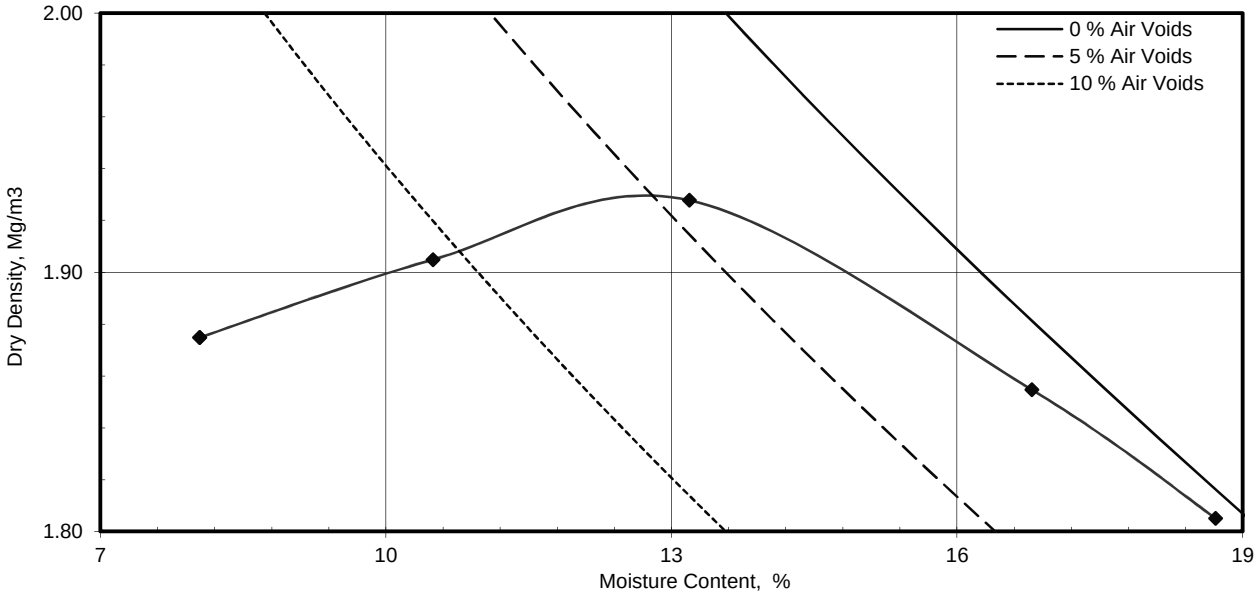
UKAS TESTING 4041

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton NN6 9PY	Job Number:	18-72830
		Date Sampled:	Not Given
		Date Received:	15/01/2018
		Date Tested:	23/01/2018
Contact:	Lauren Wenham	Sampled By:	Not Given
Site Name:	Wickes Torquay		
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference:	888511		
Hole No.:	CS02	Depth Top [m]:	Not Given
Sample Reference:	Not Given	Depth Base [m]:	Not Given
Sample Description:	Reddish brown gravelly sandy CLAY	Sample Type:	B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	3
Particle Density - Assumed	Mg/m³	2.75
As received Moisture Content	%	17
Maximum Dry Density	Mg/m³	**1.93**

Optimum Moisture Content	%	**13**

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Mark Beastall
Geotechnical
Commercial Manager

Date Reported: 29/01/2018

for and on behalf of i2 Analytical Ltd

GF 109.9

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

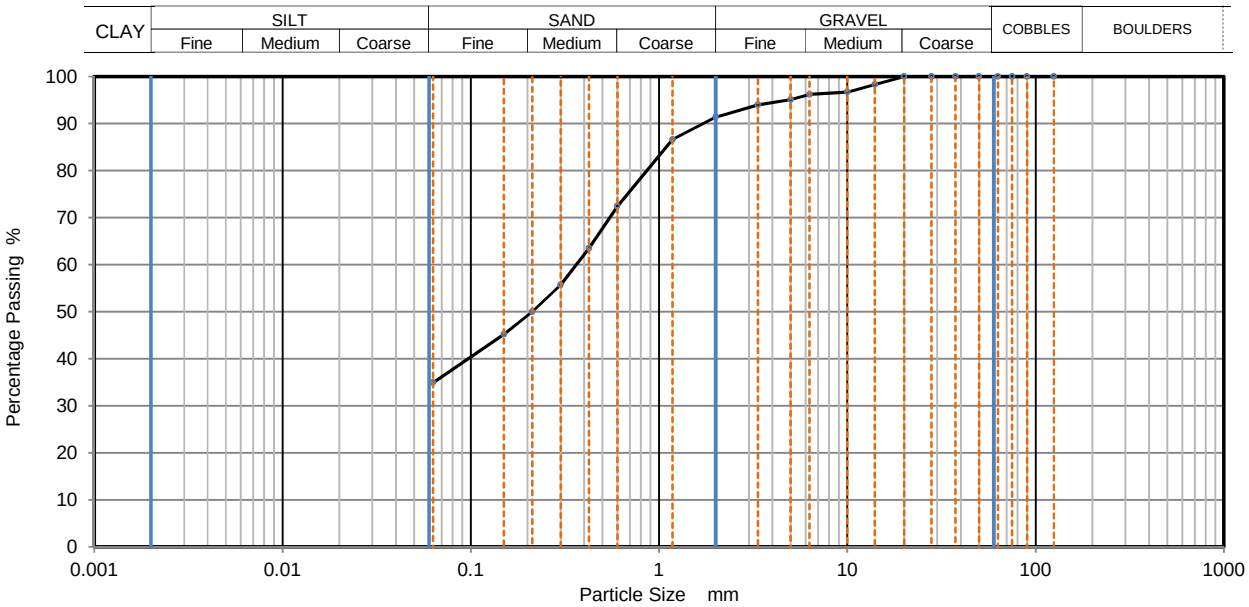
4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72830
		Date Sampled:	Not Given
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 888510

Sample description:	Reddish brown gravelly very clayey SAND	Sample Reference:	Not Given
Location:	CS01	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	Not Given
		Depth Base [m]:	Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	96		
5	95		
3.35	94		
2	91		
1.18	87		
0.6	72		
0.425	64		
0.3	56		
0.212	50		
0.15	45		
0.063	35		

Dry Mass of sample [g]: 428

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	8.60
Sand	56.50
Fines <0.063mm	34.90

Grading Analysis		
D100	mm	20
D60	mm	0.363
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Mark Beastall
Geotechnical Commercial Manager

Date Reported: 29/01/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of uniaxial compression test on rock - summary of results

Tested in Accordance with International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northampton, NN6 9PY
Contact: Lauren Wenham
Site Name: Wickes Torquay
Site Address: Not Given

Client Reference: STP4262
Job Number: 18-72830
Date Sampled: 05/01/2018
Date Received: 15/01/2018
Date Tested: 25/01/2018
Sampled By: Not Given

Test Results

Laboratory Reference	Hole No.	Sample				Description	Specimen Dimensions2			Bulk Density2	Water Content1	Uniaxial Compression3				Remarks
		Reference	Depth Top [m]	Depth Base [m]	Type		Dia. mm	Length mm	H/D	Mg/m3	%	Condition	Stress Rate MPa/s	Mode of failure	UCS MPa	
888504	BH01	Not Given	7.10	7.40	B	Reddish brown SANDSTONE	89.2	93.7	1.1	2.30	9.0	as received	0.1599	AC	2.3	
888505	BH01	Not Given	8.25	8.50	B	Reddish brown SANDSTONE	89.0	110.2	1.2	2.29	8.7	as received	0.1606	AC	2.5	
888506	BH01	Not Given	12.35	12.60	B	Reddish brown SANDSTONE	88.8	207.9	2.3	2.35	5.2	as received	0.1615	AC	5.7	
888507	BH01	Not Given	13.80	14.05	B	Reddish brown SANDSTONE	88.4	121.6	1.4	2.35	6.6	as received	0.1631	AC	4.0	
888508	BH02	Not Given	7.90	8.20	B	Reddish brown SANDSTONE	89.3	135.1	1.5	2.37	5.9	as received	0.1597	AC	2.4	
888509	BH02	Not Given	10.00	10.30	B	Reddish brown SANDSTONE	88.6	121.9	1.4	2.38	6.4	as received	0.1622	MS	4.0	

Notes: 1 - ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks

Mode of failure : S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 29/01/2018

Signed:

Mark Beastall
Geotechnical
Commercial Manager

for and on behalf of i2 Analytical Ltd

GF 223.3

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

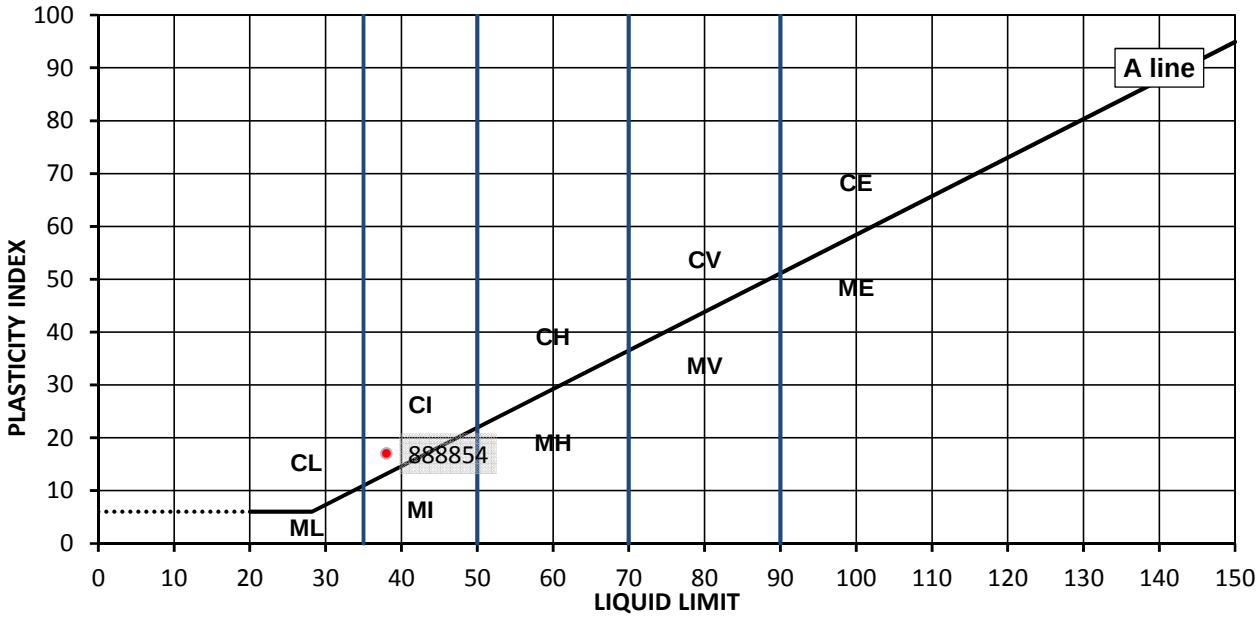
Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72886
		Date Sampled:	05/01/2018
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 888854
Sample Reference: Not Given

Description:	Reddish brown slightly gravelly slightly sandy CLAY	Sample Type:	B
Location:	TP01	Depth Top [m]:	0.90
Sample Preparation:	Tested after washing to remove >425um	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	38	21	17	57



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 29/01/2018

Signed:

Mark Beastall
Geotechnical Commercial Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

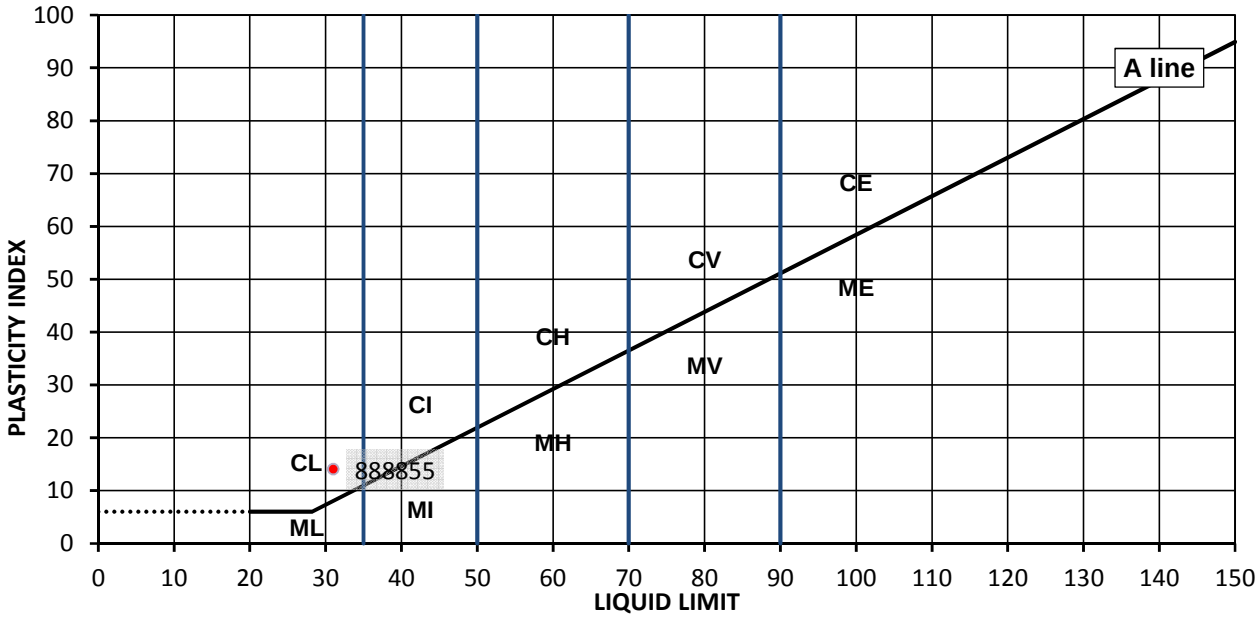
Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72886
		Date Sampled:	05/01/2018
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 888855
Sample Reference: Not Given

Description:	Yellowish brown slightly gravelly very sandy CLAY	Sample Type:	B
Location:	TP12	Depth Top [m]:	1.50
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	31	17	14	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 29/01/2018

Signed:

Mark Beastall
Geotechnical Commercial Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

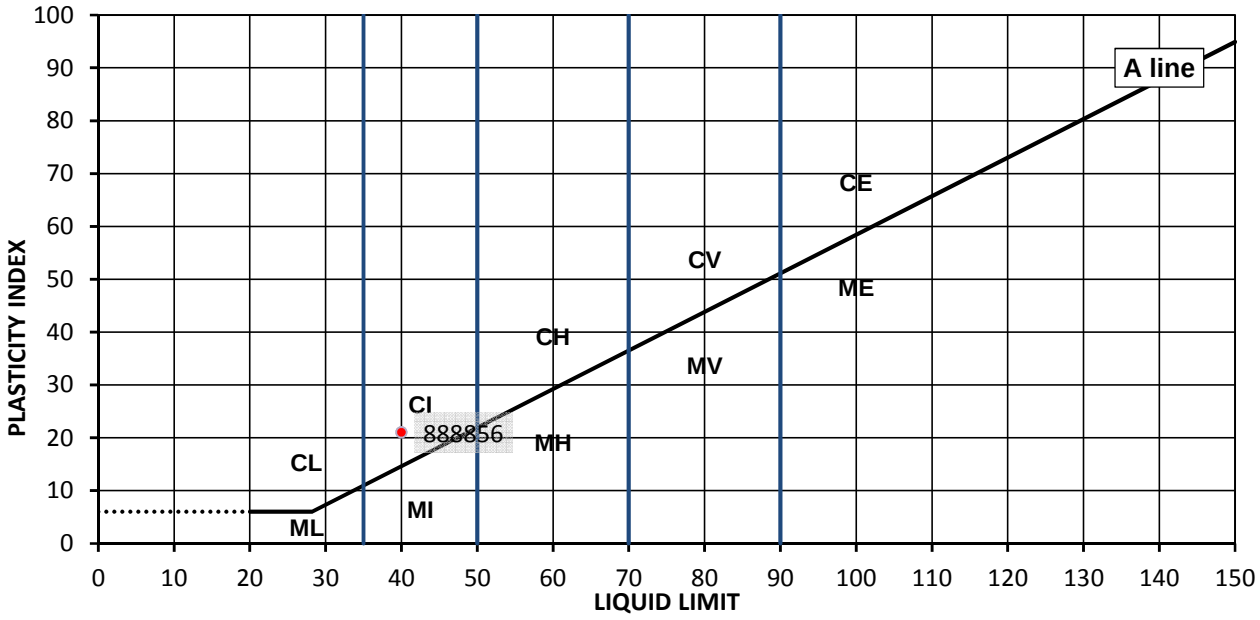
Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72886
		Date Sampled:	05/01/2018
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 888856
Sample Reference: Not Given

Description:	Yellowish brown slightly gravelly CLAY	Sample Type:	D
Location:	TP12	Depth Top [m]:	0.80
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	40	19	21	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 29/01/2018

Signed:

Mark Beastall
Geotechnical Commercial Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

UKAS TESTING 4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

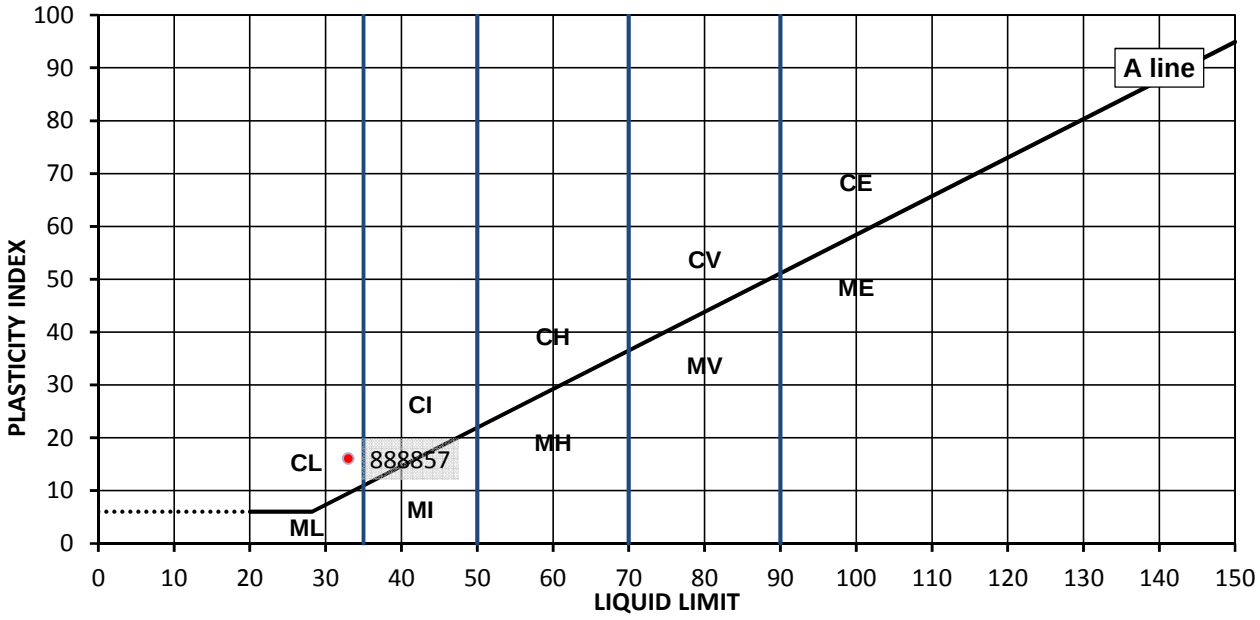
Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72886
		Date Sampled:	05/01/2018
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference: 888857
Sample Reference: Not Given

Description:	Reddish brown slightly gravelly very sandy CLAY	Sample Type:	B
Location:	TP09	Depth Top [m]:	1.00
Sample Preparation:	Tested after >425um removed by hand	Depth Base [m]:	Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	33	17	16	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory Manager Geotechnical Section
Date Reported: 29/01/2018

Signed:

Mark Beastall
Geotechnical Commercial Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northampton, NN6 9PY
Contact: Lauren Wenham
Site Name: Wickes Torquay
Site Address: Not Given

Client Reference: STP4262
Job Number: 18-72886
Date Sampled: 05/01/2018
Date Received: 15/01/2018
Date Tested: 23/01/2018
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
888854	TP01	Not Given	0.90	Not Given	B	Reddish brown slightly gravelly slightly sandy CLAY			15	57	38	21	17	
888862	TP02	Not Given	1.50	Not Given	B	Reddish brown slightly gravelly slightly sandy CLAY			17					
888861	TP02	Not Given	2.10	Not Given	B	Reddish brown slightly gravelly slightly sandy CLAY			12					
888863	TP02	Not Given	2.60	Not Given	B	Reddish brown slightly gravelly slightly sandy CLAY			14					
888871	TP03	Not Given	1.20	Not Given	B	Reddish brown slightly gravelly slightly sandy CLAY			17					
888864	TP05	Not Given	1.80	Not Given	B	Reddish brown slightly gravelly slightly sandy CLAY			15					
888865	TP06	Not Given	0.60	Not Given	B	Reddish brown slightly gravelly CLAY			17					
888869	TP08	Not Given	0.60	Not Given	D	Reddish brown slightly gravelly CLAY			19					
888870	TP08	Not Given	1.20	1.50	B	Reddish brown slightly gravelly CLAY			16					
888857	TP09	Not Given	1.00	Not Given	B	Reddish brown slightly gravelly very sandy CLAY			22	98	33	17	16	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 29/01/2018

Signed:

Mark Beastall
Geotechnical Commercial Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Environmental Science

Client: Soiltechnics Limited
Client Address: Cedar Barn
White Lodge
Walgrave
Northampton, NN6 9PY
Contact: Lauren Wenham
Site Name: Wickes Torquay
Site Address: Not Given

Client Reference: STP4262
Job Number: 18-72886
Date Sampled: 05/01/2018
Date Received: 15/01/2018
Date Tested:
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk Mg/m3	dry Mg/m3	%	% Passing 425um %	LL %	PL %	PI %	Mg/m3
888867	TP11	Not Given	0.80	Not Given	D	Reddish brown slightly gravelly CLAY			16					
888868	TP11	Not Given	1.30	Not Given	D	Reddish brown slightly gravelly CLAY			17					
888856	TP12	Not Given	0.80	Not Given	D	Yellowish brown slightly gravelly CLAY			21	98	40	19	21	
888855	TP12	Not Given	1.50	Not Given	B	Yellowish brown slightly gravelly very sandy CLAY			20	98	31	17	14	
888866	TP13	Not Given	0.30	Not Given	D	Reddish brown slightly gravelly CLAY			19					

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 29/01/2018

Signed:

Mark Beastall
Geotechnical Commercial Manager

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

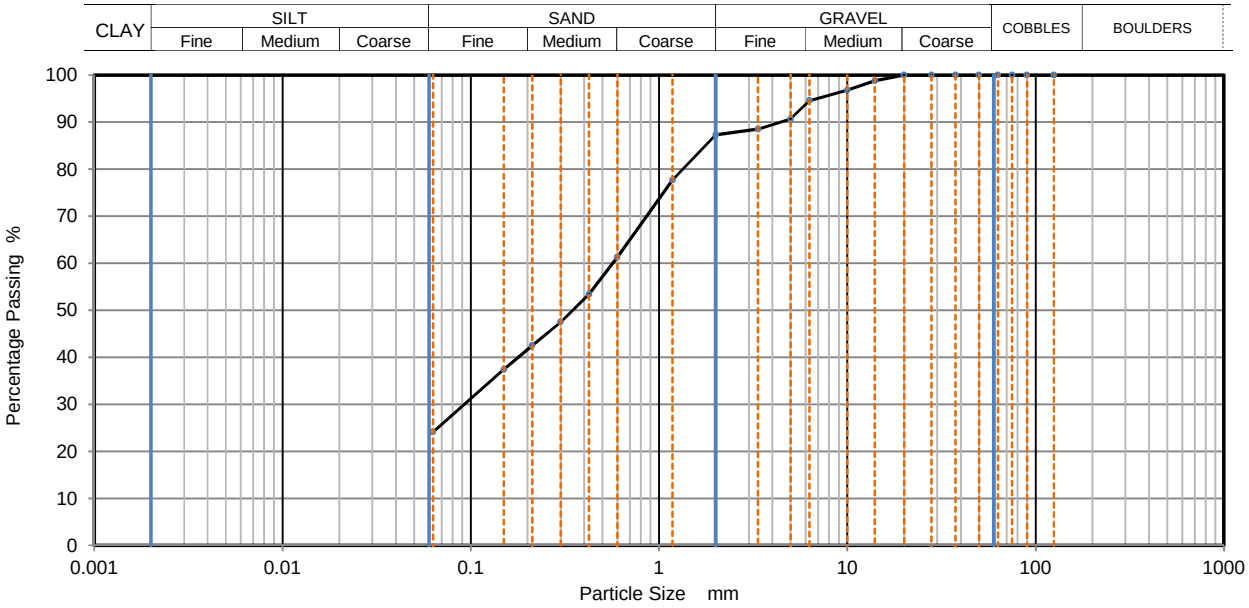
4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72886
		Date Sampled:	05/01/2018
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 888858 Sample Reference: Not Given

Sample description:	Reddish brown gravelly very clayey SAND	Sample Type:	B
Location:	TP11	Depth Top [m]:	1.60
Supplier:	Not Given	Depth Base [m]:	1.90



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	97		
6.3	95		
5	91		
3.35	89		
2	87		
1.18	78		
0.6	61		
0.425	53		
0.3	48		
0.212	43		
0.15	37		
0.063	24		

Dry Mass of sample [g]: 795

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	12.70
Sand	63.20
Fines <0.063mm	24.10

Grading Analysis		
D100	mm	20
D60	mm	0.567
D30	mm	0.0924
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Mark Beastall
Geotechnical Commercial Manager

Date Reported: 29/01/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

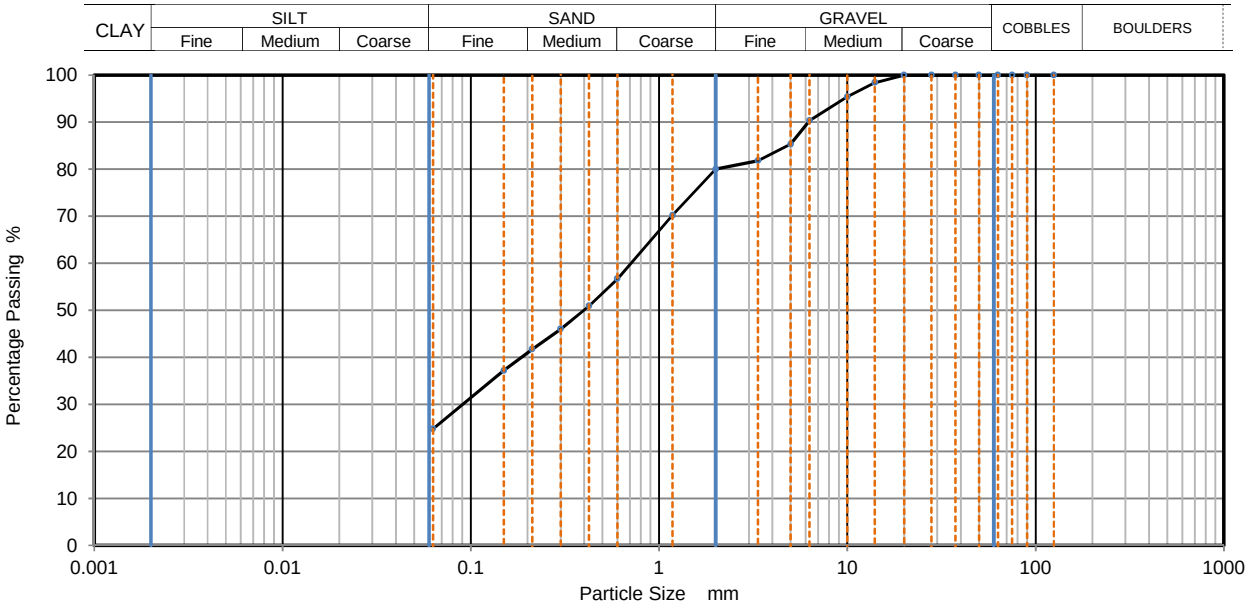
4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72886
		Date Sampled:	05/01/2018
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 888859

Sample description:	Reddish brown very gravelly very clayey SAND	Sample Reference:	Not Given
Location:	TP12	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	1.80
		Depth Base [m]:	Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	95		
6.3	90		
5	85		
3.35	82		
2	80		
1.18	70		
0.6	57		
0.425	51		
0.3	46		
0.212	42		
0.15	37		
0.063	25		

Dry Mass of sample [g]: 1030

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	20.00
Sand	55.20
Fines <0.063mm	24.80

Grading Analysis		
D100	mm	20
D60	mm	0.709
D30	mm	0.0904
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Mark Beastall
Geotechnical Commercial Manager

Date Reported: 29/01/2018

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

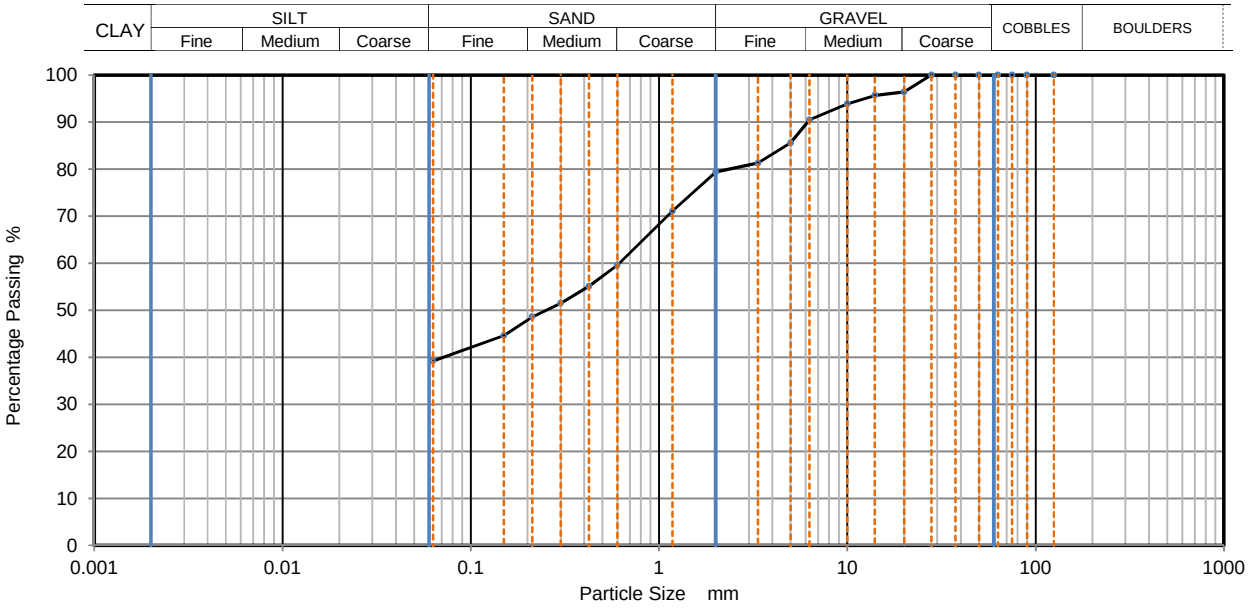
4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Soiltechnics Limited	Client Reference:	STP4262
Client Address:	Cedar Barn White Lodge Walgrave Northampton, NN6 9PY	Job Number:	18-72886
		Date Sampled:	05/01/2018
		Date Received:	15/01/2018
Contact:	Lauren Wenham	Date Tested:	23/01/2018
Site Name:	Wickes Torquay	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 888860

Sample description:	Reddish brown very gravelly very clayey SAND	Sample Reference:	Not Given
Location:	TP07	Sample Type:	B
Supplier:	Not Given	Depth Top [m]:	1.20
		Depth Base [m]:	Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	96		
10	94		
6.3	91		
5	86		
3.35	81		
2	79		
1.18	71		
0.6	60		
0.425	55		
0.3	52		
0.212	49		
0.15	45		
0.063	39		

Dry Mass of sample [g]: 804

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	20.60
Sand	40.20
Fines <0.063mm	39.20

Grading Analysis		
D100	mm	28
D60	mm	0.613
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Mark Beastall
Geotechnical Commercial Manager

Date Reported: 29/01/2018

for and on behalf of i2 Analytical Ltd

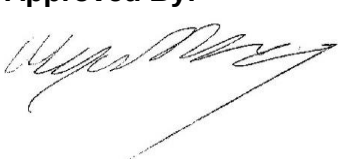
Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Final Report

Report No.:	18-01344-1
Initial Date of Issue:	25-Jan-2018
Client	Soiltechnics Limited
Client Address:	Cedar Barn White Lodge Walgrave Northampton Northamptonshire NN6 9PY
Contact(s):	Rachel Brown
Project	STP4262 Wickes Torquay

Quotation No.:		**Date Received:**	17-Jan-2018
Order No.:	POR002219	**Date Instructed:**	17-Jan-2018
No. of Samples:	17		
Turnaround (Wkdays):	7	**Results Due:**	25-Jan-2018
Date Approved:	25-Jan-2018		

Approved By:



Details: Glynn Harvey, Laboratory Manager

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STP4262 Wickes Torquay

Client: Soiltechnics Limited					**Chemtest Job No.:**	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344
Quotation No.:					**Chemtest Sample ID.:**	564989	564990	564991	564992	564993	564994	564996	564997	564998
Order No.: POR002219					Client Sample Ref.:	BH01	BH01	TP01	TP02	TP04	TP04	TP05	TP06	TP06
					Client Sample ID.:	BH0113.202-001	BH014.801-082	TP010.101-001	TP020.201-008	TP040.201-017	TP041.501-020	TP050.201-024	TP060.201-032	TP060.701-033
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	13.20	4.80	0.10	0.20	0.20	1.50	0.20	0.20	0.70
					Date Sampled:	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018
					Asbestos Lab:			COVENTRY	COVENTRY			COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A				-	-			-		-
Asbestos Identification	U	2192	%	0.001				No Asbestos Detected	No Asbestos Detected			No Asbestos Detected		No Asbestos Detected
Moisture	N	2030	%	0.020	6.4	12			12	31	12		12	
Soil Colour	N	2040		N/A	Red	Brown			Red	Red	Red		Brown	
Other Material	N	2040		N/A	Stones	Stones			Stones	Roots	Stones		Stones, Roots	
Soil Texture	N	2040		N/A	Sand	Sand			Clay	Clay	Sand		Clay	
pH	M	2010		N/A	8.8	8.6			8.2	5.3	6.5		8.3	
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40					0.81	0.44			0.69	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010					< 0.010			
Total Sulphur	M	2175	%	0.010	0.026	0.036					0.042			
Cyanide (Complex)	M	2300	mg/kg	0.50					< 0.50	< 0.50			< 0.50	
Cyanide (Free)	M	2300	mg/kg	0.50					< 0.50	< 0.50			< 0.50	
Cyanide (Total)	M	2300	mg/kg	0.50					< 0.50	0.50			< 0.50	
Sulphate (Acid Soluble)	M	2430	%	0.010	< 0.010	< 0.010					< 0.010			
Arsenic	M	2450	mg/kg	1.0					15	13			28	
Beryllium	U	2450	mg/kg	1.0					1.6	< 1.0			< 1.0	
Cadmium	M	2450	mg/kg	0.10					1.0	0.41			0.40	
Chromium	M	2450	mg/kg	1.0					31	28			18	
Copper	M	2450	mg/kg	0.50					7.2	14			13	
Mercury	M	2450	mg/kg	0.10					< 0.10	0.43			0.15	
Nickel	M	2450	mg/kg	0.50					26	17			14	
Lead	M	2450	mg/kg	0.50					29	90			200	
Selenium	M	2450	mg/kg	0.20					< 0.20	0.31			< 0.20	
Vanadium	U	2450	mg/kg	5.0					28	37			20	
Zinc	M	2450	mg/kg	0.50					180	150			100	
Chromium (Hexavalent)	N	2490	mg/kg	0.50					< 0.50	< 0.50			< 0.50	
Organic Matter	M	2625	%	0.40					< 0.40	4.8			1.3	
Total Organic Carbon	M	2625	%	0.20										
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010										
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010										
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10										
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10										

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STP4262 Wickes Torquay

Client: Soiltechnics Limited					**Chemtest Job No.:**	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344
Quotation No.:					**Chemtest Sample ID.:**	564989	564990	564991	564992	564993	564994	564996	564997	564998
Order No.: POR002219					Client Sample Ref.:	BH01	BH01	TP01	TP02	TP04	TP04	TP05	TP06	TP06
					Client Sample ID.:	BH0113.202-001	BH014.801-082	TP010.101-001	TP020.201-008	TP040.201-017	TP041.501-020	TP050.201-024	TP060.201-032	TP060.701-033
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	13.20	4.80	0.10	0.20	0.20	1.50	0.20	0.20	0.70
					Date Sampled:	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018
					Asbestos Lab:			COVENTRY	COVENTRY			COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0										
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010										
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010										
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10										
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10										
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10										
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10										
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10										
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10										
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0										
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0										
Dibutyl Tin	N	2730	µg/kg	10										
Tetrabutyl Tin	N	2730	µg/kg	10										
Tributyl Tin	N	2730	µg/kg	10										
Triphenyl Tin	N	2730	µg/kg	10										
Tetraethyl Lead	N	2760	µg/kg	10										
Tetramethyl Lead	N	2760	µg/kg	10										
Benzene	M	2760	µg/kg	1.0										
Toluene	M	2760	µg/kg	1.0										
Ethylbenzene	M	2760	µg/kg	1.0										
m & p-Xylene	M	2760	µg/kg	1.0										
o-Xylene	M	2760	µg/kg	1.0										
Naphthalene	M	2800	mg/kg	0.10					< 0.10	< 0.10			< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10					< 0.10	< 0.10			< 0.10	
Acenaphthene	M	2800	mg/kg	0.10					< 0.10	< 0.10			< 0.10	
Fluorene	M	2800	mg/kg	0.10					< 0.10	< 0.10			< 0.10	
Phenanthrene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.44	
Anthracene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.11	
Fluoranthene	M	2800	mg/kg	0.10					< 0.10	< 0.10			1.9	
Pyrene	M	2800	mg/kg	0.10					< 0.10	< 0.10			1.6	
Benzo[a]anthracene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.68	
Chrysene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.67	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.65	
Benzo[k]fluoranthene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.17	
Benzo[a]pyrene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.57	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.26	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STP4262 Wickes Torquay

Client: Soiltechnics Limited					**Chemtest Job No.:**	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344
Quotation No.:					**Chemtest Sample ID.:**	564989	564990	564991	564992	564993	564994	564996	564997	564998
Order No.: POR002219					Client Sample Ref.:	BH01	BH01	TP01	TP02	TP04	TP04	TP05	TP06	TP06
					Client Sample ID.:	BH0113.202-001	BH014.801-082	TP010.101-001	TP020.201-008	TP040.201-017	TP041.501-020	TP050.201-024	TP060.201-032	TP060.701-033
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	13.20	4.80	0.10	0.20	0.20	1.50	0.20	0.20	0.70
					Date Sampled:	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018
					Asbestos Lab:			COVENTRY	COVENTRY			COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10					< 0.10	< 0.10			< 0.10	
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10					< 0.10	< 0.10			0.26	
Total Of 16 PAH's	N	2800	mg/kg	2.0					< 2.0	< 2.0			7.3	
Total Phenols	M	2920	mg/kg	0.30					< 0.30	< 0.30			< 0.30	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STP4262 Wickes Torquay

Client: Soiltechnics Limited					**Chemtest Job No.:**	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344
Quotation No.:					**Chemtest Sample ID.:**	564999	565000	565001	565002	565003	565004
Order No.: POR002219					Client Sample Ref.:	TP07	TP07	TP08	TP09	TP10	TP13
					Client Sample ID.:	TP070.201-070	TP070.501-071	TP080.301-076	TP090.201-037	TP100.401-041	TP130.301-058
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.20	0.50	0.30	0.20	0.40	0.30
					Date Sampled:	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018
					Asbestos Lab:		COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type	U	2192		N/A			-				
Asbestos Identification	U	2192	%	0.001			No Asbestos Detected				
Moisture	N	2030	%	0.020		7.9		18	15	17	14
Soil Colour	N	2040		N/A		Brown, Brown			Red		Red
Other Material	N	2040		N/A		Stones, Roots			Stones, Roots		Stones
Soil Texture	N	2040		N/A		Sand			Clay		Clay
pH	M	2010		N/A		9.3			7.0		6.5
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		0.64			0.43		
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010							< 0.010
Total Sulphur	M	2175	%	0.010							0.037
Cyanide (Complex)	M	2300	mg/kg	0.50		< 0.50			< 0.50		
Cyanide (Free)	M	2300	mg/kg	0.50		< 0.50			< 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50		< 0.50			< 0.50		
Sulphate (Acid Soluble)	M	2430	%	0.010							< 0.010
Arsenic	M	2450	mg/kg	1.0		23			14		
Beryllium	U	2450	mg/kg	1.0		< 1.0			< 1.0		
Cadmium	M	2450	mg/kg	0.10		0.58			0.34		
Chromium	M	2450	mg/kg	1.0		25			28		
Copper	M	2450	mg/kg	0.50		11			5.7		
Mercury	M	2450	mg/kg	0.10		0.10			< 0.10		
Nickel	M	2450	mg/kg	0.50		20			15		
Lead	M	2450	mg/kg	0.50		34			25		
Selenium	M	2450	mg/kg	0.20		< 0.20			< 0.20		
Vanadium	U	2450	mg/kg	5.0		32			35		
Zinc	M	2450	mg/kg	0.50		110			110		
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50			< 0.50		
Organic Matter	M	2625	%	0.40		2.4		1.1	0.83		
Total Organic Carbon	M	2625	%	0.20				0.66			
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010				< 0.010			
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010				< 0.010			
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10				< 0.10			
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10				< 0.10			
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10				< 0.10			
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10				< 0.10			
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10				< 0.10			

Chemtest
The right chemistry to deliver results

Results - Soil

Project: STP4262 Wickes Torquay

Client: Soiltechnics Limited					**Chemtest Job No.:**	18-01344	18-01344	18-01344	18-01344	18-01344	18-01344
Quotation No.:					**Chemtest Sample ID.:**	564999	565000	565001	565002	565003	565004
Order No.: POR002219					Client Sample Ref.:	TP07	TP07	TP08	TP09	TP10	TP13
					Client Sample ID.:	TP070.201-070	TP070.501-071	TP080.301-076	TP090.201-037	TP100.401-041	TP130.301-058
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.20	0.50	0.30	0.20	0.40	0.30
					Date Sampled:	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018
					Asbestos Lab:		COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10			< 0.10				
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0			< 1.0				
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010			< 0.010				
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010			< 0.010				
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10			< 0.10				
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10			< 0.10				
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10			< 0.10				
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10			< 0.10				
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10			< 0.10				
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10			< 0.10				
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0			< 1.0				
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0			< 2.0				
Dibutyl Tin	N	2730	µg/kg	10						< 10	
Tetrabutyl Tin	N	2730	µg/kg	10						< 10	
Tributyl Tin	N	2730	µg/kg	10						< 10	
Triphenyl Tin	N	2730	µg/kg	10						< 10	
Tetraethyl Lead	N	2760	µg/kg	10						< 10	
Tetramethyl Lead	N	2760	µg/kg	10						< 10	
Benzene	M	2760	µg/kg	1.0			< 1.0				
Toluene	M	2760	µg/kg	1.0			< 1.0				
Ethylbenzene	M	2760	µg/kg	1.0			< 1.0				
m & p-Xylene	M	2760	µg/kg	1.0			< 1.0				
o-Xylene	M	2760	µg/kg	1.0			< 1.0				
Naphthalene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10			< 0.10			
Acenaphthene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Fluorene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Phenanthrene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Anthracene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Fluoranthene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Pyrene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Chrysene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10			< 0.10			
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10			< 0.10			

Results - Soil

Project: STP4262 Wickes Torquay

Client: Soiltechnics Limited					**Chemtest Job No.:**	18-01344	18-01344	18-01344	18-01344	18-01344
Quotation No.:					**Chemtest Sample ID.:**	564999	565000	565001	565002	565003	565004
Order No.: POR002219					Client Sample Ref.:	TP07	TP07	TP08	TP09	TP10	TP13
					Client Sample ID.:	TP070.201-070	TP070.501-071	TP080.301-076	TP090.201-037	TP100.401-041	TP130.301-058
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.20	0.50	0.30	0.20	0.40	0.30
					Date Sampled:	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018	04-Jan-2018
					Asbestos Lab:		COVENTRY				
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10			< 0.10		
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10		< 0.10			< 0.10		
Total Of 16 PAH's	N	2800	mg/kg	2.0		< 2.0			< 2.0		
Total Phenols	M	2920	mg/kg	0.30		< 0.30			< 0.30		

Chemtest
The right chemistry to deliver results

Results - Water

Project: STP4262 Wickes Torquay

Client: Soiltechnics Limited			**Chemtest Job No.:**		18-01344
Quotation No.:			**Chemtest Sample ID.:**		564995
Order No.: POR002219			Client Sample Ref.:		TP04
			Client Sample ID.:		TP043.401-023
			Sample Type:		WATER
			Top Depth (m):		3.40
			Date Sampled:		04-Jan-2018
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
pH	U	1010		N/A	7.5
Ammoniacal Nitrogen	U	1220	mg/l	0.010	0.43
Sulphate	U	1220	mg/l	1.0	24
Magnesium	U	1415	mg/l	0.50	2.8

Results - 2 Stage WAC

Project: STP4262 Wickes Torquay

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	18-01344						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Chemtest Sample ID:	565005								
Sample Ref:	WAC								
Sample ID:	WAC0.002-002								
Top Depth(m):	0.00								
Bottom Depth(m):									
Sampling Date:	04-Jan-2018								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.58	3	5	6
Loss On Ignition	2610	M	%			2.5	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				7.9	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.051	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	0.0012	0.0016	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.010	0.0063	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0025	0.0018	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	0.0067	0.0017	0.013	0.025	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0023	0.0017	< 0.50	< 0.50	4	50	200
Chloride	1220	U	4.9	3.4	< 10	36	800	15000	25000
Fluoride	1220	U	0.14	0.13	< 1.0	1.3	10	150	500
Sulphate	1220	U	16	9.1	32	100	1000	20000	50000
Total Dissolved Solids	1020	N	160	70	320	840	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	8.1	6.4	< 50	67	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	13

Leachate Test Information	
Leachant volume 1st extract/l	0.324
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.274

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection

Test Methods

SOP	Title	Parameters included	Method summary
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
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
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

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Analysis of test data in relation to concentrations of inorganic chemical contaminants

Adopted Model: Industrial/Commercial
Receptor: Current and Proposed site users and Construction Operatives

Test procedure			Summary of test data					Initial comparison	Outlier test				Normality test			UCL	
Contaminant	Guideline source	Guideline value mg/kg	No. of tests	Min. mg/kg	Max. mg/kg	Mean mg/kg	No. of tests above guideline value	Initial screening	Pass outlier test?	Number of outliers	Location of outlier	Depth	Concentration mg/kg	Shapiro-Wilk Normality test	Probability plot test	Data normally distributed?	95% UCL of mean mg/kg	Contaminant
Arsenic	S4UL	640	5	13.0	28.0	18.6	0	Mean value below guideline	y					normal				**Arsenic**
Beryllium	S4UL	12	5	1.0	1.6	1.1	0	Mean value below guideline	n					not normal				**Beryllium**
Boron	S4UL	240000	5	0.4	0.8	0.6	0	Mean value below guideline	y					normal				**Boron**
Cadmium	S4UL	190	5	0.3	1.0	0.5	0	Mean value below guideline	n					normal				**Cadmium**
Chromium (III)	S4UL	8600	5	18.0	31.0	26.0	0	Mean value below guideline	y					normal				**Chromium (III)**
Copper	S4UL	68000	5	5.7	14.0	10.2	0	Mean value below guideline	y					normal				**Copper**
Cyanide (total)	ATK	34	5	0.5	0.5	0.5	0	Mean value below guideline	y					not normal				**Cyanide (total)**
Lead	C4SL (I)	1100	5	25.0	200.0	75.6	0	Mean value below guideline	n					normal				**Lead**
Mercury#	S4UL	58	5	0.1	0.4	0.2	0	Mean value below guideline	n					not normal				**Mercury#**
Nickel	S4UL	980	5	14.0	26.0	18.4	0	Mean value below guideline	y					normal				**Nickel**
Selenium	S4UL	12000	5	0.2	0.3	0.2	0	Mean value below guideline	n					not normal				**Selenium**
Vanadium	S4UL	9000	5	20.0	37.0	30.4	0	Mean value below guideline	y					normal				**Vanadium**
Zinc	S4UL	730000	5	100.0	180.0	130.0	0	Mean value below guideline	y					normal				**Zinc**

S4UL	Suitable for Use Level as published by LQM/CIEH
C4SL	Category 4 Screening Level
C4SL (lower) (upper)	Category 4 Screening Level for Lead at lower or upper bound of range
ATK	Soil Screening Value derived by Atkins
BPG5	Guideline from BPG Note 5 as published by Forest Research
#	Assumed to be elemental mercury as initial screening value

Title	Table number
Analysis of test data in relation to concentrations of inorganic chemical contaminants.	1

soiltechnics
environmental and geotechnical consultants

Analysis of test data in relation to concentrations of organic chemical contaminants

Adopted model: Industrial/Commercia
Receptor: Current and Proposed site user and Construction Operatives

Test procedure			Summary of test data					Initial Screening	Outlier test				Normality test			UCL	
Contaminant	Guideline source	Guideline value* mg/kg	No. of tests	Min. mg/kg	Max. mg/kg	Mean mg/kg	No. of tests above guideline value	Initial screening	Pass outlier test?	Number of outliers	Location of outlier	Depth	Concentration mg/kg	Shapiro-Wilk Normality test	Probability plot test	Data normally distributed?	95% UCL of mean mg/kg	Contaminant
Acenaphthene	S4UL	84000	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Acenaphthene**
Acenaphthylene	S4UL	83000	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Acenaphthylene**
Anthracene	S4UL	520000	5	0.1	0.1	0.1	0	Mean value below guideline	n					not normal				**Anthracene**
Benzo(a)anthracene	S4UL	170	5	0.1	0.7	0.2	0	Mean value below guideline	n					not normal				**Benzo(a)anthracene**
Benzo(a)pyrene	S4UL	35	5	0.1	0.6	0.2	0	Mean value below guideline	n					not normal				**Benzo(a)pyrene**
Benzo(b)fluoranthene	S4UL	44	5	0.1	0.7	0.2	0	Mean value below guideline	n					not normal				**Benzo(b)fluoranthene**
Benzo(g,h,i)perylene	S4UL	3900	5	0.1	0.3	0.1	0	Mean value below guideline	n					not normal				**Benzo(g,h,i)perylene**
Benzo(k)fluoranthene	S4UL	1200	5	0.1	0.2	0.1	0	Mean value below guideline	n					not normal				**Benzo(k)fluoranthene**
Chrysene	S4UL	350	5	0.1	0.7	0.2	0	Mean value below guideline	n					not normal				**Chrysene**
Dibenzo(a,h)anthracene	S4UL	3.5	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Dibenzo(a,h)anthracene**
Fluoranthene	S4UL	23000	5	0.1	1.9	0.5	0	Mean value below guideline	n					not normal				**Fluoranthene**
Fluorene	S4UL	63000	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Fluorene**
Indeno(1,2,3-cd)pyrene	S4UL	500	5	0.1	0.3	0.1	0	Mean value below guideline	n					not normal				**Indeno(1,2,3-cd)pyrene**
Naphthalene	S4UL	190	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Naphthalene**
Phenanthrene	S4UL	22000	5	0.1	0.4	0.2	0	Mean value below guideline	n					not normal				**Phenanthrene**
Phenols	S4UL	760	5	0.3	0.3	0.3	0	Mean value below guideline	y					not normal				**Phenols**
Pyrene	S4UL	54000	5	0.1	1.6	0.4	0	Mean value below guideline	n					not normal				**Pyrene**

Notes

S4UL	Suitable for Use Level as published by LQM/CIEH
C4SL	Category 4 Screening Level
SGV	Soil Guideline Value as published by the Environment Agency 2009
SSV	Soil Screening Value as derived by Soiltechnics
ATK	Soil Screening Value derived by Atkins
*	Assuming a SOM of 1%

Title	Table number
Analysis of test data in relation to concentrations of organic chemical contaminants.	2

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Analysis of test data in relation to concentrations of inorganic chemical contaminants

Adopted Model: Industrial/Commercial
Receptor: Vegetation

Test procedure			Summary of test data					Initial comparison	Outlier test				Normality test			UCL	
Contaminant	Guideline source	Guideline value mg/kg	No. of tests	Min. mg/kg	Max. mg/kg	Mean mg/kg	No. of tests above guideline value	Initial screening	Pass outlier test?	Number of outliers	Location of outlier	Depth	Concentration mg/kg	Shapiro-Wilk Normality test	Probability plot test	Data normally distributed?	95% UCL of mean mg/kg	Contaminant
Arsenic	S4UL	640	5	13.0	28.0	18.6	0	Mean value below guideline	y					normal				**Arsenic**
Beryllium	S4UL	12	5	1.0	1.6	1.1	0	Mean value below guideline	n					not normal				**Beryllium**
Boron	S4UL	240000	5	0.4	0.8	0.6	0	Mean value below guideline	y					normal				**Boron**
Cadmium	S4UL	190	5	0.3	1.0	0.5	0	Mean value below guideline	n					normal				**Cadmium**
Chromium (III)	S4UL	8600	5	18.0	31.0	26.0	0	Mean value below guideline	y					normal				**Chromium (III)**
Copper	S4UL	68000	5	5.7	14.0	10.2	0	Mean value below guideline	y					normal				**Copper**
Cyanide (total)	ATK	34	5	0.5	0.5	0.5	0	Mean value below guideline	y					not normal				**Cyanide (total)**
Lead	C4SL (I)	1100	5	25.0	200.0	75.6	0	Mean value below guideline	n					normal				**Lead**
Mercury#	S4UL	58	5	0.1	0.4	0.2	0	Mean value below guideline	n					not normal				**Mercury#**
Nickel	S4UL	980	5	14.0	26.0	18.4	0	Mean value below guideline	y					normal				**Nickel**
Selenium	S4UL	12000	5	0.2	0.3	0.2	0	Mean value below guideline	n					not normal				**Selenium**
Vanadium	S4UL	9000	5	20.0	37.0	30.4	0	Mean value below guideline	y					normal				**Vanadium**
Zinc	S4UL	730000	5	100.0	180.0	130.0	0	Mean value below guideline	y					normal				**Zinc**

S4UL	Suitable for Use Level as published by LQM/CIEH
C4SL	Category 4 Screening Level
C4SL (lower) (upper)	Category 4 Screening Level for Lead at lower or upper bound of range
ATK	Soil Screening Value derived by Atkins
BPG5	Guideline from BPG Note 5 as published by Forest Research
#	Assumed to be elemental mercury as initial screening value

Title	Table number
Analysis of test data in relation to concentrations of inorganic chemical contaminants.	3

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Analysis of test data in relation to concentrations of organic chemical contaminants

Adopted model: Industrial/Commercia
Receptor: Vegetation

Test procedure			Summary of test data					Initial Screening	Outlier test				Normality test			UCL	
Contaminant	Guideline source	Guideline value* mg/kg	No. of tests	Min. mg/kg	Max. mg/kg	Mean mg/kg	No. of tests above guideline value	Initial screening	Pass outlier test?	Number of outliers	Location of outlier	Depth	Concentration mg/kg	Shapiro-Wilk Normality test	Probability plot test	Data normally distributed?	95% UCL of mean mg/kg	Contaminant
Acenaphthene	S4UL	84000	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Acenaphthene**
Acenaphthylene	S4UL	83000	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Acenaphthylene**
Anthracene	S4UL	520000	5	0.1	0.1	0.1	0	Mean value below guideline	n					not normal				**Anthracene**
Benzo(a)anthracene	S4UL	170	5	0.1	0.7	0.2	0	Mean value below guideline	n					not normal				**Benzo(a)anthracene**
Benzo(a)pyrene	S4UL	35	5	0.1	0.6	0.2	0	Mean value below guideline	n					not normal				**Benzo(a)pyrene**
Benzo(b)fluoranthene	S4UL	44	5	0.1	0.7	0.2	0	Mean value below guideline	n					not normal				**Benzo(b)fluoranthene**
Benzo(g,h,i)perylene	S4UL	3900	5	0.1	0.3	0.1	0	Mean value below guideline	n					not normal				**Benzo(g,h,i)perylene**
Benzo(k)fluoranthene	S4UL	1200	5	0.1	0.2	0.1	0	Mean value below guideline	n					not normal				**Benzo(k)fluoranthene**
Chrysene	S4UL	350	5	0.1	0.7	0.2	0	Mean value below guideline	n					not normal				**Chrysene**
Dibenzo(a,h)anthracene	S4UL	3.5	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Dibenzo(a,h)anthracene**
Fluoranthene	S4UL	23000	5	0.1	1.9	0.5	0	Mean value below guideline	n					not normal				**Fluoranthene**
Fluorene	S4UL	63000	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Fluorene**
Indeno(1,2,3-cd)pyrene	S4UL	500	5	0.1	0.3	0.1	0	Mean value below guideline	n					not normal				**Indeno(1,2,3-cd)pyrene**
Naphthalene	S4UL	190	5	0.1	0.1	0.1	0	Mean value below guideline	y					not normal				**Naphthalene**
Phenanthrene	S4UL	22000	5	0.1	0.4	0.2	0	Mean value below guideline	n					not normal				**Phenanthrene**
Phenols	S4UL	760	5	0.3	0.3	0.3	0	Mean value below guideline	y					not normal				**Phenols**
Pyrene	S4UL	54000	5	0.1	1.6	0.4	0	Mean value below guideline	n					not normal				**Pyrene**

Notes

S4UL	Suitable for Use Level as published by LQM/CIEH
C4SL	Category 4 Screening Level
SGV	Soil Guideline Value as published by the Environment Agency 2009
SSV	Soil Screening Value as derived by Soiltechnics
ATK	Soil Screening Value derived by Atkins
*	Assuming a SOM of 1%

Title	Table number
Analysis of test data in relation to concentrations of organic chemical contaminants.	4

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Summary of petroleum hydrocarbon test results

Model: **Industrial/Commercial**

BTEX (Red highlights indicate exceedance of guideline value)

Indicator	unit	S4UL (mg/kg)	Concentration TP08 0.30
Benzene	mg/kg	27	< 0.001
Toluene	mg/kg	56000	< 0.001
Ethylbenzene	mg/kg	5700	< 0.001
o-Xylene	mg/kg	6600	< 0.001
m,p-Xylene	mg/kg	5900	< 0.001

Hydrocarbon banding (Red highlights indicate exceedance of guideline value)

Fraction	unit	S4UL (mg/kg)	Concentration TP08 0.30
Aliphatic			
EC 5 - 6	mg/kg	3200	< 0.010
EC >6 - 8	mg/kg	7800	< 0.010
EC >8 - 10	mg/kg	2000	< 0.10
EC >10 - 12	mg/kg	9700	< 0.10
EC >12 - 16	mg/kg	59000	< 0.10
EC >16 - 35	mg/kg	1600000	< 0.10
EC >35 - 44	mg/kg	1600000	< 0.10
Aromatic			
EC 5 - 7 (benzene)	mg/kg	26000	< 0.010
EC >7 - 8 (toluene)	mg/kg	56000	< 0.010
EC >8 - 10	mg/kg	3500	< 0.10
EC >10 - 12	mg/kg	16000	< 0.10
EC >12 - 16	mg/kg	36000	< 0.10
EC >16 - 21	mg/kg	28000	< 0.10
EC >21 - 35	mg/kg	28000	< 0.10
EC >35 - 44	mg/kg	28000	< 0.10

Title	Table number
Comparison of measured concentrations of petroleum hydrocarbons with guideline values.	5

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Initial Conceptual Model based on desk study information

Current site use Vacant site accessible to public
Proposed site use Commercial/industrial

Source	Pathway										Receptor		Risk assessment to CIRIA C552	
	Humans						Vegetation	Water					Consequence of risk occurring via most likely pathway	Risk
	Ingestion of airborne dust	Ingestion of soil	Ingestion of vegetables and soil attached to vegetables	Inhalation of airborne dust	Inhalation of vapours	Dermal contact with soil and dust	Root uptake, deposition to shoots and foliage contact	Percolation of water through contaminated soil	Near-surface water run-off through contaminated soil	Saturation of contaminated soil by floodwater				
On site														
Made Ground soils	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current and proposed site users	Adult	Mild	Low/moderate
	Likely	Likely	Unlikely	Likely	Likely	Likely	-	-	-	-	Construction operatives	Adult	Mild	Low/moderate
	-	-	-	-	-	-	Likely	-	-	-	Vegetation (current)	-	Mild	Low/moderate
	-	-	-	-	-	-	Likely	-	-	-	Vegetation (proposed)	-	Mild	Low/moderate
	-	-	-	-	-	-	-	Likely	Likely	Low likelihood	Water (current and proposed)	-	Minor	Low

Title	Table number
Initial Conceptual Site Model	1

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Final Conceptual Model based on laboratory testing data

Current site use Vacant site accessible to public
Proposed site use Commercial/industrial

Source	Pathway										Receptor		Risk assessment to CIRIA C552	
	Humans						Vegetation	Water					Consequence of risk occurring via most likely pathway	Risk
	Ingestion of airborne dust	Ingestion of soil	Ingestion of vegetables and soil attached to vegetables	Inhalation of airborne dust	Inhalation of vapours	Dermal contact with soil and dust	Root uptake, deposition to shoots and foliage contact	Percolation of water through contaminated soil	Near-surface water run-off through contaminated soil	Saturation of contaminated soil by floodwater				
On site														
Made Ground soils	Likely	Low likelihood	Unlikely	Likely	Likely	Likely	-	-	-	-	Current and proposed site users	Adult	Minor	Low
	Likely	Likely	Unlikely	Likely	Likely	Likely	-	-	-	-	Construction operatives	Adult	Minor	Low
	-	-	-	-	-	-	Likely	-	-	-	Vegetation (current)	-	Minor	Low
	-	-	-	-	-	-	Likely	-	-	-	Vegetation (proposed)	-	Minor	Low
	-	-	-	-	-	-	-	Likely	Likely	Low likelihood	Water (current and proposed)	-	Minor	Low

Title	Table number
Final Conceptual Site Model	2

Record of in-situ gas and water level monitoring results

Date / Time		Instrument Used	Location	Atmospheric pressure (mB)		Temperature (°C)	Methane, CH_4 (%v/v) *Chg*		Carbon Dioxide, CO_2 (%v/v) *Chg*		Oxygen, O_2 (%v/v)		Balance	Lower Explosive Limit	Gas Flow (q)	Peak hazardous gas flow rate *Qhgs*		Steady hazardous gas flow rate *Qhgs*		Characteristic gas situation	Potentially Explosive	Water Level (m)	Water Level (mAOD)
							Peak	Steady	Peak	Steady	Minimum	Average	(%v/v)	(% LEL)	(l/Hr)	CH_4	CO_2	CH_4	CO_2				
09/02/2018	09:24	GA5000	BH01	1012	Steady	4.0	0.1	0.1	0.3	0.3	20.9	21.3	78.3	2.0	0.1	0.00	0.00	0.00	0.00	ONE	NO	0.96	35.24
09/02/2018	08:47	GA5000	BH01	1016	Steady	4.0	0.1	0.1	1.1	0.9	20.1	20.4	78.6	2.0	-0.1	0.00	0.00	0.00	0.00	ONE	NO	0.72	35.48
09/02/2018	09:02	GA5000	BH02	1017	Steady	4.0	0.1	0.1	1.0	0.9	20.9	20.9	78.1	2.0	0.0	0.00	0.00	0.00	0.00	ONE	NO	0.77	38.33
09/02/2018	09:53	GA5000	BH02	1016	Steady	4.0	0.1	0.1	0.3	0.3	21.2	21.2	78.4	2.0	-0.1	0.00	0.00	0.00	0.00	ONE	NO	0.77	38.33

0.1	0.1	1.1	0.9	20.1	20.4	78.6	2.0	0.10	0.00	0.00	0.00	0.00	ONE	**Worst case scenario**
0.1	0.1	0.7	0.6	20.8	21.0	78.4	2.0	0.10	0.00	0.00	0.00	0.00	ONE	**Average site scenario**

Additonal considerations:

Notes:

1) Gas Screening Value (GSV) derived by multiplying the peak gas concentration (%) by the peak flow rate (l/h).

2) The gas analyser is capable of measuring flow to an accuracy of 0.1l/h. Below this value the analyser records zero flow. Adopting a precautionary approach we have used a flow rate of 0.1l/h when the analyser records zero with this flow rate used to determine the gas screening value.

Title	Revision
Record of in-situ gas monitoring results	Final

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Table comparing cumulative compound concentrations with hazardous waste threshold values

Category of danger		Irritant	Harmful	Toxic		Carcinogenic		Corrosive		Toxic for reproduction		Mutagenic		Ecotoxic		
														∑N : R50-53/0.25	∑N : 50-53	∑N : 50-53
														+∑N : R51-53/2.5	+∑N : R50	+∑N : 51-53
						Carc Cat 1				Repr Cat 1 or				+∑N : R52-53/25		+∑N : 52-53
Risk Phrase		Xi	Xn	T+	T	or 2	Carc Cat 3	C R34	C R35	2	Repr Cat 3	Muta Cat 2	Muta Cat 3			+∑N : R53
Contaminant	Highest	H4	H5	H6	H6	H7	H7	H8	H8	H10	H10	H11	H11	H14	H14	H14
	concentration	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)			
Metals																
Arsenic	28.00			0.0037	0.0043	0.0043								0.6740	0.0043	0.0043
Beryllium	1.60	0.0004		0.0004	0.0004	0.0004										0.0004
Copper	14.00	0.0035	0.0035												0.0035	0.0035
Cadmium	1.00		0.0001		0.0001	0.0001										
Chromium	31.00					0.0050									0.0050	0.0050
Lead	200.00		0.0216							0.0216	0.0216				0.0216	0.0216
Mercury	0.43			0.0000											0.0000	0.0000
Nickel	26.00		0.0033				0.0033				0.0033				0.0033	0.0033
Selenium	0.31				0.0000										0.0000	0.0000
Zinc	180.00	0.1305	0.1305			0.0499		0.0375					0.0846		0.1305	0.1305
Vanadium	37.00	0.0054			0.0054						0.0054		0.0054			0.0054
PAH																
Naphthalene	0.00		0.0000												0.0000	0.0000
Benzo(a)anthracene	0.68				0.0001	0.0001									0.0001	0.0001
Chrysene	0.67				0.0001	0.0001							0.0001		0.0001	0.0001
Benzo(b)fluoranthene	0.65				0.0001	0.0001									0.0001	0.0001
Benzo(k)fluoranthene	0.17				0.0000	0.0000									0.0000	0.0000
Benzo(a)pyrene	0.57					0.0001				0.0001		0.0001			0.0001	0.0001
Dibenzo(a,h)anthracene	0.00				0.0000	0.0000									0.0000	0.0000
TPH																
Benzene	0.00				0.0000	0.0000										
1,2,4-trimethylbenzene	0.00	0.0000	0.0000													0.0000
Hydrocarbon (C6 to C35)	0.00		0.0000			0.0000					0.0000	0.0000				0.0000
Total (or greatest)		0.1399	0.1590	0.0042	0.0105	(0.0499)	(0.0033)	0.0375	0.0000	(0.0216)	(0.0216)	(0.0001)	(0.0846)	0.6740	0.1685	0.1744
Threshold		1%	1%	0.10%	3%	0.10%	1%	5%	1%	0.50%	3%	0.10%	1%	1	25%	25%
Exceeded Y/N		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Title	Table number
Hazard assessment spreadsheet	1 of 1

soiltechnics
environmental and geotechnical consultants

Landfill Waste Acceptance Criteria				Laboratory test data	
Parameter	Inert waste landfill	Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill	WAC	
Parameters determined on the waste					
Total organic carbon (w/w %)	3%	5%	6%*	0.58	
Loss on ignition			10%*	2.5	
BTEX (mg kg^{-1})	6			< 0.010	
PCBs (7 congeners) (mg kg^{-1})	1			< 0.10	
Mineral oil C_{10} - C_{40} (mg kg^{-1})	500			< 10	
PAH (17 congeners)	100			< 2.0	
pH		>6		7.9	
Acid neutralisation capacity pH 6 (mol kg^{-1})		To be evaluated	To be evaluated		
Acid neutralisation capacity pH 4 (mol kg^{-1})		To be evaluated	To be evaluated		
Limit values (mg kg^{-1}) for compliance test using BN 12457-3 at L/S 10 l kg^{-1}					
As (arsenic)	0.5	2	25	< 0.050	
Ba (barium)	20	100	300	< 0.50	
Cd (cadmium)	0.04	1	5	< 0.010	
Cr (chromium (total))	0.5	10	70	< 0.050	
Cu (Copper)	2	50	100	< 0.050	
Hg (mercury)	0.01	0.2	2	< 0.0050	
Mo (molybdenum)	0.5	10	30	< 0.050	
Ni (nickel)	0.4	10	40	< 0.050	
Pb (lead)	0.5	10	50	< 0.010	
Sb (antimony)	0.06	0.7	5	0.025	
Se (selenium)	0.1	0.5	7	< 0.010	
Zn (zinc)	4	50	200	< 0.50	
Cl (chloride)	800	15,000	25,000	36	
F (fluoride)	10	150	500	1.3	
SO_4 (sulphate)	1000#	20,000	50,000	100	
Total Dissolved Solids (TDS)+	4,000	60,000	100,000	840	
Phenol index	1			< 0.50	
Dissolved organic carbon at own pH or pH 7.5-8.0@	500	800	1000	67	

Notes

* Either TOC or LOI must be used for hazardous waste
\# If an inert waste does not meet the SO4 L/S10 limit, alternative limit values of 1500 mg l-1 SO4 at Co (initial eluate from the percolation test (prCEN/TS 14405:2003)) AND 6000 mg kg-1 SO4 at L/S10 (either from the percolation test or batch test BS EN 12457-3), can be used to demonstrate compliance with the acceptable criteria for inert wastes.
\+ The value for TDS can be used instead of the values for Cl and SO4
@ DOC at pH 7.5-8.0 abd L/S10 can be determined or eluate derived from a modified version of the pH dependence Test, prEN 14429, if the limit value at own pH (BS EN 12457 eluate) is not met.

PRIMARY CLASSIFICATION	NON-HAZARDOUS	
SECONDARY CLASSIFICATION	INERT	

Title

Comparison of test data to landfill waste acceptance criteria (table 5.1) (Secondary classification)

Table number

1 of 1

Basic categorisation schedule for Made Ground soils

Produced following the requirements of The Landfill (England and Wales) (Amendment) Regulations 2004 Part 2 (5)

(a) *Source and origin of waste*

Proposed Wickes Store at Orchard Way, Torquay, TQ2 7FF

(b) *Process producing the waste*

Foundation excavations, general site clearance, cut and fill operations

(c) *Statement on waste treatment*

Refer to pre-treatment confirmation form

(d) *Composition of the waste*

Red brown gravelly clayey to very clayey fine to medium sand. Gravel consists of fine to medium sub-angular sandstone, breccia and frequent quartz, limestone, brick, china and plastic.

(e) *Appearance of the waste*

As above

(f) *European waste catalogue code*

17-05-04 (*for non-hazardous waste*)

(g) *Hazardous waste properties*

None

(h) *Is the waste prohibited under regulation 9?*

No

(i) *Landfill class*

Inert based on laboratory testing

(j) *Additional precautions required at landfill*

None

(k) *Can waste be recycled or recovered?*

Yes

(l) *Name and address of waste producer*

Travis Perkins, Lodgeway House, Harlestone Road, Northampton, NN5 7UG

(m) *Name and address of consultant*

Soiltechnics Limited, Cedar Barn, White Lodge, Walgrave, Northampton. NN6 9PY.
Tel: (01604) 781877 **E-mail: mail@soiltechnics.net**
Fax: (01604) 781007 **Website: www.soiltechnics.net**

Schedule Date:

22-02-18

Soiltechnics reference:

STP4262-G01

Signed

Darryl Neylon B.Sc (Hons) FGS AMIEnvSc
Geo-environmental Engineer, Soiltechnics Limited

Basic categorisation schedule for Alluvium soils

Produced following the requirements of The Landfill (England and Wales) (Amendment) Regulations 2004 Part 2 (5)

(a) *Source and origin of waste*

Proposed Wickes Store at Orchard Way, Torquay, TQ2 7FF

(b) *Process producing the waste*

Foundation excavations, general site clearance, cut and fill operations

(c) *Statement on waste treatment*

Refer to pre-treatment confirmation form

(d) *Composition of the waste*

Very soft to stiff low to very high strength red to orange brown slightly gravelly sandy to very sandy clay. Gravel consists of fine to coarse sub-angular sandstone. Sand was fine to coarse grained.

(e) *Appearance of the waste*

As above

(f) *European waste catalogue code*

17-05-04 (*for non-hazardous waste*)

(g) *Hazardous waste properties*

None

(h) *Is the waste prohibited under regulation 9?*

No

(i) *Landfill class*

Inert based on soils being of natural origin

(j) *Additional precautions required at landfill*

None

(k) *Can waste be recycled or recovered?*

Yes

(l) *Name and address of waste producer*

Travis Perkins, Lodgeway House, Harlestone Road, Northampton, NN5 7UG

(m) *Name and address of consultant*

Soiltechnics Limited, Cedar Barn, White Lodge, Walgrave, Northampton. NN6 9PY.
Tel: (01604) 781877 **E-mail: mail@soiltechnics.net**
Fax: (01604) 781007 **Website: www.soiltechnics.net**

Schedule Date:

22-02-18

Soiltechnics reference:

STP4262-G01

Signed

Darryl Neylon B.Sc (Hons) FGS AMIEnvSc
Geo-environmental Engineer, Soiltechnics Limited

Basic categorisation schedule for Watcombe Breccia Formation soils

Produced following the requirements of The Landfill (England and Wales) (Amendment) Regulations 2004 Part 2 (5)

(a) *Source and origin of waste*

Proposed Wickes Store at Orchard Way, Torquay, TQ2 7FF

(b) *Process producing the waste*

Foundation excavations, general site clearance, cut and fill operations

(c) *Statement on waste treatment*

Refer to pre-treatment confirmation form

(d) *Composition of the waste*

Red brown slightly to very clayey gravelly to very gravelly fine to coarse sand and weak breccia and well sorted sandstone. Gravel consists of fine to coarse sub-angular sandstone and breccia.

(e) *Appearance of the waste*

As above

(f) *European waste catalogue code*

17-05-04 (*for non-hazardous waste*)

(g) *Hazardous waste properties*

None

(h) *Is the waste prohibited under regulation 9?*

No

(i) *Landfill class*

Inert based on soils being of natural origin

(j) *Additional precautions required at landfill*

None

(k) *Can waste be recycled or recovered?*

Yes

(l) *Name and address of waste producer*

Travis Perkins, Lodgeway House, Harlestone Road, Northampton, NN5 7UG

(m) *Name and address of consultant*

Soiltechnics Limited, Cedar Barn, White Lodge, Walgrave, Northampton. NN6 9PY.
Tel: (01604) 781877 **E-mail: mail@soiltechnics.net**
Fax: (01604) 781007 **Website: www.soiltechnics.net**

Schedule Date:

22-02-18

Soiltechnics reference:

STP4262-G01

Signed

Darryl Neylon B.Sc (Hons) FGS AMIEnvSc
Geo-environmental Engineer, Soiltechnics Limited

Scale	1 : 2000@A3
User ID	rachel.brown@soiltec
Date	29/11/2017
Grid Ref:	Easting: 288772 Northing: 66220
Internal Use Only	

Low Pressure
Medium Pressure
Intermediate Pressure
High Pressure
Design Pipes
Abandoned

N

0 55 110 Meters

Some examples of Plant Items:
Valve, Depth of Cover, Syphon, Diameter Change, Material Change

TITLE:

The plan shows those pipes owned by Wales & West Utilities (WWU) in its role as a Licensed Gas Transporter (GT). The information shown on this plan is derived from historic information and may have involved re-scaling plans, and the accuracy of it cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. may not be shown but their presence should be anticipated. No warranties are therefore given in respect of it. WWU its employees and contractors do not accept any liability for any inaccuracy or incompleteness in it.

You must use safe digging practices, in accordance with HS(G)47, to establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you or near gas apparatus. The information shown on this plan should not be used beyond 28 days from the date of issue of this plan as it is subject to updating.

The plan also provides indications of gas pipes owned by other GTs, or otherwise privately owned, which may be present in this area. This information is not information of WWU and WWU is unable to verify this information or to confirm whether it is accurate or complete. It is supplied voluntarily to assist the user in determining whether to make contact with other GTs or others. The user must obtain such information from the other GT or person concerned. WWU, its employees and contractors do not accept any liability for this information or any inaccuracy or incompleteness in it.

WALES&WEST UTILITIES

Wales and West Utilities Ltd., Wales and West House, Spooner Close, Celtic Springs, Coedkernew, Newport, NP10 8FZ

Enquiry Confirmation

LSBUD Ref: 11736632

Date of enquiry: 29/11/2017
Time of enquiry: 15:26

Enquirer

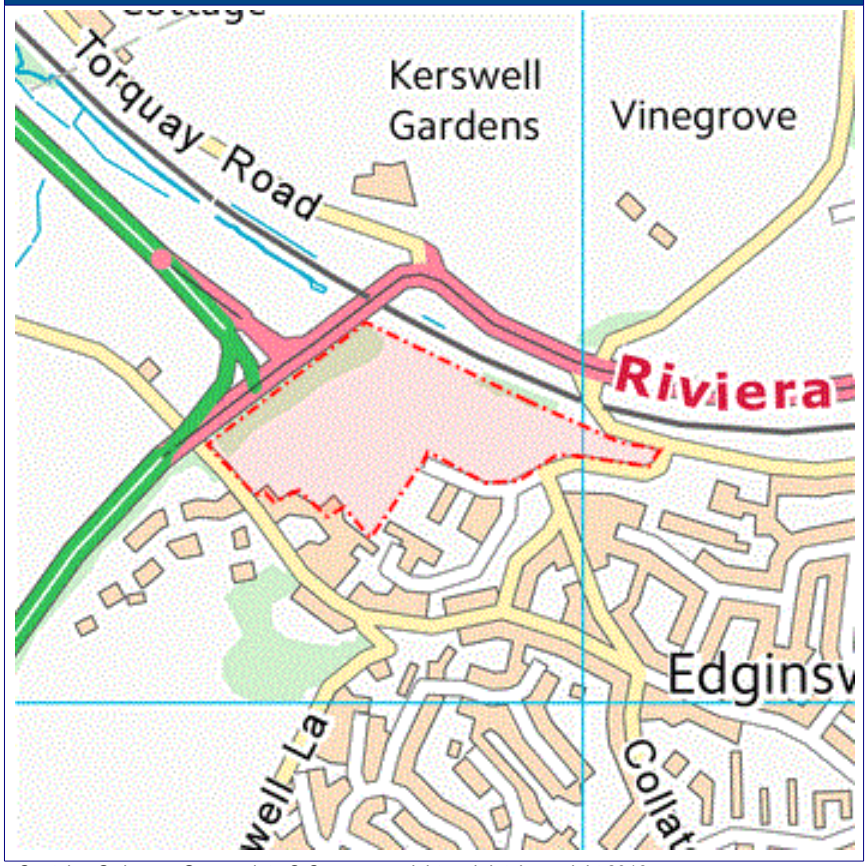
Name	Mrs R Brown	Phone	01604781877
Company	Soiltechnics Limited	Mobile	Not Supplied
		Fax	Not Supplied
Address	Cedar Barn White Lodge Walgrave Northamptonshire nn6 9PY		
Email	rachel.brown@soiltechnics.net		
Notes	Please ensure your contact details are correct and up to date on the system in case the LSBUD Members need to contact you.		

Enquiry Details

Scheme/Reference	STP4262		
Enquiry type	Initial Enquiry	Work category	Development Projects
Start date	03/01/2018	Work type	Commercial/industrial
End date	05/01/2018	Site size	44823 metres square
Searched location	XY= 288830, 66303 Easting/Northing	Work type buffer*	25 metres
Confirmed location	288820 066297		

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map



Enquiry Confirmation

LSBUD Ref: 11736632

Date of enquiry: 29/11/2017
Time of enquiry: 15:26

Asset Owners

Terms and Conditions. Please note that this enquiry is subject always to our standard terms and conditions available at www.linesearchbeforeudig.co.uk ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

Validity and search criteria. The results of this enquiry are based on the confirmed information you entered and are valid only as at the date of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LinesearchbeforeUdig accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.

Asset Owners & Responses. Please note the enquiry results include the following:

1. "LSBUD Members" who are asset owners who have registered their assets on the LSBUD service.
2. "Non LSBUD Members" are asset owners who have not registered their assets on the LSBUD service but LSBUD is aware of their existence. Please note that there could be other asset owners within your search area.

Below are three lists of asset owners:

1. LSBUD Members who have assets registered within your search area. ("Affected")
   a. These LSBUD Members will either:
      i. Ask for further information ("Email Additional Info" noted in status). The additional information includes: Site contact name and number, Location plan, Detailed plan (minimum scale 1:2500), Cross sectional drawings (if available), Work Specification.

      ii. Respond directly to you ("Await Response"). In this response they may either send plans directly to you or ask for further information before being able to do so, particularly if any payments or authorisations are required.

2. LSBUD Members who do not have assets registered within your search area. ("Not Affected")

3. Non LSBUD Members who may have assets within your search area. Please note that this list is not exhaustive and all details are provided as a guide only. It is your responsibility to identify and consult with all asset owners before proceeding.

National Grid. Please note that the LSBUD service only contains information on National Grid's Gas above 7 bar asset, all National Grid Electricity Transmission assets and National Grid's Gas Distribution Limited above 2 bar asset.

For National Grid Gas Distribution Ltd below 2 bar asset information please go to www.beforeyoudig.nationalgrid.com

Enquiry Confirmation

LSBUD Ref: 11736632

Date of enquiry: 29/11/2017
Time of enquiry: 15:26

LSBUD Members who have assets registered on the LSBUD service within the vicinity of your search area.

List of affected LSBUD members			
Asset Owner	**Phone/Email**	**Emergency Only**	**Status**
ESP Utilities Group	01372227560	01372227560	Await response
Western Power Distribution	08000963080	08006783105	Await response

LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area. Please be aware that LSBUD Members make regular changes to their assets and this list may vary for new enquiries in the same area.

List of not affected LSBUD members		
AWE Pipeline	Gateshead Energy Company	Prysmian Cables & Systems Ltd (c/o Western Link)
BOC Limited (A Member of the Linde Group)	Gigaclear PLC	Redundant Pipelines - LPDA
BP Exploration Operating Company Limited	Humbly Grove Energy	RWEnpower (Little Barford and South Haven)
BPA	IGas Energy	SABIC UK Petrochemicals
Carrington Gas Pipeline	INEOS FPS Pipelines	Scottish Power Generation
CATS Pipeline c/o Wood Group PSN	INEOS Manufacturing (Scotland and TSEP)	Seabank Power Ltd
Cemex	INOVYN Enterprises Limited	SGN
Centrica Storage Ltd	Intergen (Coryton Energy or Spalding Energy)	Shell (St Fergus to Mossmorran)
CLH Pipeline System Ltd	Mainline Pipelines Limited	Shell Pipelines
Concept Solutions People Ltd	Manchester Jetline Limited	SSE (Peterhead Power Station)
ConocoPhillips (UK) Ltd	Manx Cable Company	Total (Colnbrook & Colwick Pipelines)
DIO (MOD Abandoned Pipelines)	Marchwood Power Ltd (Gas Pipeline)	Total Finaline Pipelines
E.ON UK CHP Limited	Melbourn Solar Limited	Transmission Capital
EirGrid	National Grid Gas (Above 7 bar), National Grid Gas Distribution Limited (Above 2 bar) and National Grid Electricity Transmission	UK Power Networks
Electricity North West Limited	Northumbrian Water Group	Uniper UK Ltd
ENI & Himor c/o Penspen Ltd	NPower CHP Pipelines	Vattenfall
EnQuest NNS Limited	Oikos Storage Limited	Veolia ES SELCHP Limited
EP Langage Limited	Ørsted	Westminster City Council
ESSAR	Perenco UK Limited (Purbeck Southampton Pipeline)	Wingas Storage UK Ltd
Esso Petroleum Company Limited	Petroineos	Zayo Group UK Ltd c/o JSM Group Ltd
Fulcrum Pipelines Limited	Phillips 66	
Gamma	Premier Transmission Ltd (SNIP)	

Enquiry Confirmation

LSBUD Ref: 11736632

Date of enquiry: 29/11/2017
Time of enquiry: 15:26

The following Non-LSBUD Members may have assets in your search area. It is YOUR RESPONSIBILITY to contact them before proceeding. Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.

Non-LSBUD members (Asset owners not registered on LSBUD)			
Asset Owner	**Preferred contact method**	**Phone**	**Status**
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08009173993	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Energetics Electricity	plantenquiries@energetics-uk.com	01698404646	Not Notified
ENGIE	nrswa@cofely-gdfsuez.com	01293 549944	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
GTT (formerly Hibernia Networks)	owen.maguire@gtt.net	01704 322 300	Not Notified
Interoute	interoute.enquiries@plancast.co.uk	02070259000	Not Notified
KPN (c/-Instalcom)	kpn.plantenquiries@instalcom.co.uk	n/a	Not Notified
Level 3 Communications UK Ltd (C/-Instalcom)	plantenquiries@instalcom.co.uk	02087314613	Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
South West Water	searches@southwestwater.co.uk	01392443115	Not Notified
Tata (c/-McNicholas)	plantenquiries@mcnicholas.co.uk	03300558469	Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified
Vtesse Networks	https://plant.interoute.com/plant-enquiries/	01992532100	Not Notified
Wales and The West Utilities	www.wwutilities.co.uk/login.aspx	02920278912	Not Notified

SOUTH WEST WATER

FOR SEARCHES source A SOUTH WEST WATER SERVICE

SOILTECHNICS
CEDAR BARN WHITE LODGE
WALGRAVE
, NN6 9PY

UNDERGROUND ASSET INFORMATION

PUBLIC DRAINAGE & WATER

Location:	LAND OFF ORCHARD WAY, TORQUAY TQ2 7JD
Report Reference:	GIS/TRW/LAN/01122017/6
Your Reference:	STP4262
Date:	01 December 2017
For the Attention of:	RACHEL BROWN

Further to your request for information dated 29 November 2017, the Company's apparatus for the above site is shown herewith. South West Water Limited has made all reasonable efforts to ensure the accuracy of this information, but provides it subject to the following conditions:

• Service pipes and drainage connections may not be shown.

• No liability whatsoever is accepted for any inaccuracies or omissions in the information.

• If no reference is made in the information to any interest or right of the Company on any land, this is not to be taken as conclusive evidence that no such interest or right exists.

These reservations are in addition to any statutory regulations which apply.

Source for Searches - A South West Water Service contactus@sourceforsearches.co.uk 0845 330 3401

ASSETS NOT SHOWN? THEY MAY BE PRIVATE
HOMEOWNERS RESPONSABILITY
PRIVATE SEWER CCTV SURVEYS AVAILABLE
GO TO SOURCEFORSEARCHES.CO.UK

USEFUL CONTACTS:

LEAKS / PIPE COLLAPSE	0344 346 2020
NEW CONNECTIONS	0800 083 1821
SOUTH WEST WATER	0344 346 2020

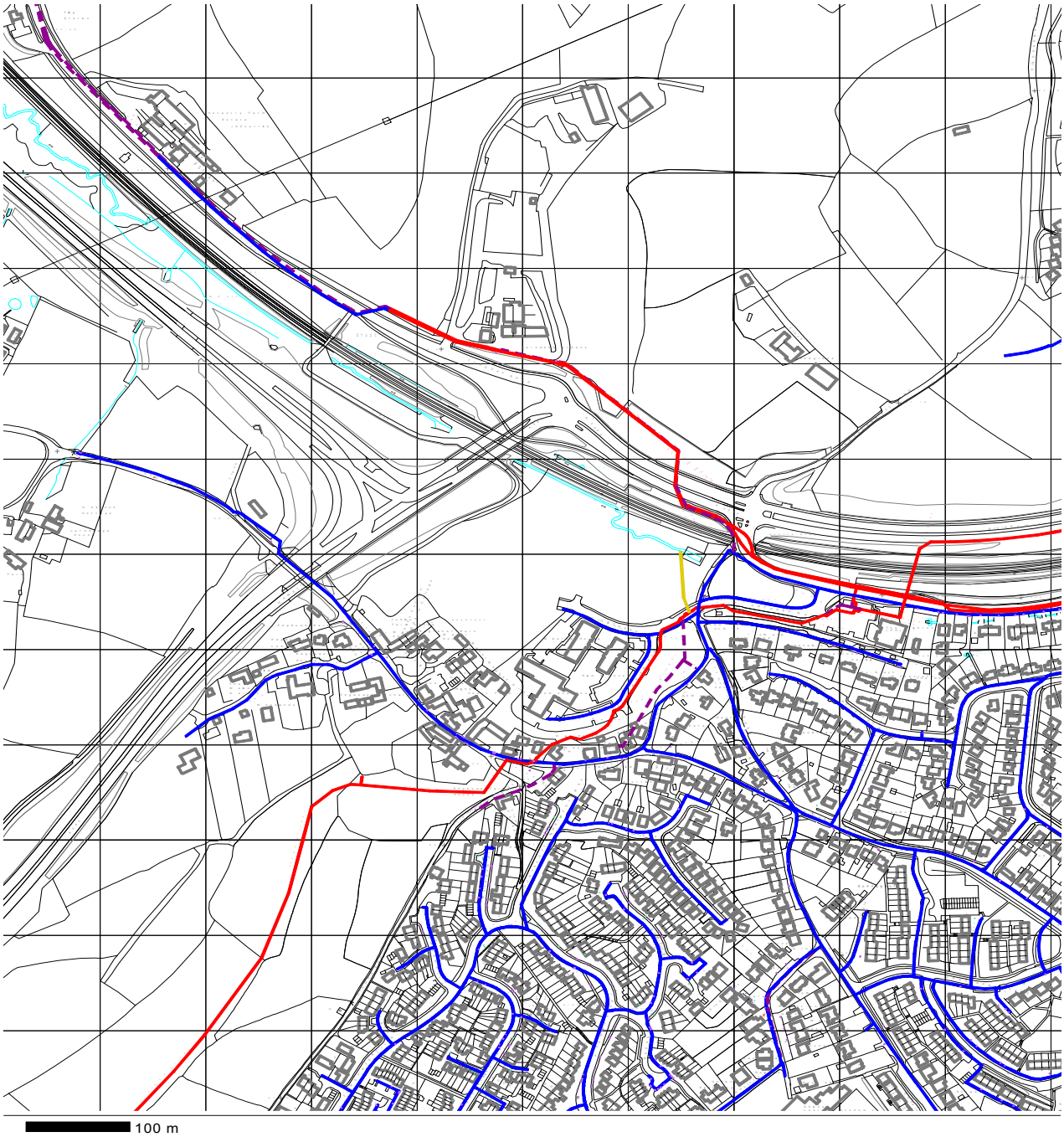
SOUTH WEST WATER

SOUTH WEST WATER

The information indicated on this plan is provided only as a guide and no assurance as to its accuracy is given or implied. The Company accepts no liability whatsoever for any error or omission in the information. It should be noted that not all mains, service pipes and other apparatus of the Company in the area of the plan are shown.

WATER

LAND OFF ORCHARD WAY, TORQUAY TQ2 7JD



Water Pipe Details

- Distribution
- Trunk
- Communication
- Untreated
- Private
- Abandoned

Common Materials

Cast Iron	CI	High Density Polyethylene	HDPE
Spun Iron	SI		
Ductile Iron	DI	Medium Density Polyethylene	MDPE
Steel	ST		
Asbestos Cement	AC	High Pressure Polyethylene	HPPE
Plastic	UPVC		

Water Features

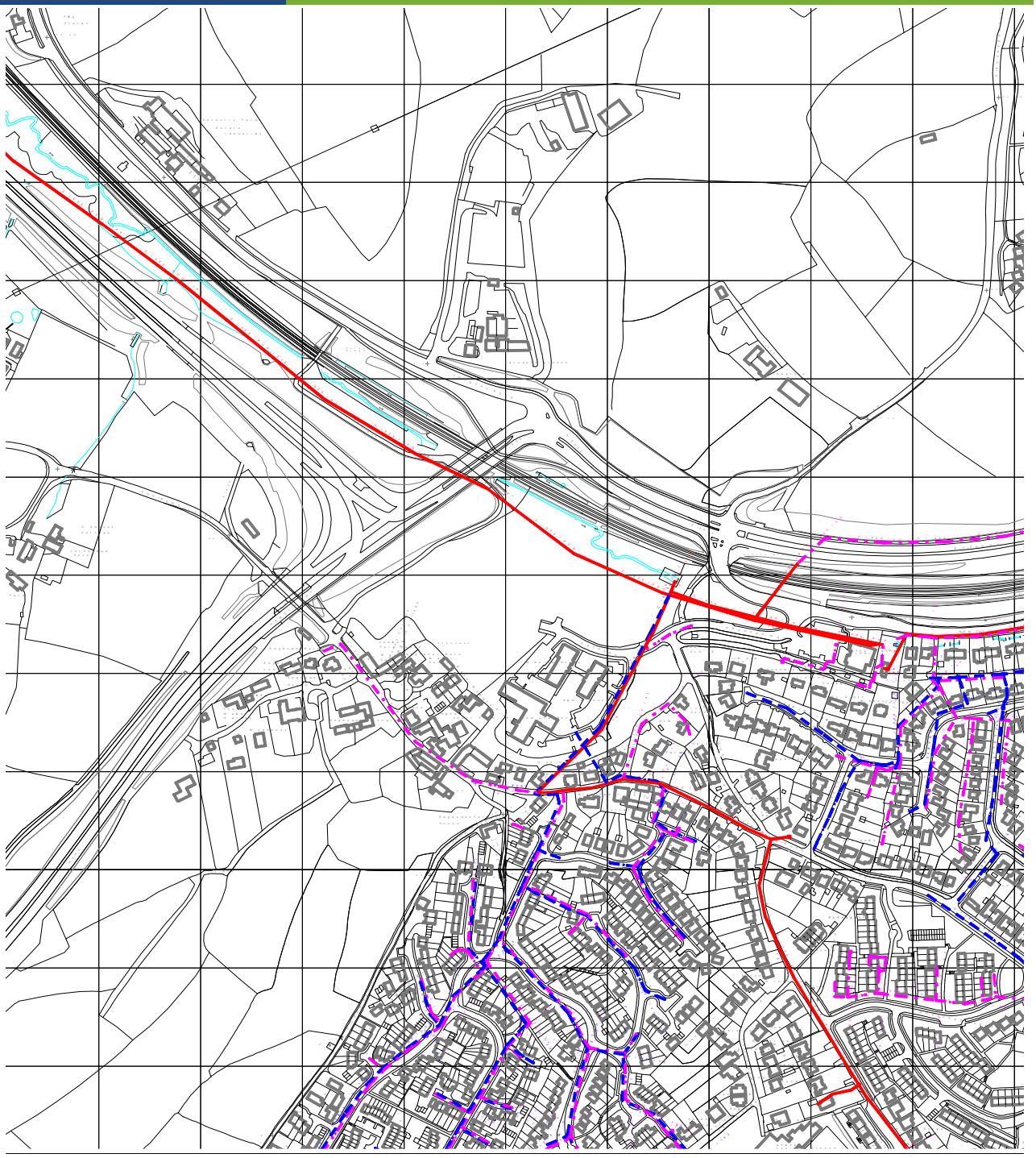
- Washout
- Hydrant
- Washout Hydrant
- Air Valve (Single)
- Air Valve (Double)
- Stop Tap
- Hatchbox
- Pump
- Sluice Valve Open (AC)
- Sluice Valve Closed
- Sluice Valve (CC)
- Stop Tap
- Customer Meter
- Mains Meter
- Relief Valve
- Pressure Reducing Valve
- Pressure Sustaining Valve
- Non Return Valve / Reflux
- Relief Valve

SOUTH WEST WATER

The information indicated on this plan is provided only as a guide and no assurance as to its accuracy is given or implied. The Company accepts no liability whatsoever for any error or omission in the information. It should be noted that not all mains, service pipes and other apparatus of the Company in the area of the plan are shown.

DRAINAGE

LAND OFF ORCHARD WAY, TORQUAY TQ2 7JD



100 m

Sewer Pipe Details

Public - Foul	
Public - Surface	
Public - Combined	
Public - Treated	
Pumping Main	
Elevated	/EL
Unverified	
Abandoned	A
Highway	

Common Shapes

Circular	C	Barrel	B	U Shaped	US
Rectangular	R	Trapezodial	T	Horseshoe	H
Unknown	U	Egg Shape	E	Oval	OV

Common Materials

Vitrified Clay	VC	Alkathene	AK	Medium Density Polyvinylchloride	MDPE
Pre Cast Concrete	PCO	Asbestos Cement	AC	Unplasticised Polyvinylchloride	UPVC
Concrete	CO	Polyvinylchloride	PVC	Unknown	U

Sewerage Structures

Manhole Foul		Manhole Surface	
Manhole Combined		Manhole Private	
Soakaway	SK	Catchpit	CP
Washout	WO	Hatchbox	HB
Buried	BU	Unable to Locate	UL

REQUIREMENTS AND DEVELOPMENT/TREE PLANTING GUIDANCE

In accordance with the provisions of Clause 26 of South West Water's Code of Practice, you are advised that in order to maintain adequate future access to the pipeline and to avoid interference with it, it is necessary to ensure that the following guidelines are observed:

1. Buildings And Permanent Structures

Clear working strip:

A clear working strip along the pipe is required between buildings and permanent structures and this must be:-

Pipes up to 150mm diameter	**6.0 metres**
Pipes 151-600mm diameter	**7.0 metres**
Pipes 601mm diameter and over	**9.0 metres**

If a building or permanent structure is planned within these limits please contact our Development Planning team as Build Over consent may be required. Development Planning developerservices@southwestwater.co.uk.

Proximity of buildings:

No buildings or permanent structures should be placed within 3 metres of pipes below 300mm in diameter or within 3.5 metres of pipes of 300mm or over in diameter (distances measured from the centre of the pipe), and in addition, buildings and permanent structures must be constructed so as to ensure that no additional loads are transmitted to the pipe.
(N.B: Pipe sizes refer to the internal diameter / bore of the pipe).

2. Trees And Shrubs

Roots can damage pipelines over time and extensive root systems will limit access to the pipeline in breach of the Company's right to access for repair or replacement. As a rule of thumb, the root spread of a tree is approximately the same as its eventual canopy spread. To help you avoid damage or interference to the pipeline, the Company suggests the following guidelines:

· No large or forest trees should be planted with 7 metres of the pipeline (examples include Oak, Ash, Beech, Douglas Fir, Sitka Spruce etc.)

· Medium to small sized trees should always be planted in such a way as to ensure that the eventual root spread reaches no closer than 1 metre of the pipeline, in practice, if trees are planted a distance of 5 metres away from the pipeline, this should be sufficient.

· Bushes and shrubs should never be planted closer than 2 metres from the pipeline.

· Closer than 2 metres either side of the pipeline may be planted with hedge plants and ground cover only.

· The measurement s and distances set out are for guidance only and there will always be exception, for example: Poplars and Willows, which have a particularly invasive root sys tem. If you are unsure of any individual case, then specialist advice should always be sought prior to planting.

· The guidelines set out above are based on the Company's standard access requirements for its apparatus. If, for engineering reasons, the distances set out need to be varied at particular locations, you will be advised of this before compensation for works is finalised. If you need to know the precise underground location of a new water main / sewer after its installation, please contact any of the Company's local offices, and Company staff will be pleased to mark out the position of the pipeline within your land.

· If the Company finds any infringement of its legal rights of access, or any damage being caused to the pipeline, the Company reserves the right to take appropriate action to ensure that there is no interference with its statutory apparatus.

Requirements to be met by persons carrying out works near to water mains and sewers:

1. The precise position of water mains and sewers must be ascertained by hand digging trial holes after first contacting South West Water, who will give such information as is available regarding the general location of the mains and sewer in the area. No liability is accepted for the accuracy of any information given as to the position or existence of water mains and sewers . In particular, service pipes and drainage connection are not generally shown on mains records, but their presence should be anticipated and precautions taken to avoid damage.
2. Notices of intent must be given to South West Water before any works are carried out in the vicinity, except in cases of emergency when our Operations Centre should be contacted as soon as possible.
3. Unless prior written approval has been obtained, mechanical excavation may not be permitted around, or within, 3 meters of the water main or sewer. Excavation may be necessary by hand.
4. Concrete haunches or surrounds to sewer s must not be disturbed without prior written consent from South West Water.
5. Before backfilling, the mains and sewer s will be inspected and any flaws or damage to the pipe or wrapping, if found, will be repaired by South West Water . All such flaws or damage must be immediately reported to the Company as soon as they are discovered. The carrying out of such repair s by South West Water shall not affect the question of liability, should any damage found to have resulted from the acts of those undertaking the works, their contractors, servants or agents.
6. Approved backfill will be used immediately around or over the ma ins and sewer s to a minimum cover of 300mm and the remainder of the backfill shall be to the appropriate Highways Authority Specification for the Reinstatement of Openings in Highways.
7. Both the existing main or sewer and the new works shall be suitably supported to prevent future settlement and any subsequent damage to equipment.
8. Ground adjacent to concrete thrust blocks supporting the main(s) and sewer(s) must not be disturbed.
9. Adequate support must be given to all water mains and sewers where these are likely to be undermined, and to all trenches in the vicinity of these, during the process of the works.
10. No apparatus shall be laid on or over any land within 300mm measured horizontally from any part of a water main or sewer or other apparatus belonging to the Company. Provided always that this cause shall not prevent any pipe, cable or conducting medium being laid at an angle of between 45 and 90 degrees across the line of the Company's apparatus, with a vertical clearance in excess of 300mm. In exceptional circumstances this clause may be varied or deleted with the prior written consent from South West Water.
11. South West Water must be consulted before any work representing an increased risk to the integrity of the mains or sewers (e.g., piling, using explosives, thrust boring, pipe bursting etc.) is carried out.
12. Facilities for inspecting all work carried out shall be given to South West Water with adequate notice

IN THE EVENT OF A LEAK OR PIPE COLLAPSE PLEASE CONTACT SOUTH WEST WATER IMMEDIATELY ON 0344 346 2020 (24 HOURS)

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Our Ref: 11736632 Your Ref: STP4262

Wednesday, 29 November 2017

R Brown
Cedar Barn White Lodge
Walgrave
Northamptonshire
nn6 9PY

Western Power Distribution,
Mapping Centre
Toll End Road
Tipton
West Midlands
United Kingdom
DY4 0HH
www.westernpower.co.uk

Map Response
T 0121 623 9780
F 0121 623 9223
WPDMapResponse
@westernpower.co.uk

LinesearchbeforeUdig
Help Desk 0845 437 7365

Dear R Brown

Thank you for your enquiry dated Wednesday, 29 November 2017

I now enclose a copy of our plan showing existing Western Power Distribution (WPD) Electricity / WPD Surf Telecom apparatus in the vicinity of your proposed works. This information is given as a general guide only and its accuracy cannot be guaranteed. Please note that all WPD equipment on site should be assumed to be LIVE until WPD prove otherwise and provide you with confirmation to this effect in writing. Recent additions to our network, or service connections between the main cable and a building or street lamp may not be shown.

Damage to underground cables and contact with overhead lines can cause severe injury or may prove fatal. If you are excavating on site in the vicinity of either WPD Electrical apparatus or WPD Surf Telecom apparatus you must comply with the requirements of the following:-

Health & Safety Executive guidance HS(G)47, Avoiding Danger from underground services.

Work taking place in the vicinity of our plant is also regulated under the:-

Electricity at Work Regulations 1989, Health and Safety Act 1974, CDM Regulations 2015.

Safe working procedures should be defined and practiced

Please ensure that the use of mechanical excavators in the vicinity of our plant is kept to a minimum. WPD Surf Telecom ducts contain fibre cables, which are expensive to repair. Therefore, extreme care must be taken whilst working in the vicinity of these ducts, hand digging methods being used to determine their precise position.

If there are overhead lines crossing your site and your proposal involves building works which may infringe the clearance to our overhead system then you should call the relevant general enquiries number (see page 2 of this letter) for advice. Where overhead lines cross your site you must comply with the requirements of Health & Safety Executive guidance as laid down in GS6, Avoidance of Danger from Overhead Electric Lines.

Where diversions to WPD apparatus are needed to allow change to occur on site, the cost of these alterations may be charged to the persons responsible for the works.

If you require advice in connection with your proposals please contact the relevant general enquiries number (see page 2 of this letter)

Following consultation the local Western Power Distribution team will where necessary prepare detailed proposals and provide a quotation for any necessary alterations and/or development of our equipment on the site.

Yours sincerely
WPD Map Response Team

Western Power Distribution PLC
South West - 02366894
South Wales - 02366985
East Midlands - 02366923
West Midlands - 03600574

Registered in
England and Wales

Registered Office:
Avonbank
Feeder Road
Bristol
BS2 0TB

Contact Us

Emergency or Power Supply issues
In an emergency call 0800 6783 105, 24 hours a day.

Mapping Enquiries
If you have an enquiry relating to this letter or the attached map plan, please contact us using the following information:

Telephone	0121 623 9780
Fax	0121 623 9223
Email	WPDMapResponse@westernpower.co.uk

General Enquiries
If you have a general enquiry, please call us on the following telephone number:

All areas	0800 096 3080

LinesearchbeforeUdig
If you have an enquiry relating to the use of the LinesearchbeforeUdig website please contact LinesearchbeforeUdig using the following information:

Telephone	0845 437 7365
Email	enquiries@linesearchbeforeudig.co.uk
Website	www.linesearchbeforeudig.co.uk

Steps to help keep you safe

- **If you are working within 10 metres of our 33kV, 66kV, 132kV underground electricity cables or within 10 metres of an overhead electricity line you should call the relevant General Enquiries for free safety advice.**

  Safety Documents – please download our informative safety documents to help ensure that you, your staff and the public are kept safe whilst working in the vicinity of electricity.
  http://www.westernpower.co.uk/Health-and-Safety/Public-Safety

- **Make sure you have up to date plans** - remember that recent additions to our network or service connections between the main cable and a building or street lamp may not be shown.

- **Look for signs of service cables -** an electricity meter box or nearby streetlamp may give you an indication that service cables are present in your area of work.

- **Non WPD Network -** electricity cables, lines and equipment owned by others may also be present in addition to WPD network. They are unlikely to be shown on our plans.

- **Use a cable locator** - trace electricity cables and mark the position of them using paint or other waterproof marking on the ground.

- **Hand dig trial holes** - to confirm the position of cables in close proximity to your area of your work and use spades and shovels rather than picks, pins or forks.

- **Have an emergency plan** - so that everyone working on site understands what to do in the event of an underground electricity cable being damaged or contact being made with an overhead electricity line.

- **If you are working within 10 metres** of an overhead electricity line then it may be necessary for you to erect warning signs and markers, or height restriction goal posts. Ensure that you comply with the requirements of Health & Safety Executive guidance laid down in GS6, Avoidance of Danger from Overhead Electric Lines.

- **If you are erecting a structure** that could allow anyone standing on it, or its access device (ladder, scaffold, MEWP), to come within 3m of any overhead electric line then **you must inform us**. This is your duty and a legal requirement under the Electricity Safety, Quality & Continuity Regulations 2002.

- **If you cannot work safely** around the underground electricity cable or overhead electricity line, then you may need to get it moved to allow your works to go ahead. Call the general enquiry numbers above for guidance.

- **It is possible that cables or pipes may be embedded in concrete** - electricity cables embedded in concrete MUST be made 'dead' by Western Power Distribution or the cable owner before the concrete is broken out. Alternatively, another safe way of working should be agreed.

Cables are sometimes covered by tiles or a marker tape - these can be concrete, polythene or earthenware and are a useful early warning of the presence of cables; you should avoid disturbing any tiles or tape to expose the cable. Not all cables have these warning indicators.

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Contact Us

Mapping Enquiries:

All areas 0121 623 9780

General Enquiries:

All areas 0800 096 3080

Date Requested: 29/11/2017

Job Reference: 11736632

Site Location: 288844 66284

Requested by:

Mrs R Brown

Your Scheme/Reference:

STP4262

Link Box

Site Location

Line/Area

Overhead Line

PL

Service

LV

HV (11kV)

HV (33kV)

HV (66kV)

HV (132kV)

Underground Cable

SURF Telecoms

PME Earth

Underground Earth

Pilot Cables

Pole Mounted Transformer

Ground Mounted Transformer

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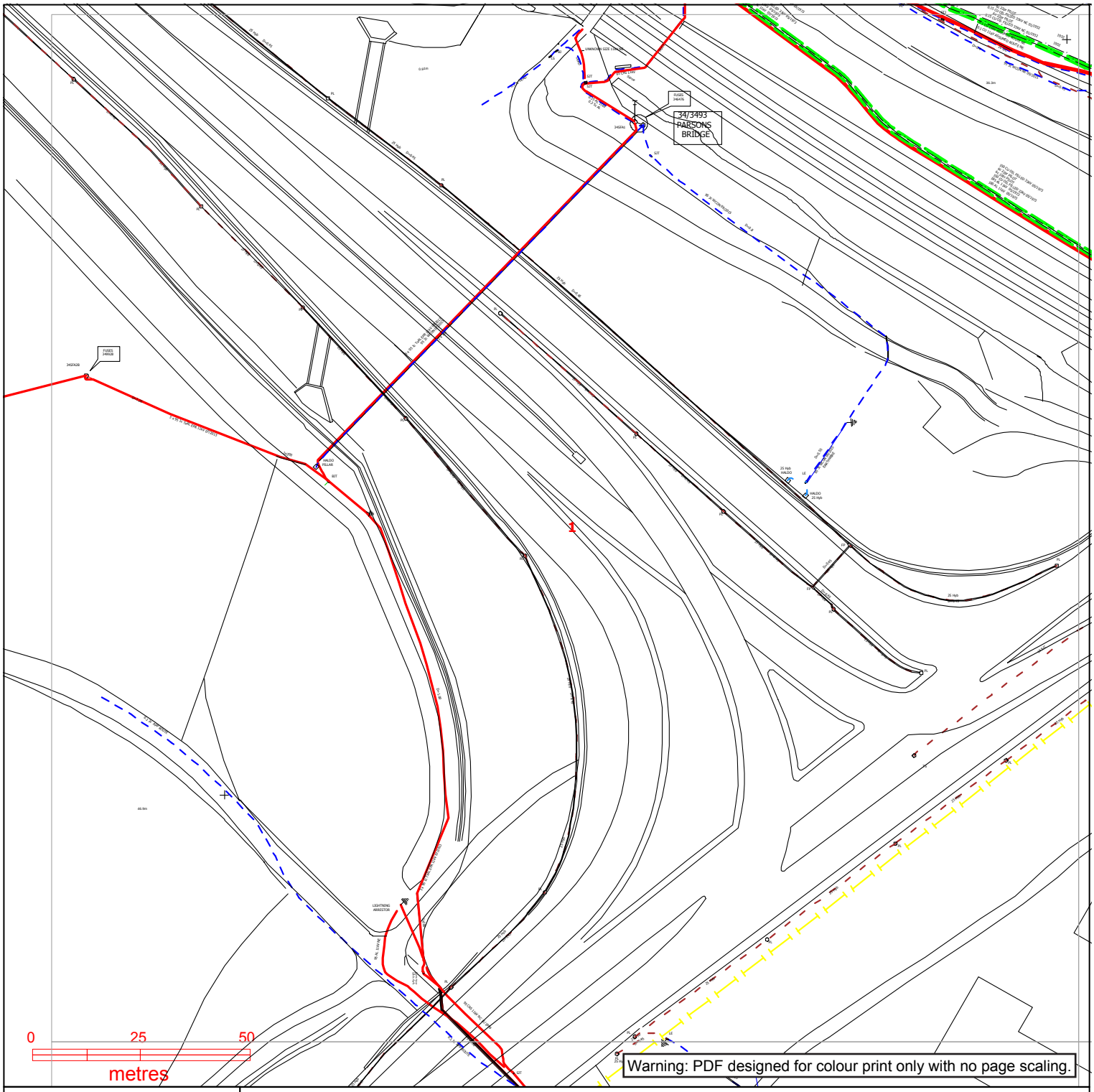
- Cables, overhead lines & substations owned by other electricity network owners or private companies may be present and may not be shown.
- You should always verify exact locations of cables using a cable locator and by careful use of hand tools in accordance with HSE guidance note HSG47.
- When working within 10m of any overhead electric line you should follow the requirements of HSE Guidance Note GS6.
- For further advice on working near our electricity cables or lines, call our General Enquiries number.
- Advice should be sought from the Western Power Distribution General Enquiries team for any work that is to take place in proximity to 132kV underground cables and 132kV overhead lines.

Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA

0800 6783 105



WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

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1:1250 Area or Circle dig site

1:500 Line dig site

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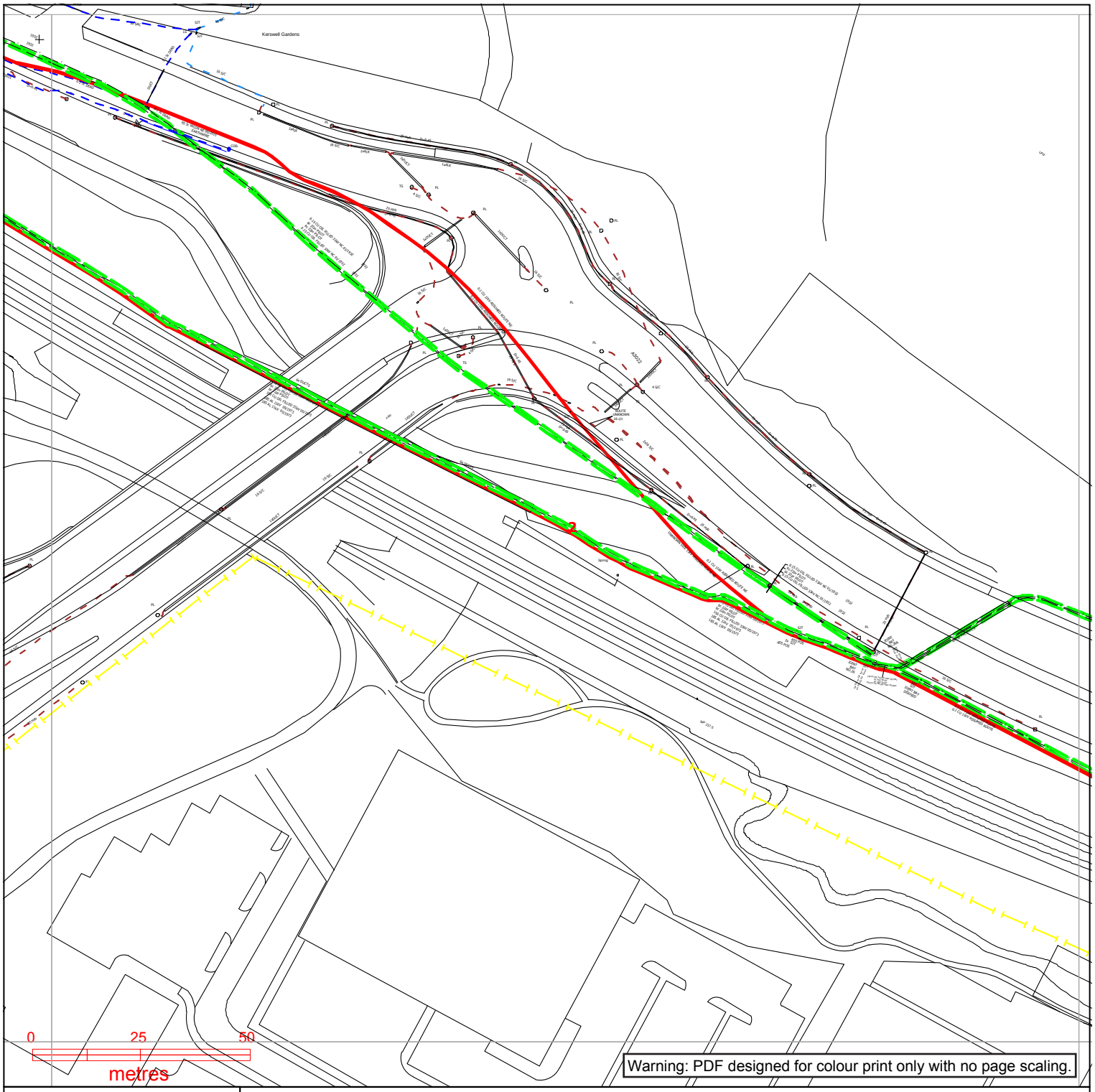

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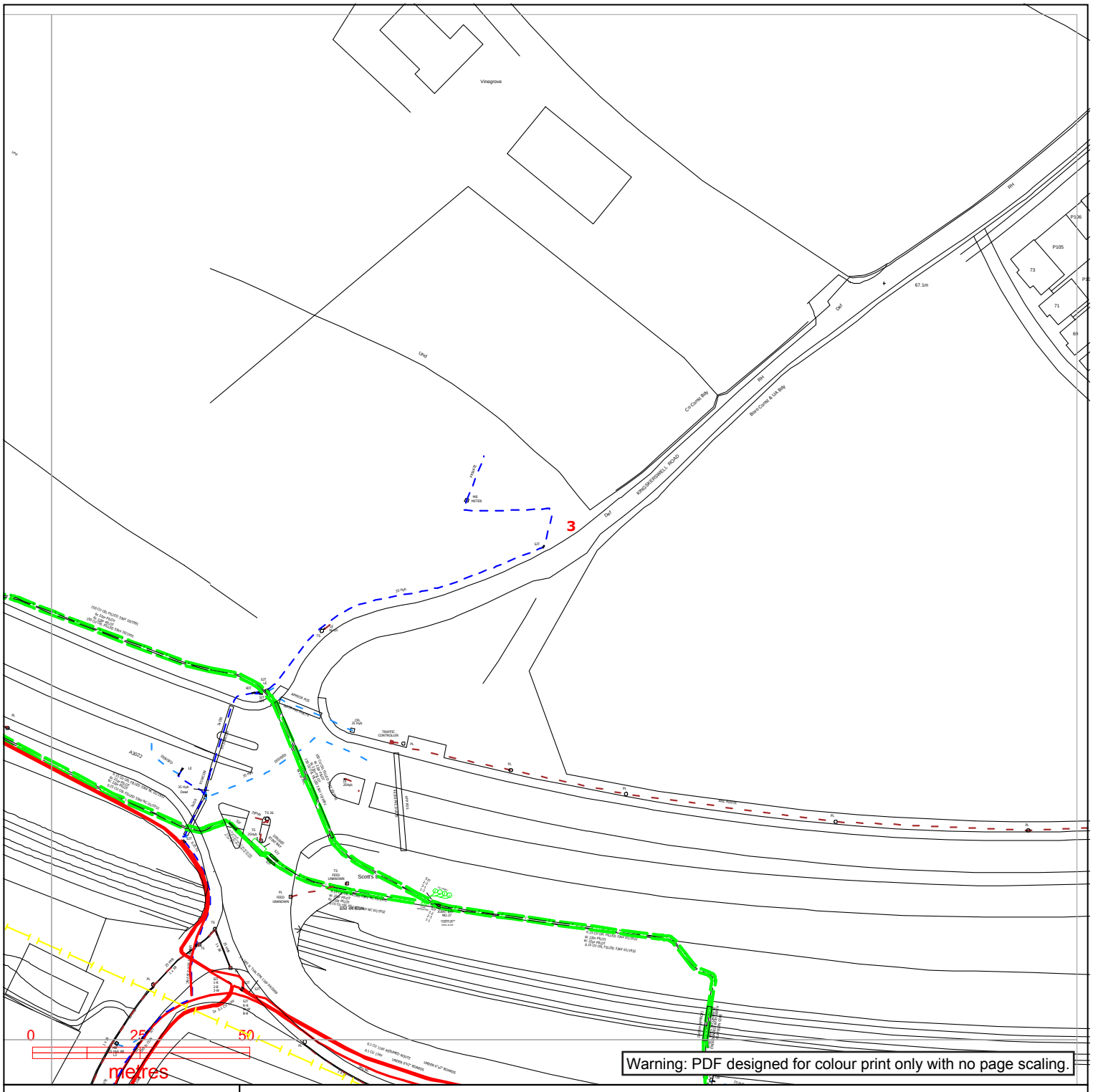

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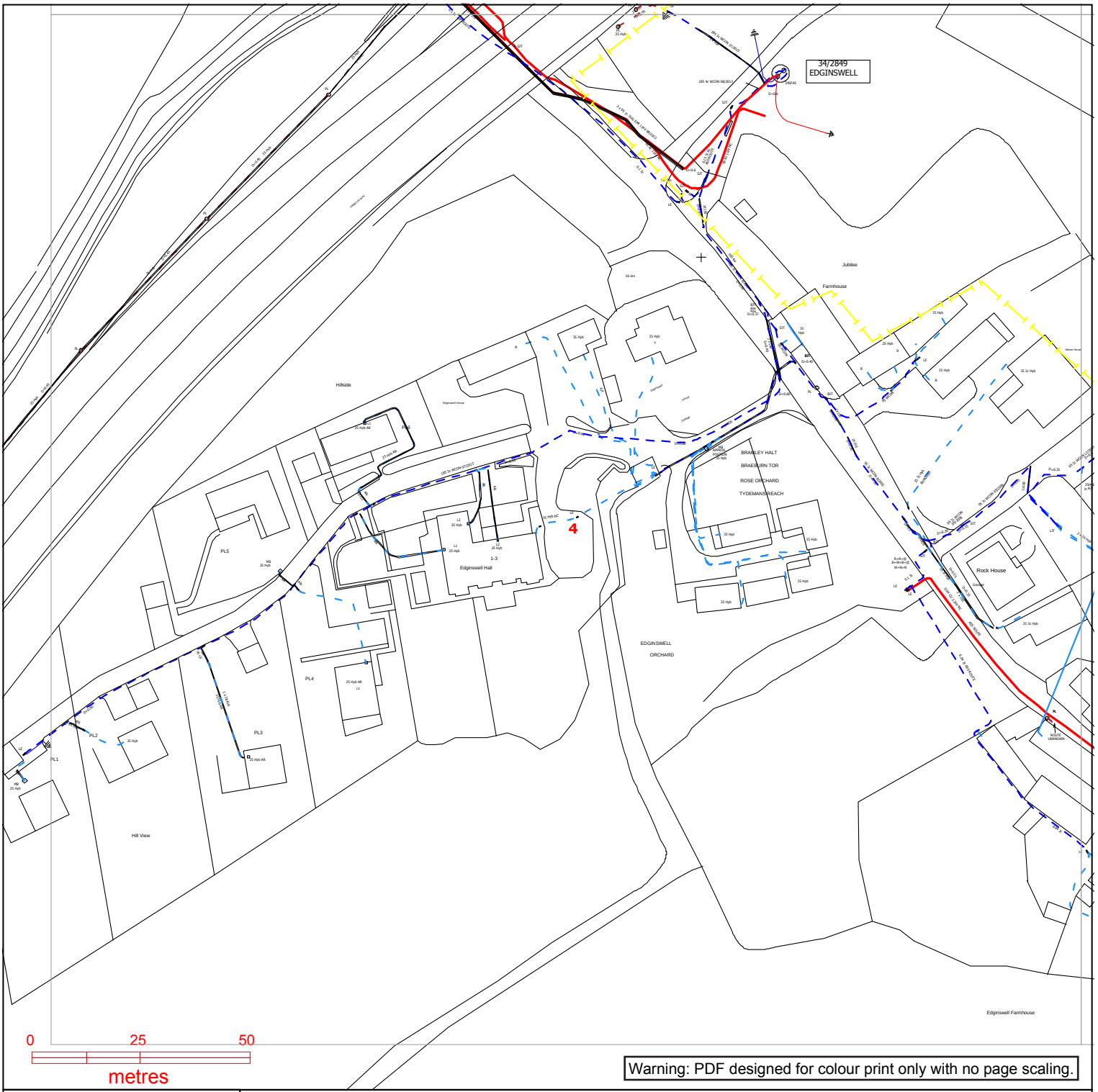

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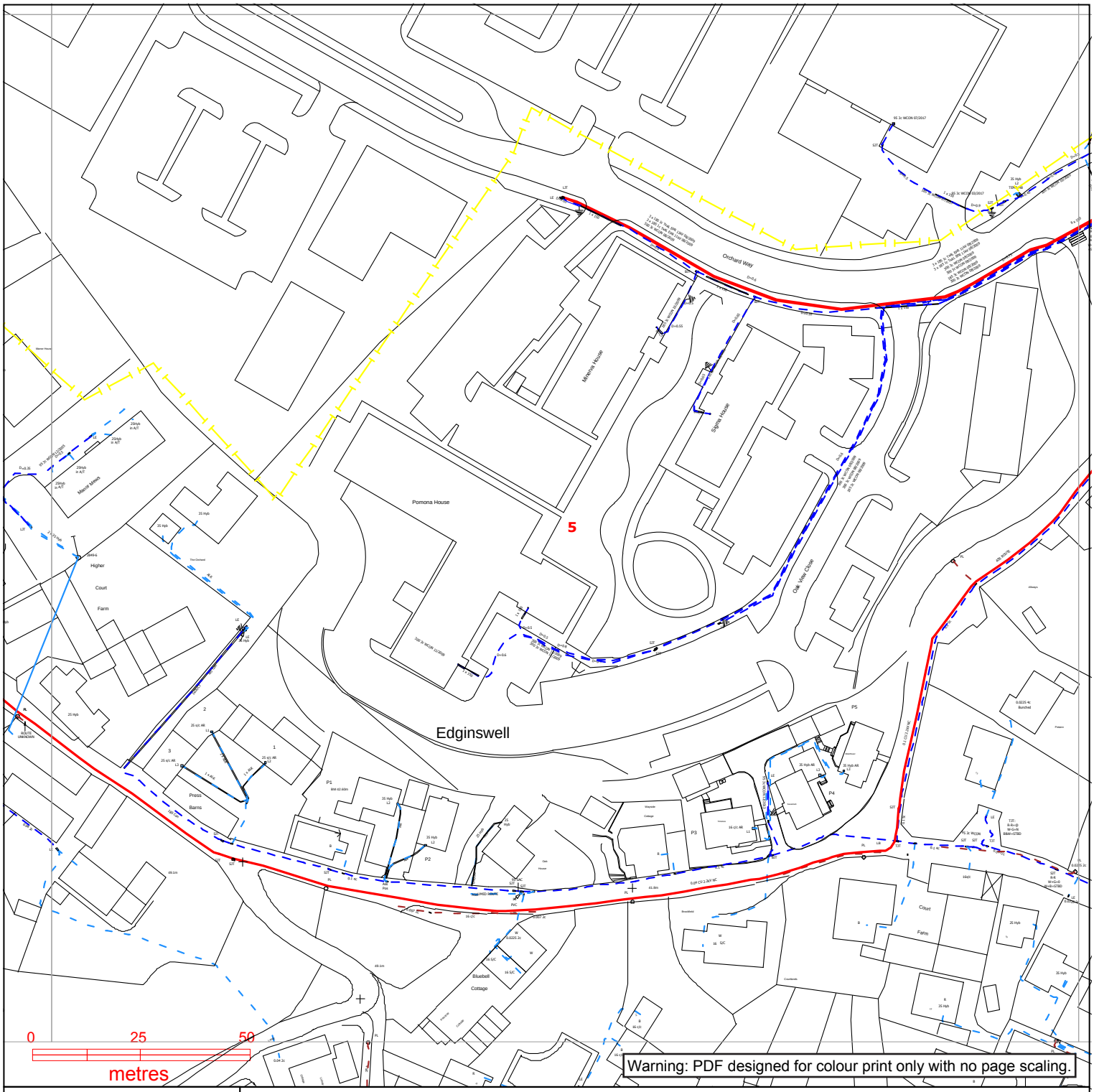

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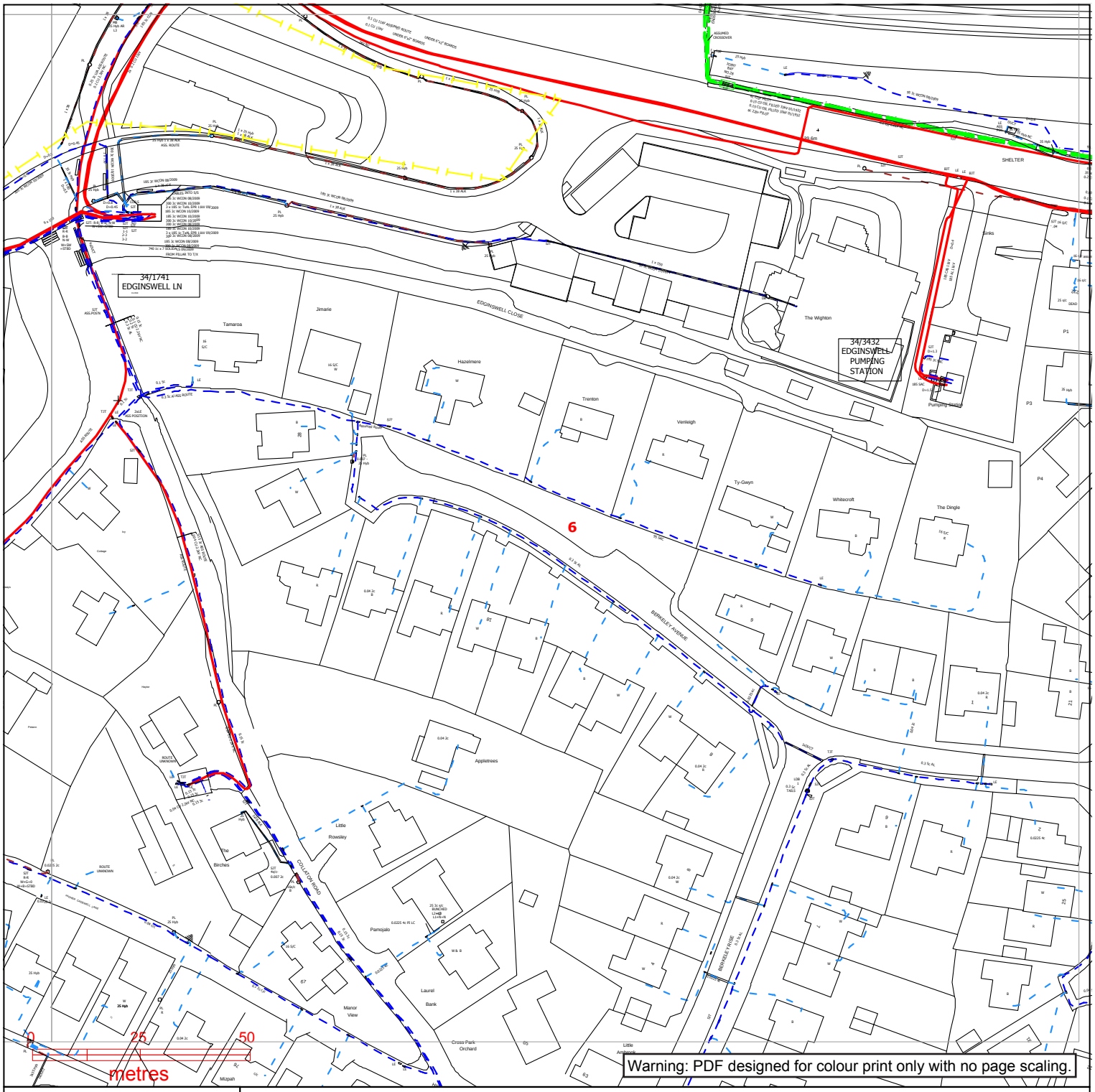

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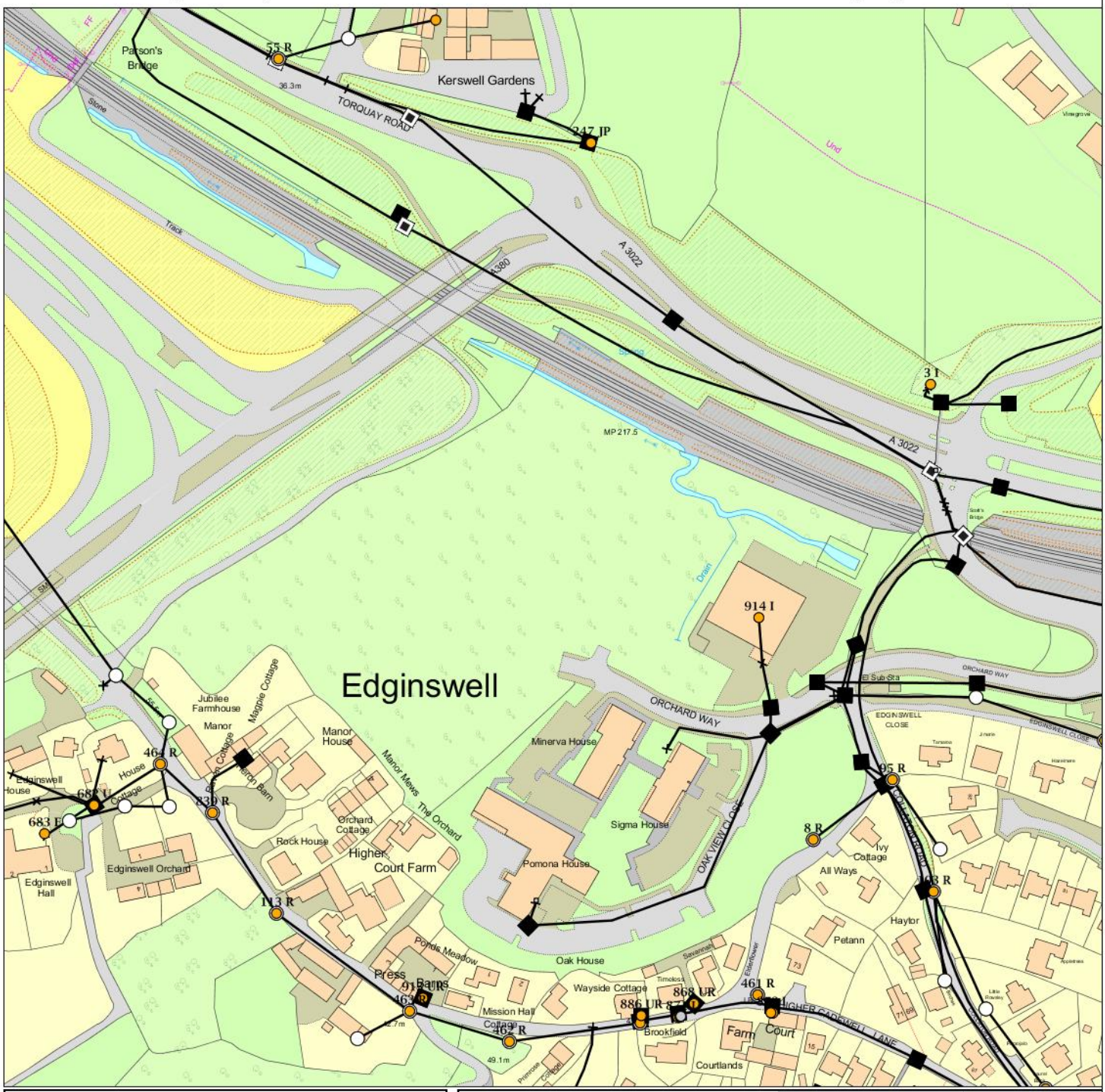
Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

KEY TO BT SYMBOLS

DP	●	Pole	○
Planned DP	●	Planned Pole	◌
PCP	⊠	Joint Box	■
Planned PCP	⊠	Change Of State	+
Built	∿	Split Coupling	×
Planned	∿	Duct Tee	▲
Inferred	∿	Planned Box	◪
Building	▭	Manhole	▣
Kiosk	Ⓚ	Planned Manhole	◪
Hatchings	▨	Cabinet	⌂
		Planned Cabinet	⌂

Other proposed plant is shown using dashed lines.
BT Symbols not listed above maybe disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation

BT Ref : SNA03217Y
Map Reference : (centre) SX8883066303
Easting/Northing : (centre) 288830,66303
Issued : 29/11/2017 15:21:23

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk

UNCONTROLLED WHEN PRINTED

CSEP REF	70003856	
Upstream Transporter	WWU	
Connection point	E: 288692	N: 66157

Materials	Description
DI	Ductile Iron Main
CI	Cast Iron Main
ST	Steel main or service
MDPE (17.6)	Medium Density Polyethylene (SDR Rating) main or service
HDPE (11)	High Density Polyethylene (SDR Rating) main or service

Size	Description
12"	Metallic main or service - Imperial (nominal bore)*
150mm	Metallic main or service - Metric (nominal bore)
3"	Polyethylene main or service - Imperial (nominal bore)
90	Polyethylene main or service - Metric (outsidediameter)

* note - for Steel 18" denotes the pipe size where the designation changes from nominal bore to outside diameter

Pressure	Description
LP	Low Pressure - up to 75 millibar gauge
MP	Medium Pressure - between 75 millibar and 2 bar gauge
IP	Intermediate Pressure - between 2 bar and 7 bar gauge
HP	High Pressure - above 7 bar gauge

MDPE Mains: 90mm & above SDR 17.6; 63mm: SDR 11

Drawing Nomenclature

- 90 | 125 — Change in diameter nominal bore
- Mains not connected
- Valve
- Pressure Regulator
- Cap End
- Pressure / Purge point
- 0.8m C — Depth of Cover main or service
- 1 — Node

Key for Mains & Service Pipework

- Existing LP mains or services operating up to 75 millibar gauge
- Proposed LP mains or services operating up to 75 millibar gauge
- Existing MP mains or services operating between 75 millibar and 2 bar gauge
- Proposed MP mains or services operating between 75 millibar and 2 bar gauge
- Existing IP mains or services operating between 2 bar and 7 bar gauge
- Proposed IP mains or services operating between 2 bar and 7 bar gauge

ES PIPELINES

ES Pipelines
HAZELDEAN
STATION ROAD
LEATHERHEAD
SURREY
KT22 7AA
Tel: 01372 227560 FAX: 01372 377996

N W E S

Drawn by	Scale:	Date created:
D J Morgan	1:500	29-08-13

DRAWING TITLE

Edginswell Lane
Torquay
Devon
TQ2 7JF

Drawing No	ESN014715	REV:	1
Issue Number: 1	SHEET: 1 of 1	Printed:	19/Sep/2013

Pipe Lengths (mtrs)

	63mm	90mm	125mm	180mm	250mm	315mm	355mm
LP	100m	150m					
MP							
IP							

REV	DETAILS OF REVISION	Date

This Plan shows only the pipes owned by E S Pipelines Ltd in its role as a licensed Gas Transporter (GT). Gas pipes owned by other GT's, and also privately owned, may be present in the area. Information with regard to such pipes should be obtained from the owners. The information shown on this plan is given without obligation, or warranty. The accuracy thereof cannot be guaranteed. All service pipes are not necessarily shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by E S Pipelines Ltd, its agents or servants, for any error or omission. Safe digging practices, as detailed in Health and Safety booklet HS(G)47 'Avoiding danger from underground services', must be used to verify and establish the actual position of mains, services and other plant on site before any Mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct or contract labour) working for you on or near gas apparatus. The information on this plan should not be referred to beyond 28 days following the date of issue. DATE OF ISSUE:

PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK IN THE VICINITY OF UNDERGROUND GAS PIPES

ADVICE TO SITE PERSONNEL

MANAGEMENT NOTE

Please ensure that a copy of this note is read by your site management and to your site operatives.

Early consultation with ESP Utilities Group prior to excavation is recommended to obtain the location of plant and precautions to be taken when working nearby.

This Guidance Note should be read in conjunction with the Health and Safety Executive guidance HSG47 "Avoiding danger from underground services".

Introduction

Damage to ESP Utilities Group's plant can result in uncontrolled gas escapes which may be dangerous. In addition these occurrences can cause expense, disruption of work and inconvenience to the public.

Various materials are used for gas mains and services. Cast Iron, Ductile Iron, Steel and Plastic pipes are the most widely found. Modern Plastic pipes are either bright yellow or orange in colour.

Cast Iron and Ductile Iron water pipes are very similar in appearance to Cast Iron and Ductile Iron gas pipes and if any Cast Iron or Ductile Iron pipe is uncovered, it should be treated as a gas pipe. ESP Utilities Group do not own any metallic gas pipes but their gas network infrastructures may be connected to Cast Iron, Ductile Iron or Steel pipes owned by Distribution Network Operators.

The following general precautions apply to Intermediate Pressure (2-7barg MOP), Medium Pressure (75mbarg-2barg MOP), Low Pressure (up to 75mbarg MOP) and other gas mains and services likely to be encountered in general site works and are referred to within this document as '**pipes**'.

Locating Gas Pipes

It should be assumed when working in urban and residential areas that gas mains and services are likely to be present. On request, ESP Utilities Group will give approximate locations of pipes derived from their records. The records do not normally show the position of service pipes but their probable line can be deducted from the gas meter position. ESP Utilities Group's staff will be pleased to assist in the location of gas plant and provide advice on any precautions that may be required. The records and advice are given in good faith but cannot be guaranteed until hand excavation has taken place. Proprietary pipe and cable locators are available although generally these will not locate plastic pipes.

Safe working Practices

To achieve safe working conditions adjacent to gas plant the following must be observed:

Observe any specific request made by ESP Utilities Group's staff.

Gas pipes must be located by hand digging before mechanical excavation. Once a gas pipe has been located, mechanical excavation must proceed **with care**. A mechanical excavator must not in any case be used within 0.5 metre of a gas pipe and greater safety distances may be advised by ESP Utilities Group depending on the mains maximum operating pressure (MOP).

Where heavy plant may have to cross the line of a gas pipe during construction work, the number of crossing points should be kept to a minimum. Crossing points should be clearly indicated and crossings at other places along the line of the pipe should be prevented.

Where the pipe is not adequately protected by an existing road, crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed reinforced concrete raft as necessary. ESP Utilities Group staff will advise on the type of reinforcement necessary.

No explosives should be used within 30 metres of any gas pipe without prior consultation with ESP Utilities Group.

ESP Utilities Group must be consulted prior to carrying out excavation work within 10 metres of any above ground gas installation.

Where it is proposed to carry out piling or boring within 15 metres of any gas pipe, ESP Utilities Group should be consulted prior to the commencement of the works.

Access to gas plant must be maintained at all times during on site works.

Proximity of Other Plant

A minimum clearance of 300 millimetres (mm) should be allowed between any plant being installed and an existing gas main to facilitate repair, whether the adjacent plant be parallel to or crossing the gas pipe. No apparatus should be laid over and along the line of a gas pipe irrespective of clearance.

No manhole or chambers shall be built over or around a gas pipe and no work should be carried out which results in a reduction of cover or protection over a pipe, without consultation with ESP Utilities Group.

Support and Backfill

Where excavation of trenches adjacent to any pipe affects its support, the pipe must be supported to the satisfaction of ESP Utilities Group and must not be used as an anchor or support in any way. In some cases, it may be necessary to divert the gas pipe before work commences.

Where a trench is excavated crossing or parallel to the line of the gas pipe, the backfill should be adequately compacted, particularly beneath the pipe, to prevent any settlement which could subsequently cause damage to the pipe.

In special cases it may be necessary to provide permanent support to the gas pipe, before backfilling and reinstatement is carried out. Backfill material adjacent to gas plant must be selected fine material or sand, containing no stones, bricks or lumps of concrete, etc., placed to a minimum depth of 150mm around the pipes and well compacted by hand. No power compaction should take place until 300mm of selected fine fill has been suitably compacted.

If the road construction is in close proximity to the top of the gas pipe, a "cushion" of selected fine material such as sand must be used to prevent the traffic shock being transmitted to the gas pipe. The road construction depth must not be reduced without permission from the local Highway Authority.

No concrete or other hard material must be placed or left under or adjacent to any Cast Iron pipe as this may cause fracture of the pipe at a later date.

Concrete backfill should not be used closer than 300 mm to the pipe.

Damage to Coating

Where a gas pipe is coated with special wrapping and this is damaged, even to a minor extent ESP Utilities Group must be notified so that repairs can be made to prevent future corrosion and subsequent leakage.

Welding or "Hot Works"

When welding or other "hot works" involving naked flames are to be carried out in close proximity to gas plant and the presence of gas is suspected, ESP Utilities Group must be contacted before work commences to check the atmosphere. Even when a gas free atmosphere exists care must be taken when carrying out hot works in close proximity to gas plant in order to ensure that no damage occurs.

Particular care must be taken to avoid damage by heat or naked flame to plastic gas pipes or to the protective coating on other gas pipes.

Leakage from Gas Mains or Services

If damage or leakage is caused or an escape of gas is smelt or suspected the following action should be taken at once:

- Remove all personnel from the immediate vicinity of the escape;
- Contact the National Gas Emergency Service on: **0800 111 999**;
- Prevent any approach by the public, prohibit smoking, extinguish all naked flames or other source of ignition for at least 15 metres from the leakage;
- Assist gas personnel, Police or Fire Service as requested.

REMEMBER - IF IN DOUBT; SEEK ADVICE FROM ESP UTILITIES GROUP.

ESP Utilities Group can be contacted at:

Office Address: Bluebird House, Mole Business Park, Leatherhead, Surrey, KT22 7BA

Office Tel: 01372 587 500**; Fax:** 01372 377 996

From:	Tom Whiffin
To:	Darryl Neylon
Subject:	Torbay environmental email
Date:	15 February 2018 15:28:54
Attachments:	image001.png STP4262_EC_Aerial_Photo.gif

From: Griffiths, Katharine [mailto:Katharine.Griffiths@torbay.gov.uk]
Sent: 29 January 2018 14:46
To: Tom Whiffin <Tom.Whiffin@soiltechnics.net>
Subject: FW: Ground Investigation

Dear Tom,

I have been forwarded your email with regards to the proposed development of a site in Edginswell.

The site and surrounding area are not considered " contaminated land " as defined by part 2A of the EPA 1990, nor is any further action being considered under the same legislation.
I am unaware of any remediation work being carried out in the vicinity.

From the information that we hold there are no landfills at that site.

If you require any further information then please let me know.

Kind regards

Katharine Griffiths
Senior Environmental Protection Officer

Community Safety
C/o Torquay Town Hall
Castle Circus
Torquay
TQ1 3DR

Tel: 01803 208025
Fax: 01803 208854

From: NaturalEnvironment
Sent: 29 January 2018 13:05
To: Griffiths, Katharine <Katharine.Griffiths@torbay.gov.uk>
Subject: FW: Ground Investigation

Hi Katharine

Can you have a look at this enquiry?

Thanks

Jenny Plumb
Technical Administrator
Torbay Council, Natural Environment Services
C/O Town Hall, Torquay, Devon TQ1 3DR
Internal Tel (01803) 207632
External Tel (01803) 207797
Fax (01803) 207639

From: Tom Whiffin [mailto:Tom.Whiffin@soiltechnics.net]
Sent: 29 January 2018 12:04
To: NaturalEnvironment <NaturalEnvironment@torbay.gov.uk>
Subject: Ground Investigation

This e-mail is for the attention of an environmental health/ contaminated land officer.

Good morning,

We are undertaking a ground investigation for a proposed development of a site in Edginswell, West side of Collation road, Torquay TQ27JD - and would like to ask the following questions: -

I would like to know if you are aware of the site, and if any adjacent areas are recorded on the contaminated land register? Also, if there are any contaminated sites present, has any remedial action taken place, and are there any landfill sites close to the site (old or present) with which you are aware of?

I have attached an aerial photo for your reference. If you could respond back at your earliest convenience it would be greatly appreciated.

Kind Regards,

Tom Whiffin
B.Sc.(Hons)., FGS
Graduate Geo-environmental Engineer

m 07712517345
e tom.whiffin@soiltechnics.net
w www.soiltechnics.net

st

Head Office
Cedar Barn, White Lodge, Walgrave, Northamptonshire NN6 9PY **t** 01604 781877

Manchester Office
Ivy Mill Business Centre, Crown Street, Failsworth, Manchester M35 9BG **t** 0161 9470270

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Envirocheck® Report:

Datasheet

Order Details:

Order Number:
148421159_1_1

Customer Reference:
STP4262

National Grid Reference:
288840, 66300

Slice:
A

Site Area (Ha):
0.97

Search Buffer (m):
1000

Site Details:

Land at Edginswell
Torquay

Client Details:

Ms R Brown
Soiltechnics
Cedar Barn
White Lodge
Walgrave
Northampton
NN6 9PY

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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/Natural Resources Wales 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.

Report Version v53.0

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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					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		4	8	7
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
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 6				2
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		Yes			
Pollution Incidents to Controlled Waters	pg 6		3	4	8
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 9		1	1	
River Quality Biology Sampling Points	pg 9			1	
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 10			1	1
Water Abstractions	pg 10		3		(*17)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 15	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 15	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 15	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 15	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 15	Yes	Yes	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
OS Water Network Lines	pg 16	1	10	18	63

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 27		1	1	1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)	pg 27			1	
Licensed Waste Management Facilities (Locations)	pg 27		1	3	1
Local Authority Landfill Coverage		1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)	pg 28				3
Registered Landfill Sites	pg 29		2	2	1
Registered Waste Transfer Sites	pg 31			1	1
Registered Waste Treatment or Disposal Sites					
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					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 32	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 32	Yes	Yes		
BGS Recorded Mineral Sites	pg 32		1		1
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			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					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 33		Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 33	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 33	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 33		Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 33	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 33	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 34	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 34	Yes	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 35		4	9	42
Fuel Station Entries	pg 39				2
Points of Interest - Commercial Services	pg 39				11
Points of Interest - Education and Health	pg 40				1
Points of Interest - Manufacturing and Production	pg 40		1	1	2
Points of Interest - Public Infrastructure	pg 41		2		5
Points of Interest - Recreational and Environmental	pg 41		2	1	12
Gas Pipelines	pg 43			1	
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
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					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	0	1	288800 66350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (N)	0	1	288842 66303
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (N)	34	1	288842 66400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	35	1	288800 66400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	82	1	288950 66200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (N)	85	1	288800 66450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	87	1	288842 66150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (N)	135	1	288800 66500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	141	1	289050 66250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (E)	188	1	289100 66250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	210	1	289000 66500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	296	1	288600 66050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	297	1	288800 65950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (SW)	491	1	288550 65850
1	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Ivy Cottage Pumping Station Scott'S Bridge, Newton Road, Torquay, Devon, Tq2 7jn Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 201623 Permit Version: 2 Effective Date: 31st March 2017 Issued Date: 31st March 2017 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Aller Brook **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	42	2	288960 66290

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Ivy Cottage Pumping Station Scott'S Bridge, Newton Road, Torquay, Devon, Tq2 7jn Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 201623 Permit Version: 2 Effective Date: 31st March 2017 Issued Date: 31st March 2017 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Aller Brook **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	42	2	288960 66290
1	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Ivy Cottage Pumping Station Scott'S Bridge, Newton Road, Torquay, Devon, Tq2 7jn Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 201623 Permit Version: 1 Effective Date: 23rd October 2000 Issued Date: 23rd October 2000 Revocation Date: 30th March 2017 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook (S) **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	A13SE (E)	52	2	288970 66290
2	**Discharge Consents** Operator: Devon Garden Machinery Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Dwelling At Kerswell Gardens Kerswell Gardens, Newton Road, Torquay, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 002956/Sa/01 Permit Version: 1 Effective Date: 11th September 1996 Issued Date: 11th September 1996 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Soakaway **Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A13NW (N)	167	2	288780 66530
3	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Scotts Bridge Pumping Station, Newton Road, Torquay, Devon, Tq2 7jn Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 201624 Permit Version: 2 Effective Date: 16th September 2016 Issued Date: 16th September 2016 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	270	2	289180 66230

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Scotts Bridge Pumping Station, Newton Road, Torquay, Devon, Tq2 7jn Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 201624 Permit Version: 2 Effective Date: 16th September 2016 Issued Date: 16th September 2016 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SE (E)	270	2	289180 66230
3	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Scotts Bridge Pumping Station, Newton Road, Torquay, Devon, Tq2 7jn Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 201624 Permit Version: 1 Effective Date: 23rd October 2000 Issued Date: 23rd October 2000 Revocation Date: 15th September 2016 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook (S) **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	A13SE (E)	270	2	289180 66230
4	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Newton Abbot (Newton Road) Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Nra-Sw-1392 Permit Version: 1 Effective Date: 30th October 1989 Issued Date: 30th October 1989 Revocation Date: 23rd October 2000 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A14SW (E)	280	2	289190 66230
5	**Discharge Consents** Operator: South West Water Limited Property Type: Not Given Location: Edginswell Pumping Station, Torquay, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: DRA 1199/1/21 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 10th March 1969 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A12NE (W)	379	2	288400 66400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Edginswell Pumping Station, Torquay, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Dra 1199 Permit Version: 1 Effective Date: 10th March 1969 Issued Date: 10th March 1969 Revocation Date: 16th September 2016 Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A12NE (W)	379	2	288400 66395
5	**Discharge Consents** Operator: South West Water Property Type: PUMPING STATION ON SEWERAGE NETWORK (WATER COMPANY) Location: Edginswell Pumping Station, Torquay, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Dra 1199 Permit Version: 1 Effective Date: 10th March 1969 Issued Date: 10th March 1969 Revocation Date: 16th September 2016 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: Surrendered under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A12NE (W)	379	2	288400 66400
5	**Discharge Consents** Operator: Mr J F Harper Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: Odicknoll Cottage, Odicknoll Farmhouse, And Springfield Barn, Edginswell Lane, Edginswell, Torquay, Devon, Tq2 7jf Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: 202478 Permit Version: 1 Effective Date: 27th May 2002 Issued Date: 28th May 2002 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River/Stream Non Tidal **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	A12NE (W)	409	2	288370 66400
6	**Discharge Consents** Operator: Mr & Mrs Whiteway-Wilkinson Property Type: REAL ESTATE ACTIVITIES/BUYING/SELLING/RENTING Location: Coventry Farm Estate, Newton Road, Torquay, Devon, Tq2 7hx Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Nra-Sw-7720 Permit Version: 1 Effective Date: 17th November 1995 Issued Date: 17th November 1995 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	519	2	288420 66725

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Discharge Consents** Operator: Mr & Mrs S D Rountree Property Type: Industrial Parks & Estates Location: Coventry Farm Estate , Newton Road, TORQUAY, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: NRA-SW-7720;2/1 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 17th November 1995 Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge-Treated Effluent Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook, Licence Status: Lapsed, Revoked Or Cancelled **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	523	2	288420 66730
7	**Discharge Consents** Operator: Ganders Park Ltd Property Type: DOMESTIC PROPERTY (MULTIPLE) (INCL FARM HOUSES) Location: Ganders Park, Edginswell Lane, Torquay, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Nra-Sw-6733 Permit Version: 1 Effective Date: 14th July 1994 Issued Date: 14th July 1994 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unnamed Trib To Aller Brook **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A12NE (NW)	554	2	288300 66630
8	**Discharge Consents** Operator: J Sainsbury Plc Property Type: FOOD+BEVERAGE SERVICES/CAFE/RESTAURANT/PUB Location: Sainsbury Superstore (Torquay), Scotts Bridge, Torquay, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Nra-Sw-3195 Permit Version: 1 Effective Date: 7th October 1991 Issued Date: 7th October 1991 Revocation Date: Not Supplied Discharge Type: Miscellaneous Discharges - Mine / Groundwater As Raised Discharge Environment: Freshwater Stream/River Receiving Water: Trib To River Teign **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A14NW (E)	611	2	289500 66500
9	**Discharge Consents** Operator: J Sainsbury Plc Property Type: FOOD+BEVERAGE SERVICES/CAFE/RESTAURANT/PUB Location: Sainsbury Superstore (Torquay), Scotts Bridge, Torquay, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Nra-Sw-3194 Permit Version: 1 Effective Date: 7th October 1991 Issued Date: 7th October 1991 Revocation Date: Not Supplied Discharge Type: Trade Effluent Discharge-Site Drainage Discharge Environment: Freshwater Stream/River Receiving Water: Trib To Aller Brook **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A14NE (E)	779	2	289670 66520

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Discharge Consents** Operator: A Mallinson Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Barton Hall Farm, Newton Abbot, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Dra 919 Permit Version: 1 Effective Date: 16th January 1968 Issued Date: 16th October 1967 Revocation Date: 2nd September 1998 Discharge Type: Trade Discharges - Process Effluent - Water Company (Wtw) Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Tiegn **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	969	2	289300 67200
11	**Discharge Consents** Operator: South West Water Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Greyhound Stadium Site, Kingskerswell, Devon Authority: Environment Agency, South West Region Catchment Area: Tidal Teign & Torbay, Devon Reference: Nra-Sw-1873 Permit Version: 1 Effective Date: 1st August 1990 Issued Date: 1st August 1990 Revocation Date: 19th November 1999 Discharge Type: Miscellaneous Discharges - Mine / Groundwater As Raised Discharge Environment: Freshwater Stream/River Receiving Water: Aller Brook **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A17NW (NW)	991	2	288120 67090
12	**Local Authority Pollution Prevention and Controls** Name: Kingskerswell Service Station Location: Torquay Road, Kingskerswell, NEWTON ABBOT, Devon, TQ Authority: Teignbridge District Council, Environmental Health Department Permit Reference: 1811010012000 Dated: 8th April 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	689	3	288320 66863
13	**Local Authority Pollution Prevention and Controls** Name: J Sainsburys Location: Nicholson Road, TORQUAY, Devon, TQ2 7HT Authority: Torbay Council, Environmental Services Permit Reference: 2006-15 Dated: 14th January 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	746	4	289627 66545
	Nearest Surface Water Feature	A13SE (SE)	0	-	288887 66260
14	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Rubble/Litter Or Solids Note: Not Supplied Incident Date: 27th May 1994 Incident Reference: 62014937 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	35	2	288800 66400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**Pollution Incidents to Controlled Waters** Property Type: Public Highway: Surface Runoff Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Oils - Other Oil Note: Not Supplied Incident Date: 20th September 1993 Incident Reference: 62008185 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (E)	97	2	289000 66250
16	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Unknown Note: Not Supplied Incident Date: 20th June 1991 Incident Reference: 62002661 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	116	2	288700 66200
17	**Pollution Incidents to Controlled Waters** Property Type: Public Highway: Surface Runoff Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Oils - Diesel (Including Agricultural) Note: Weather Incident Date: 15th July 1993 Incident Reference: 62008436 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Storm Water Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	299	2	289200 66200
18	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Oils - Other Oil Note: Not Supplied Incident Date: 4th June 1992 Incident Reference: 62006072 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	379	2	289300 66300
19	**Pollution Incidents to Controlled Waters** Property Type: Other Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Surface Water Note: Non-Water Company Land Drainage Work Incident Date: 5th February 1991 Incident Reference: 62001866 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Leakage Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	479	2	289400 66300
19	**Pollution Incidents to Controlled Waters** Property Type: Other Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Surface Water Note: Poor Operational Practise Incident Date: 23rd January 1991 Incident Reference: 62001856 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Other Cause Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	479	2	289400 66295

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Pollution Incidents to Controlled Waters** Property Type: Private Sewage (Non-PLC): Sewage Treatment Works Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Other Chemicals Note: Poor/Inadequate Maintenance Incident Date: 15th July 1995 Incident Reference: 62011363 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Direct Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	530	2	288410 66730
21	**Pollution Incidents to Controlled Waters** Property Type: Building Sites Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Surface Water Note: Poor Operational Practise Incident Date: 27th January 1993 Incident Reference: 62007625 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	579	2	289500 66300
22	**Pollution Incidents to Controlled Waters** Property Type: Other Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Oils - Waste Oil Note: Poor Management Control Incident Date: 23rd June 1991 Incident Reference: 62002669 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	679	2	289600 66300
23	**Pollution Incidents to Controlled Waters** Property Type: Other Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Oils - Waste Oil Note: Poor Operational Practise Incident Date: 2nd May 1991 Incident Reference: 62002637 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NE (E)	706	2	289600 66500
24	**Pollution Incidents to Controlled Waters** Property Type: Industrial: Other Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Oils - Waste Oil Note: Poor/Inadequate Maintenance Incident Date: 12th August 1992 Incident Reference: 62006876 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	879	2	289800 66295
24	**Pollution Incidents to Controlled Waters** Property Type: Acid Processes Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Other Trade Effluent Note: Mechanical/Electrical Plant Failure Incident Date: 3rd July 1990 Incident Reference: 62000135 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	879	2	289800 66300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Pollution Incidents to Controlled Waters** Property Type: Surface Water Sewers Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Oils - Other Oil Note: Inadequate Design/Capacity Incident Date: 14th August 1992 Incident Reference: 62006878 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	886	2	289800 66200
26	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewerage Location: Location Description Not Available Authority: Environment Agency, South West Region Pollutant: Crude Sewage Note: Act Of God Incident Date: 4th September 1994 Incident Reference: 62017572 Catchment Area: Tidal Teign & Torbay, Devon Receiving Water: Freshwater Stream/River Cause of Incident: Overflow Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	964	2	289600 65600
	River Quality Name: Aller B (Teign) GQA Grade: River Quality A Reach: Edginswell Pumping Stn-Kingskerswell Estimated Distance (km): 1.9 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A13NE (N)	13	2	288863 66360
	River Quality Name: Aller B (Teign) GQA Grade: River Quality A Reach: Source-Edginswell Pumping Station Estimated Distance (km): 1.2 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A14NW (E)	448	2	289368 66322
27	**River Quality Biology Sampling Points** Name: Aller Brook (Teign) Reach: Edginswell Pumping Station To Kingskerswell Estimated Distance: 1.90 Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Biology GQA Grade D - Fair Year: 1995 GQA Grade: River Quality Biology GQA Grade D - Fair Year: 2000 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2002 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2003 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2004 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2005 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2006 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2007 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2008 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2009 GQA Grade: River Quality Biology GQA Grade C - Fairly Good	A14SW (E)	403	2	289320 66250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	**Substantiated Pollution Incident Register** Authority: Environment Agency - South West Region, Devon and Cornwall Area Incident Date: 4th July 2005 Incident Reference: 326496 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Crude Sewage	A13SE (E)	268	2	289176 66226
29	**Substantiated Pollution Incident Register** Authority: Environment Agency - South West Region, Devon and Cornwall Area Incident Date: 24th June 2014 Incident Reference: 1248884 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Specific Waste Materials: Contaminated Construction & Demolition Material & Waste	A18SE (N)	528	2	288930 66879
30	**Water Abstractions** Operator: HAS BEEN ALLOCATED FOR Licence Number: 14460030477 Permit Version: Not Supplied Location: Kerswell Gardens, TORQUAY Authority: Environment Agency, South West Region Abstraction: Agricultural Spray Irrigation (Summer) Abstraction Type: Not Supplied Source: Spring Daily Rate (m3): 454.60 Yearly Rate (m3): 9092.00 Details: Not Supplied 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	A13NW (N)	135	2	288800 66500
31	**Water Abstractions** Operator: THE LANDSCAPE COMPANY Licence Number: 14460030723 Permit Version: Not Supplied Location: Kerswell Gardens, Newton Road, TORQUAY Authority: Environment Agency, South West Region Abstraction: Agricultural Spray Irrigation (Summer) Abstraction Type: Not Supplied Source: Borehole Daily Rate (m3): 181.80 Yearly Rate (m3): 4318.00 Details: 1 March To 30 November Incl; Depth 55M 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	A13NW (NW)	166	2	288700 66495
31	**Water Abstractions** Operator: Landscape Company (South West) Ltd Licence Number: 14/46/003/0723 Permit Version: 100 Location: Kerswell Borehole Authority: Environment Agency, South West Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Kerswell Gardens, Newton Road, Torquay Authorised Start: 01 March Authorised End: 30 November Permit Start Date: 19th December 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	171	2	288700 66500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr J Isaac Licence Number: 14/46/003/0056 Permit Version: 100 Location: Home Farm, Well Authority: Environment Agency, South West Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Home Farm Lands, Kingskerswell, Newton Abbot, Devon Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th May 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19NE (NE)	1113	2	289700 67100
	Water Abstractions Operator: Mr & Mrs J L Bell Licence Number: 14460030499 Permit Version: Not Supplied Location: Lands At, Aller Brook House, COFFINSWELL Authority: Environment Agency, South West Region Abstraction: Agricultural Spray Irrigation (Summer) Abstraction Type: Not Supplied Source: River Daily Rate (m3): 21.80 Yearly Rate (m3): 2045.00 Details: These Two Points; 1696 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 10m	A24NW (N)	1547	2	289400 67795
	Water Abstractions Operator: MR & MRS J L BELL Licence Number: 14460030499 Permit Version: Not Supplied Location: Lands At, Aller Brook House, COFFINSWELL Authority: Environment Agency, South West Region Abstraction: Agricultural Spray Irrigation (Summer) Abstraction Type: Not Supplied Source: River Daily Rate (m3): 21.80 Yearly Rate (m3): 2045.00 Details: Aller Brook 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	A24NW (N)	1552	2	289400 67800
	Water Abstractions Operator: West End Nurseries Licence Number: 14/46/003/0894 Permit Version: 100 Location: West End Nurseries Borehole Authority: Environment Agency, South West Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: West End Nurseries, Marldon Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th June 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A6SW (SW)	1665	2	287320 65480

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: West End Nurseries (Newton Abbot) Ltd Licence Number: 14/46/003/0894 Permit Version: 101 Location: West End Nurseries Borehole Authority: Environment Agency, South West Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: West End Nurseries, Marldon Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th May 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A6SW (SW)	1676	2	287380 65360
	Water Abstractions Operator: Otter Nurseries Limited Licence Number: 14/46/003/0894 Permit Version: 103 Location: West End Nurseries Borehole Authority: Environment Agency, South West Region Abstraction: Horticulture And Nurseries: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: West End Nurseries, Marldon Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 19th October 2015 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A6SW (SW)	1679	2	287375 65362
	Water Abstractions Operator: West End Nurseries (Newton Abbot) Ltd Licence Number: 14/46/003/0894 Permit Version: 102 Location: West End Nurseries Borehole Authority: Environment Agency, South West Region Abstraction: Horticulture And Nurseries: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: West End Nurseries, Marldon Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st April 2014 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A6SW (SW)	1679	2	287375 65362
	Water Abstractions Operator: TORQUAY LAUNDRIES Licence Number: 14460030299 Permit Version: Not Supplied Location: Torquay Laundries Ltd, Hele Cross, Barton Hill Road, TORQUAY Authority: Environment Agency, South West Region Abstraction: Industrial Processing (Miscellaneous) Abstraction Type: Not Supplied Source: Borehole Daily Rate (m3): 54.50 Yearly Rate (m3): 16818.00 Details: Laundry; Depth 80M 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	(E)	1692	2	290600 66100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr & Mrs J L Bell Licence Number: 14/46/003/0498 Permit Version: 100 Location: Aller Brook House, Well Authority: Environment Agency, South West Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Lands At, Aller Brook House, Coffinswell Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 20th October 1987 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A24NE (NE)	1727	2	289600 67900
	Water Abstractions Operator: HAS BEEN ALLOCATED FOR Licence Number: 14460030013 Permit Version: Not Supplied Location: S Devon Co-Op, TORQUAY Authority: Environment Agency, South West Region Abstraction: Industrial Processing (Food And Drink) Abstraction Type: Not Supplied Source: Borehole Daily Rate (m3): 118.20 Yearly Rate (m3): 25003.00 Details: Depth 76M 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	(E)	1791	2	290700 66100
	Water Abstractions Operator: Rowcroft House Foundation Ltd Licence Number: 14/46/003/0825 Permit Version: 100 Location: Bearnes, Borehole Authority: Environment Agency, South West Region Abstraction: Horticulture And Nurseries: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises Of Rowcroft House Foundation Ltd, Torquay Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5SW (SE)	1926	2	290100 64750
	Water Abstractions Operator: Rowcroft House Foundation Ltd Licence Number: 14/46/003/0825 Permit Version: 100 Location: Bearnes, Borehole Authority: Environment Agency, South West Region Abstraction: Commercial/Industrial/Public Services: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises Of Rowcroft House Foundation Ltd, Torquay Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5SW (SE)	1926	2	290100 64750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Bearnes Licence Number: 14/46/003/0825 Permit Version: 100 Location: Bearnes, Borehole Authority: Environment Agency, South West Region Abstraction: Other Industrial/Commercial/Public Services: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Premises Of Bearnes, Rainbow, Avenue Road, Torquay Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A5SW (SE)	1964	2	290100 64700
	Water Abstractions Operator: Bearnes Licence Number: 14/46/003/0825 Permit Version: 100 Location: Bearnes, Borehole Authority: Environment Agency, South West Region Abstraction: Public Water Supply: General Use (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 38 Yearly Rate (m3): 9376 Details: Premises Of Bearnes, Rainbow, Avenue Road, Torquay Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 25th May 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5SW (SE)	1964	2	290100 64700
	Water Abstractions Operator: BEARNES Licence Number: 14460030825 Permit Version: Not Supplied Location: Premises Of Bearnes, Rainbow, Avenue Road, TORQUAY Authority: Environment Agency, South West Region Abstraction: Private Water Supply (Miscellaneous Water Bottling) Abstraction Type: Not Supplied Source: Borehole Daily Rate (m3): 68.10 Yearly Rate (m3): 24889.00 Details: Depth 63m 00003m0000574g 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	A5SW (SE)	1964	2	290105 64705
	Water Abstractions Operator: BEARNES Licence Number: 14460030825 Permit Version: Not Supplied Location: Premises Of Bearnes, Rainbow, Avenue Road, TORQUAY Authority: Environment Agency, South West Region Abstraction: Private Water Supply (Miscellaneous Water Bottling) Abstraction Type: Not Supplied Source: Borehole Daily Rate (m3): 37.50 Yearly Rate (m3): 9376.00 Details: Horticulture 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	A5SW (SE)	1968	2	290105 64700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: BEARNES Licence Number: 14460030825 Permit Version: Not Supplied Location: Premises Of Bearnes, Rainbow, Avenue Road, TORQUAY Authority: Environment Agency, South West Region Abstraction: Private Water Supply (Miscellaneous Water Bottling) Abstraction Type: Not Supplied Source: Borehole Daily Rate (m3): 3.40 Yearly Rate (m3): 1244.00 Details: Not Supplied 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	A5SW (SE)	1971	2	290105 64695
	Groundwater Vulnerability Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 49 South Devon Scale: 1:100,000	A13NW (N)	0	2	288842 66303
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NW (N)	0	1	288842 66303
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13NW (N)	0	1	288842 66303
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	0	2	288875 66310
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	2	288855 66330
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (NW)	62	2	288767 66413
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	126	2	289040 66265
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	0	2	288875 66310
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	2	288855 66330
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	8	2	288920 66290
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (NW)	62	2	288767 66413
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	126	2	289040 66265
	Areas Benefiting from Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Water Storage Areas None				
	Flood Defences None				
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13SE (SE)	0	5	288893 66273
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 309.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NE (E)	11	5	288908 66318
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 157.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NE (NE)	11	5	288886 66333
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	37	5	288792 66399
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NE (N)	45	5	288856 66389
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 122.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (N)	45	5	288830 66404
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 136.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	94	5	288731 66429
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 104.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	128	5	288723 66463

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 39.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	224	5	288634 66519
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	224	5	288619 66506
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	249	5	288600 66522
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 149.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	253	5	288596 66525
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 127.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A13NW (NW)	274	5	288569 66526
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SW (E)	282	5	289192 66228
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 136.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SW (E)	314	5	289225 66228
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 217.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	371	5	288433 66490
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 48.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	391	5	288439 66545

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	396	5	288462 66588
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	398	5	288466 66596
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	398	5	288466 66596
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	399	5	288466 66598
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 20.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	399	5	288470 66603
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 210.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	402	5	288481 66620
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SW (E)	441	5	289358 66252
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	445	5	288430 66626
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	448	5	288428 66629

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 20.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SW (E)	453	5	289374 66281
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 410.2 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SW (E)	472	5	289392 66289
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 140.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SW (E)	472	5	289392 66289
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 231.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (NW)	552	5	288299 66624
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 39.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	559	5	288315 66663
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	569	5	288329 66699
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 146.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	584	5	288339 66735
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 58.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	603	5	289524 66324
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	603	5	289524 66324

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 822.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (W)	606	5	288195 66519
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	606	5	289525 66338
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	606	5	289525 66338
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A12NE (W)	613	5	288190 66525
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	619	5	289538 66343
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	619	5	289538 66343
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 239.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	660	5	289580 66337
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 67.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	664	5	289583 66351
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 24.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	698	5	289579 66539

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 2	A17SE (NW)	701	5	288264 66827
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	701	5	288264 66827
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 66.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	703	5	289579 66554
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	704	5	289587 66533
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	704	5	289587 66533
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 193.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	715	5	288256 66837
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 253.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (NE)	721	5	289568 66623
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	727	5	289622 66499
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 66.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	731	5	289650 66351

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 211.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	731	5	289650 66351
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 130.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A18NW (NW)	732	5	288534 67044
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 172.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A18NW (NW)	732	5	288535 67045
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 65.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	733	5	289646 66415
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 20.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	748	5	289650 66472
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 195.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	753	5	288358 66973
91	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	756	5	289654 66492
92	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A9NE (SE)	757	5	289573 65920
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 216.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	760	5	288251 66896

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
94	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 297.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A9NE (SE)	761	5	289573 65914
95	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 65.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SE (NW)	763	5	288217 66866
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 650.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14NE (E)	768	5	289662 66508
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 57.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A19SW (NE)	798	5	289496 66859
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 442.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A19SW (NE)	798	5	289498 66857
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	822	5	288168 66900
100	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	822	5	288123 66846
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	823	5	288125 66850
102	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 69.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	824	5	288170 66905

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
103	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	825	5	288161 66897
104	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	829	5	288151 66891
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	829	5	288152 66892
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 121.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A9SW (SE)	873	5	289389 65531
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	883	5	288147 66967
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 63.7 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A9SW (SE)	889	5	289485 65590
109	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 248.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SE (E)	895	5	289816 66295
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 213.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SE (E)	928	5	289849 66288
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 150.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A14SE (E)	928	5	289849 66288

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
112	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (W)	934	5	287891 66646
113	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 328.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	940	5	287974 66838
114	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	952	5	288031 66940
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17SW (NW)	956	5	288055 66975
116	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 0.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17NW (NW)	957	5	288059 66981
117	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17NW (NW)	957	5	288059 66982
118	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 83.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17NW (NW)	963	5	288062 66993
119	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17NW (NW)	974	5	288125 67071
120	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 2	A17NW (NW)	984	5	288122 67081

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
121	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17NW (NW)	984	5	288121 67081
122	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17NW (NW)	987	5	288105 67070
123	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Teign Primacy: 1	A17NW (NW)	993	5	288123 67094

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
124	**Historical Landfill Sites** Licence Holder: P Bright Location: Newton Road, Torquay, Devon Name: Scotts Bridge Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD08794 First Input Date: 5th January 1983 Last Input Date: 4th July 1991 Specified Waste Type: Deposited Waste included Inert and Industrial Waste EA Waste Ref: 21999 Regis Ref: EK1/L/BRI156 WRC Ref: 1100/0148 BGS Ref: Not Supplied Other Ref: WR/L/S30/01.83/M/3.91	A13SE (E)	67	2	288970 66250
125	**Historical Landfill Sites** Licence Holder: Kerswell Gardens Location: Newton Abbot, Kingsteignton, Devon Name: Kerswell Gardens Operator Location: Newton Abbot, Kingskerswell, Devon Boundary Accuracy: As Supplied Provider Reference: EAHLD35712 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: 21710 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: Not Supplied	A18SE (N)	328	2	288898 66681
126	**Historical Landfill Sites** Licence Holder: S R Lancaster Location: Barton, Torquay Name: Barton Hall Farm Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD08789 First Input Date: 1st August 1986 Last Input Date: 1st January 1990 Specified Waste Type: Deposited Waste included Inert Waste EA Waste Ref: 21975 Regis Ref: EK1/L/LAN107 WRC Ref: 1100/0143 BGS Ref: Not Supplied Other Ref: S(102), L/10/92/86	A19SW (NE)	635	2	289423 66695
127	**Licensed Waste Management Facilities (Landfill Boundaries)** Name: Kerswell Gardens Licence Number: 21710 Location: Kingsteignton, Newton Abbot, Devon Licence Holder: J Craxford Plant Hire Ltd Authority: Environment Agency - South West Region, Devon and Cornwall Area Site Category: Landfills Taking Non-biodegradeable Wastes (Not Construction) Max Input Rate: Not Supplied **Licence Status: Inactive** Issued: 25th January 1991 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A18SE (N)	328	2	288898 66681
128	**Licensed Waste Management Facilities (Locations)** Licence Number: 21710 Location: Kingsteignton, Newton Abbot, Devon Operator Name: J Craxford Plant Hire Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Devon and Cornwall Area Site Category: Landfills Taking Non-biodegradeable Wastes (Not Construction) **Licence Status: Surrendered** Issued: 25th January 1991 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 15th April 2010 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NW (N)	235	2	288800 66600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
129	**Licensed Waste Management Facilities (Locations)** Licence Number: 21999 Location: Torquay, Devon Operator Name: Bright P Operator Location: Not Supplied Authority: Environment Agency - South West Region, Devon and Cornwall Area Site Category: Not Supplied **Licence Status: Surrendered** Issued: 5th January 1983 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14NW (E)	295	2	289200 66400
130	**Licensed Waste Management Facilities (Locations)** Licence Number: 21586 Location: Unit 11b, Coventry Farm Estate, Newton Road, Torquay, Devon, TQ2 7HX Operator Name: Roland S Robinson, Ian D Robinson & Steven G Robinson Operator Location: Not Supplied Authority: Environment Agency - South West Region, Devon and Cornwall Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status: Modified** Issued: 27th October 1992 Last Modified: 2nd January 2014 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	389	2	288532 66650
131	**Licensed Waste Management Facilities (Locations)** Licence Number: 400937 Location: Kerswell Gardens, Newton Road, Torquay, Devon, TQ2 7HX Operator Name: Armabridge Ltd Operator Location: Not Supplied Authority: Environment Agency - South West Region, Devon and Cornwall Area Site Category: Treatment of waste to produce soil <75,000 tpy **Licence Status: Issued** Issued: 22nd July 2014 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18SW (N)	396	2	288835 66761
132	**Licensed Waste Management Facilities (Locations)** Licence Number: 21975 Location: Kingskerswell, Devon, TQ12 4SU Operator Name: Lancaster S R Operator Location: Not Supplied Authority: Environment Agency - South West Region, Devon and Cornwall Area Site Category: Not Supplied **Licence Status: Surrendered** Issued: 10th July 1986 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	688	2	289400 66800
	Local Authority Landfill Coverage Name: Torbay Unitary Council - Had landfill data but passed it to the relevant environment agency		0	4	288842 66303
	Local Authority Landfill Coverage Name: Teignbridge District Council - Has supplied landfill data		174	3	288969 66475
	Local Authority Landfill Coverage Name: Devon County Council - Has supplied landfill data		174	6	288969 66475
133	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1933	A14SW (SE)	606	8	289447 66007

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
134	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1938	A14NE (E)	614	8	289533 66354
135	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1938	A9NE (SE)	866	8	289531 65670
136	**Registered Landfill Sites** Licence Holder: P Bright Licence Reference: WR/L/LF/S(30) M03.91 Site Location: Scott'S Bridge, Newton Road, Torquay, Devon Licence Easting: 289050 Licence Northing: 66250 Operator Location: Belgravia House, 4 Belgravia Road, Torquay, Devon Authority: Environment Agency - South West Region, Devon Area Site Category: Landfill Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 8th April 1991 Preceded By Licence: L/10/ 43/83 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Devon Cat.A: Inert Waste Max.Waste Estimated By Licence-Stated Prohibited Waste: All Sludges Or Liquids Devon Cat.B: General Waste Devon Cat.C Putrescible Waste Poisonous, Noxious, Polluting Wastes	A13SE (E)	141	2	289050 66250
136	**Registered Landfill Sites** Licence Holder: P Bright Licence Reference: L/10/ 43/83 Site Location: Land Adj. Newton Road, Scotts Bridge, Torquay, Devon Licence Easting: 289050 Licence Northing: 66250 Operator Location: Belgravia House, 4 Belgravia Road, Torquay, Devon Authority: Environment Agency - South West Region, Devon Area Site Category: Landfill Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Record supersededSuperseded Dated: 5th January 1983 Preceded By Licence: Not Given Superseded By Licence: Wr/L/Lf/S(30) M03.91 Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Asbestos Sheet & Pipes Construction And Demolition Wastes Devon Inert Ind.(Demol'N) Waste * Prohibited Waste: Biodegradable/Putrescible Waste Liquid Wastes Wastes Ex Toxic-Contaminated Premises	A13SE (E)	141	2	289050 66250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
137	**Registered Landfill Sites** Licence Holder: J Craxford (Plant Hire) Ltd Licence Reference: WR/L/LF/S(139) Site Location: Kerswell Gardens, Kingskerswell, Newton Abbot, Devon Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: Foredown, Kingskerswell, NEWTON ABBOT, Devon, TQ12 5LE Authority: Environment Agency - South West Region, Devon Area Site Category: Landfill Max Input Rate: Very Large (Equal to or greater than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Record supersededSuperseded Dated: 25th January 1991 Preceded By Licence: Not Given Superseded By Licence: WR/L/LF/S(139) 05.96 Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate Authorised Waste: Approx. Max.Waste Permitted By Licence Asbestos Cement Products Devon Cat.A: Inert Waste Prohibited Waste: Devon Cat.B: General Waste Devon Cat.C: Putrescible Waste Liquid/Sludge Wastes Poisonous, Noxious, Polluting Wastes	A18SE (N)	338	2	288902 66691
138	**Registered Landfill Sites** Licence Holder: J Craxford (Plant Hire) Ltd Licence Reference: WR/L/LF/S(139) 05.96 Site Location: Kerswell Gardens, Kingskerswell, Newton Abbot, Devon Licence Easting: 289000 Licence Northing: 66800 Operator Location: Foredown, Kingskerswell, NEWTON ABBOT, Devon, TQ12 5LE Authority: Environment Agency - South West Region, Devon Area Site Category: Landfill Max Input Rate: Very Large (Equal to or greater than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Site not yet started Dated: 1st May 1996 Preceded By Licence: WR/L/LF/S(139) Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Devon Cat.A: Inert Waste Devon Cat.B: General Waste Max.Waste Permitted By Licence Prohibited Waste: Waste N.O.S.	A18SE (N)	475	2	289000 66800
139	**Registered Landfill Sites** Licence Holder: S R Lancaster Licence Reference: Lf/S(102) (L/10/ 92/86) Site Location: Barton Hall Farm, Torquay, Devon Licence Easting: 289450 Licence Northing: 66850 Operator Location: Dunterton, Teignharvey, Newton Abbot, Devon Authority: Environment Agency - South West Region, Devon Area Site Category: Landfill Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 10th July 1986 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Asbestos Cement Products Devon Inert Ind.(Demol'N) Waste * Prohibited Waste: Biodegradable/Putrescible Waste Household Waste Household Waste-Bulky Items Liquid Wastes Paper/Cardboard Waste Sludge Wastes Waste Ex Premises Contam.Toxic Chems	A19SW (NE)	759	2	289450 66850

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
140	**Registered Waste Transfer Sites** Licence Holder: R S & I D Robinson & S G Robinson Licence Reference: WR/L/TR/S(165) 09.96 Site Location: A.B.C.Siddalls, 11B Coventry Farm Estate, TORQUAY, Devon, TQ2 7HX Operator Location: As Site Address Authority: Environment Agency - South West Region, Devon Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: OperationalOperational Dated: 27th October 1992 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate Authorised Waste: Devon Cat.A: Inert Waste Devon Cat.B: General Waste Devon Cat.C: Putrescible Waste Max.Waste Permitted By Licence Prohibited Waste: Waste N.O.S.	A18SW (NW)	420	2	288530 66687
141	**Registered Waste Transfer Sites** Licence Holder: South Devon Health Care Licence Reference: WR/L/TC/S(140)A 07.93 Site Location: Torbay Hospital, Lawes Bridge, TORQUAY, Devon, TQ2 7AA Operator Location: As Site Address Authority: Environment Agency - South West Region, Devon Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence has completion certificateSurrendered Dated: 1st July 1993 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Approximate location provided by supplier Boundary Quality: Not Supplied Authorised Waste: Clinical Wastes A -> E In Hsc Rev'92 Confidential Waste Paper From Med.Est Max.Storage In Licence Paper/Card. Assoc.With Clinical Waste Pharmaceuticals/Controlled Drugs Plastic Waste Assoc.With Clinical Wast	A9NE (SE)	969	2	289800 65900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Permian Rocks (Undifferentiated)	A13NW (N)	0	1	288842 66303
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (SW)	0	1	288840 66300
	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: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (N)	0	1	288842 66303
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (N)	44	1	288849 66396
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	51	1	288884 66377
	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: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (N)	234	1	288786 66599
142	**BGS Recorded Mineral Sites** Site Name: Courtlands Location: Edginswell, Torquay, Devon Source: British Geological Survey, National Geoscience Information Service Reference: 45456 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Permian Geology: Torbay Breccia Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	236	1	289027 66055

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
143	**BGS Recorded Mineral Sites** Site Name: Longpark China Terra Cotta Works Location: Shiphay, Torquay, Devon Source: British Geological Survey, National Geoscience Information Service Reference: 45457 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Permian Geology: Watcombe Breccia Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A14SE (E)	918	1	289837 66245
	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				
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	242	1	289008 66531
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	288840 66300
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	288842 66303
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	288840 66300
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	288842 66303
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	288842 66303
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	242	1	289008 66531
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SW)	0	1	288842 66302
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	288842 66303
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	30	1	288889 66357
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	45	1	288931 66239
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	135	1	288732 66478
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	191	1	288683 66513
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	214	1	288771 66576
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	288842 66303

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	288840 66300
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	44	1	288849 66396
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	288840 66300
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	288842 66303
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	1	288842 66303
	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	A13NW (N)	0	1	288842 66303

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
144	**Contemporary Trade Directory Entries** Name: D G M Location: Newton Road, Torquay, TQ2 7HX Classification: Lawnmowers & Garden Machinery - Sales & Service **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (N)	188	-	288797 66553
145	**Contemporary Trade Directory Entries** Name: Chelston Lawnmower Services Location: Edginswell Farm, Edginswell Lane, Torquay, TQ2 7JF Classification: Lawnmowers & Garden Machinery - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	194	-	288734 66083
146	**Contemporary Trade Directory Entries** Name: P R Sport & Leisure Location: Trenton, Edginswell Close, Torquay, TQ2 7JA Classification: Sports Equipment Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	202	-	289086 66190
147	**Contemporary Trade Directory Entries** Name: Terry Sanders & Son Ltd Location: Edginswell Hall, Edginswell Lane, Torquay, Devon, TQ2 7JF Classification: Recycling Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	230	-	288586 66158
148	**Contemporary Trade Directory Entries** Name: Wheelie Bin Location: 7, Walkham Rise, Torquay, TQ2 7RN Classification: Wheelie Bin Cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (S)	291	-	288754 65970
149	**Contemporary Trade Directory Entries** Name: Restore & More S W Location: 49, Higher Cadewell Lane, Torquay, TQ2 7EX Classification: Carpet, Curtain & Upholstery Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A14SW (SE)	409	-	289208 65998
150	**Contemporary Trade Directory Entries** Name: B & D Restorers Location: Unit 5a, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Furniture - Repairing & Restoring **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	447	-	288510 66705
150	**Contemporary Trade Directory Entries** Name: Gates & Fences Uk Ltd Location: Newton rd, Torquay, Devon, TQ2 7HX Classification: Gate Manufacturers **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A17SE (NW)	460	-	288499 66714
150	**Contemporary Trade Directory Entries** Name: 21st Century Screen Printers Location: Unit 5, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Screen Process Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	460	-	288499 66714
151	**Contemporary Trade Directory Entries** Name: Best Cleaning & Ironing Services Location: 41, Collaton Road, Torquay, TQ2 7HH Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	481	-	289140 65835
152	**Contemporary Trade Directory Entries** Name: D J Blinds Location: 3, Lowley Brook Court, Torquay, TQ2 7RS Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	494	-	288796 65750
152	**Contemporary Trade Directory Entries** Name: Dave Musgrove Location: 3, Lowley Brook Court, Torquay, TQ2 7RS Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	494	-	288796 65750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
153	**Contemporary Trade Directory Entries** Name: Tint Works Location: Unit 2, Coventry Farm, Newton Road, Torquay, Devon, TQ2 7HX Classification: Window Tinting **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	499	-	288473 66743
153	**Contemporary Trade Directory Entries** Name: Euro Candles Location: Unit 1, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Candle Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	511	-	288457 66746
153	**Contemporary Trade Directory Entries** Name: The Tint Worx Location: Unit 2, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Window Tinting **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	511	-	288457 66746
153	**Contemporary Trade Directory Entries** Name: T Q 3 Motors Location: Unit 2, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	511	-	288457 66746
153	**Contemporary Trade Directory Entries** Name: Taylor Made Gates Location: Unit 8, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Wrought Ironwork **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	514	-	288462 66754
153	**Contemporary Trade Directory Entries** Name: Coastal Gates & Security Ltd Location: Unit 8, Coventry Farm, Newton Road, Torquay, Devon, TQ2 7HX Classification: Gate Manufacturers - Automated **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	514	-	288462 66754
153	**Contemporary Trade Directory Entries** Name: R J S Electrical Location: Unit 8a, Coventry Farm, Newton Road, Torquay, Devon, TQ2 7HX Classification: Electrical Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	514	-	288462 66754
153	**Contemporary Trade Directory Entries** Name: Elite Vehicle Solutions Location: Unit 1, Coventry Farm Estate, Newton Road, TORQUAY, TQ2 7HX Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	521	-	288466 66766
153	**Contemporary Trade Directory Entries** Name: A B C Siddalls Skip Hire Location: Unit 11b, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	521	-	288466 66766
153	**Contemporary Trade Directory Entries** Name: M A Contracts Location: Unit 10, Coventry Farm, Newton Road, Torquay, TQ2 7HX Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	522	-	288466 66766
154	**Contemporary Trade Directory Entries** Name: Fast Trax Location: Homepark, Edginswell Lane, Torquay, TQ2 7JF Classification: Breakdown and Recovery **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (W)	510	-	288269 66406
155	**Contemporary Trade Directory Entries** Name: A J Autos Location: Edginswell Lane, Torquay, TQ2 7JF Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	566	-	288235 66514

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
156	**Contemporary Trade Directory Entries** Name: First Impressions Printers Location: Higher Cadewell La, Torquay, Devon, TQ2 7ET Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A9NW (SE)	579	-	289349 65902
157	**Contemporary Trade Directory Entries** Name: Paramount Cleaning Specialists Location: 2, Culm Close, Torquay, TQ2 7RQ Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	648	-	288834 65590
158	**Contemporary Trade Directory Entries** Name: 1st Impressions Printing Location: 7, Higher Cadewell Lane, Torquay, TQ2 7ET Classification: Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	658	-	289411 65854
159	**Contemporary Trade Directory Entries** Name: Esso Location: Kingskerswell, Newton Abbot, Devon, TQ12 5HG Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	690	-	288320 66865
159	**Contemporary Trade Directory Entries** Name: Shell (Uk) Ltd Location: Torquay Road, Kingskerswell, Newton Abbot, Devon, TQ12 5HG Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	690	-	288320 66865
159	**Contemporary Trade Directory Entries** Name: Texaco Location: Torquay Road, Kingskerswell, Newton Abbot, Devon, TQ12 5HG Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	690	-	288320 66865
159	**Contemporary Trade Directory Entries** Name: Bob Hill Location: 19, Stadium Drive, Kingskerswell, Newton Abbot, Devon, TQ12 5HP Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	718	-	288288 66874
160	**Contemporary Trade Directory Entries** Name: Bin Cleaning Ltd Location: 11, Cadewell Lane, Torquay, TQ2 7AG Classification: Wheelie Bin Cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SE (E)	745	-	289629 66073
161	**Contemporary Trade Directory Entries** Name: Country Kitchen Shiphay Location: 38, Banbury Park, Torquay, TQ2 7HN Classification: Confectionery Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	752	-	289326 65634
162	**Contemporary Trade Directory Entries** Name: Professional Cleaning Services Location: 87, Torridge Avenue, Torquay, TQ2 7NB Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	758	-	288805 65482
163	**Contemporary Trade Directory Entries** Name: Electro Location: 11, Banbury Park, Torquay, TQ2 7HN Classification: Washing Machines - Servicing & Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	802	-	289343 65584
164	**Contemporary Trade Directory Entries** Name: Torbay Harbour Services Location: 1, Kittiwake Drive, Torquay, TQ2 7TR Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	815	-	289456 66921

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
165	**Contemporary Trade Directory Entries** Name: Comet Location: Nicholson Road, Torquay, TQ2 7HT Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (E)	822	-	289672 66640
166	**Contemporary Trade Directory Entries** Name: Caravan Searcher Location: 1, Condor Drive, Torquay, TQ2 7TU Classification: Caravan Dealers & Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	842	-	289553 66862
167	**Contemporary Trade Directory Entries** Name: C & M Services Location: 18, Roundmoors Close, Kingskerswell, Newton Abbot, Devon, TQ12 5HR Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	854	-	288264 67030
167	**Contemporary Trade Directory Entries** Name: Jeffs Cleaning Services Location: 18, Roundmoors Close, Kingskerswell, Newton Abbot, Devon, TQ12 5HR Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	854	-	288264 67030
168	**Contemporary Trade Directory Entries** Name: Heat Recovery Ltd Location: 35, Kittiwake Drive, Torquay, TQ2 7TR Classification: Heating Services - Industrial and Commercial **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	874	-	289428 67017
169	**Contemporary Trade Directory Entries** Name: Neptune Trailers Location: 15, Stanbury Road, Torquay, TQ2 7LL Classification: Trailers & Towing Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	898	-	289270 65429
170	**Contemporary Trade Directory Entries** Name: I J & C M Tuckett Location: 33, Fluder Hill, Kingskerswell, Newton Abbot, Devon, TQ12 4SX Classification: Dairies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	902	-	288921 67260
171	**Contemporary Trade Directory Entries** Name: Daily Poppins Location: 6, Roundmoors Close, Kingskerswell, Newton Abbot, Devon, TQ12 5HR Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	909	-	288175 67029
172	**Contemporary Trade Directory Entries** Name: 24 7 Plumbing Services Location: 91, Marldon Road, Torquay, TQ2 7EG Classification: Boilers - Servicing, Replacements & Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A3NE (S)	951	-	288867 65286
173	**Contemporary Trade Directory Entries** Name: Comet Group Plc Location: The Willows, Nicholson Road, Torquay, TQ2 7XA Classification: Electrical Goods Sales, Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (E)	955	-	289805 66668
174	**Contemporary Trade Directory Entries** Name: Yeomans - Torquay Location: 151, Newton Road, TORQUAY, TQ2 7AJ Classification: Car Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (E)	965	-	289876 66169
174	**Contemporary Trade Directory Entries** Name: Empire Motors Of Torquay Location: Longpark, Newton Road, Torquay, TQ2 7AL Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	974	-	289890 66214

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
175	**Contemporary Trade Directory Entries** Name: The Elite Service Location: 17, Manor Gardens, Kingskerswell, Newton Abbot, Devon, TQ12 5HF Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	971	-	288188 67119
176	**Contemporary Trade Directory Entries** Name: Newton Raod Mot Centre Location: 126, Newton Road, Torquay, TQ2 7AD Classification: Mot Testing Centres **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (E)	980	-	289876 66087
176	**Contemporary Trade Directory Entries** Name: Nick Palmer Cars Location: 126, Newton Road, Torquay, TQ2 7AD Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (E)	980	-	289876 66087
176	**Contemporary Trade Directory Entries** Name: David Meek Location: 126, Newton Road, Torquay, TQ2 7AD Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	980	-	289876 66087
176	**Contemporary Trade Directory Entries** Name: Torquay Car Centre Location: 126, Newton Road, Torquay, TQ2 7AD Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	980	-	289876 66087
177	**Contemporary Trade Directory Entries** Name: Boilerworx Location: 62, Marldon Road, Torquay, TQ2 7EH Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A3NE (S)	991	-	288970 65250
177	**Contemporary Trade Directory Entries** Name: Lewis Tuning & Servicing Location: 62, Marldon Road, Torquay, TQ2 7EH Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A3NE (S)	991	-	288970 65250
178	**Fuel Station Entries** Name: Mrh Kingskerswell Location: Torquay Road, Kingskerswell, Newton Abbot, Devon, TQ12 5HG Brand: Esso Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	690	-	288320 66865
179	**Fuel Station Entries** Name: Sainsburys Torquay Location: Nicholson Road, Torquay, Devon, TQ2 7HT Brand: Sainsburys Premises Type: Hypermarket **Status: Open** Positional Accuracy: Manually positioned to the address or location	A14NE (E)	750	-	289631 66548
180	**Points of Interest - Commercial Services** Name: Taylor Made Gates Location: Unit 8 Coventry Farm, Newton Road, Torquay, TQ2 7HX Category: Construction Services Class Code: Metalworkers Including Blacksmiths Positional Accuracy: Positioned to address or location	A17SE (NW)	514	7	288462 66754
180	**Points of Interest - Commercial Services** Name: Taylor Made Gates Location: Unit 8 Coventry Farm, Newton Road, Torquay, TQ2 7HX Category: Construction Services Class Code: Metalworkers Including Blacksmiths Positional Accuracy: Positioned to address or location	A17SE (NW)	514	7	288462 66754

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
180	**Points of Interest - Commercial Services** Name: U K S C Valeting & Detailing Location: Unit 1 Coventry Farm Estate, Newton Road, Torquay, TQ2 7HX Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A17SE (NW)	521	7	288466 66765
181	**Points of Interest - Commercial Services** Name: A J Autos Location: Edginswell Lane, Torquay, TQ2 7JF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NE (W)	566	7	288235 66514
182	**Points of Interest - Commercial Services** Name: Bob Hill Location: 19 Stadium Drive, Kingskerswell, Newton Abbot, TQ12 5HP Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A17SE (NW)	718	7	288288 66874
183	**Points of Interest - Commercial Services** Name: Sainsburys Torquay Location: Nicholson Road, Torquay, TQ2 7HT Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NE (E)	733	7	289614 66545
183	**Points of Interest - Commercial Services** Name: Car Wash Location: Nicholson Road, Torquay, Devon, TQ2 7HT Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NE (E)	735	7	289615 66546
184	**Points of Interest - Commercial Services** Name: P Barnes-Jones Haulage Location: Rosehill Farm, Fluder Hill, Kingskerswell, Newton Abbot, TQ12 4SX Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A18NE (N)	902	7	288921 67260
185	**Points of Interest - Commercial Services** Name: Newton Raod MOT Centre Location: 126 Newton Road, Torquay, TQ2 7AD Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A15SW (E)	980	7	289876 66087
186	**Points of Interest - Commercial Services** Name: Lewis Tuning & Servicing Location: 62 Marldon Road, Torquay, TQ2 7EH Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A3NE (S)	991	7	288970 65250
186	**Points of Interest - Commercial Services** Name: Lewis Tuning & Servicing Location: 62 Marldon Road, Torquay, TQ2 7EH Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A3NE (S)	991	7	288970 65250
187	**Points of Interest - Education and Health** Name: Torbay Hospital Location: Torbay Hospital, Newton Road, Torquay, TQ2 7AA Category: Health Practitioners and Establishments Class Code: Accident & Emergency Department Positional Accuracy: Positioned to address or location	A9NE (SE)	945	7	289771 65894
188	**Points of Interest - Manufacturing and Production** Name: Stoneco Ltd Location: Edginswell Lane, Torquay, TQ2 7JF Category: Extractive Industries Class Code: Stone Quarrying and Preparation Positional Accuracy: Positioned to address or location	A13SW (SW)	156	7	288717 66143
189	**Points of Interest - Manufacturing and Production** Name: Coventry Farm Estate (Industrial) Location: TQ2 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A18SW (NW)	481	7	288525 66757

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
190	**Points of Interest - Manufacturing and Production** Name: Tank Location: TQ2 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A9NE (SE)	863	7	289635 65821
190	**Points of Interest - Manufacturing and Production** Name: Tank Location: TQ2 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A9NE (SE)	866	7	289607 65773
191	**Points of Interest - Public Infrastructure** Name: Terry Sanders & Son Ltd Location: Edginswell Hall, Edginswell Lane, Torquay, TQ2 7JF Category: Infrastructure and Facilities Class Code: Recycling Centres Positional Accuracy: Positioned to address or location	A13SW (SW)	230	7	288586 66158
191	**Points of Interest - Public Infrastructure** Name: Terry Sanders & Son Ltd Location: Edginswell Hall, Edginswell Lane, Torquay, TQ2 7JF Category: Infrastructure and Facilities Class Code: Recycling Centres Positional Accuracy: Positioned to address or location	A13SW (SW)	230	7	288586 66158
192	**Points of Interest - Public Infrastructure** Name: Esso Location: Torquay Road, Kingskerswell, Newton Abbot, TQ12 5HG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	690	7	288320 66865
192	**Points of Interest - Public Infrastructure** Name: Texaco Location: Torquay Road, Kingskerswell, Newton Abbot, TQ12 5HG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	690	7	288319 66864
192	**Points of Interest - Public Infrastructure** Name: Pace Kingskerswell Sstn Location: Torquay Road, Kingskerswell, Newton Abbot, TQ12 5HG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	690	7	288320 66865
192	**Points of Interest - Public Infrastructure** Name: MRH Kingskerswell Location: Torquay Road, Kingskerswell, Newton Abbot, Devon, TQ12 5HG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	690	7	288320 66865
193	**Points of Interest - Public Infrastructure** Name: Sainsbury's Torquay Location: Nicholson Road, Torquay, TQ2 7HT Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NE (E)	750	7	289631 66548
194	**Points of Interest - Recreational and Environmental** Name: Playground Location: Huntacott Way, TQ2 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A13SW (S)	246	7	288809 66000
194	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SW (S)	250	7	288809 65996
195	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8NW (S)	408	7	288812 65834

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
196	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Exe Hill, TQ2 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A8SW (S)	725	7	288650 65548
196	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8SW (S)	727	7	288650 65546
197	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Condor Drive, TQ2 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A19SE (NE)	811	7	289552 66815
198	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9NW (SE)	821	7	289513 65718
198	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Oak Park Avenue, TQ2 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9NW (SE)	821	7	289513 65718
199	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8SE (S)	826	7	288960 65415
199	**Points of Interest - Recreational and Environmental** Name: Playground Location: Tamar Avenue, TQ2 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8SE (S)	826	7	288960 65415
200	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	872	7	289293 67094
200	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Kingskerswell Road, TQ2 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A19NW (NE)	879	7	289284 67106
201	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Condor Drive, TQ2 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A19SE (NE)	925	7	289584 66951
201	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19SE (NE)	927	7	289586 66952
201	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19NE (NE)	937	7	289565 66986

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
202	**Gas Pipelines** Name: FM20 - Kenn (South) to Fishacre Nat Grid: Owned By National Grid Diameter (mm): 600 Building Proximity Distance (m): 49 Status: Active Pipe Length (m): 31797.4 Pipe Number: Feeder 20	A18SW (NW)	347	8	288655 66686

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Torbay Council - Environmental Services	April 2014	Annual Rolling Update
South Hams District Council - Environmental Health Department	January 2013	Annual Rolling Update
Teignbridge District Council - Environmental Health Department	June 2014	Annual Rolling Update
Discharge Consents		
Environment Agency - South West Region	October 2017	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - South West Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - South West Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - South West Region	October 2017	Quarterly
Local Authority Integrated Pollution Prevention And Control		
South Hams District Council - Environmental Health Department	February 2013	Annual Rolling Update
Teignbridge District Council - Environmental Health Department	June 2014	Annual Rolling Update
Torbay Council - Environmental Services	May 2016	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
Teignbridge District Council - Environmental Health Department	June 2014	Annual Rolling Update
Torbay Council - Environmental Services	May 2016	Annual Rolling Update
South Hams District Council - Environmental Health Department	October 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
South Hams District Council - Environmental Health Department	February 2013	Annual Rolling Update
Teignbridge District Council - Environmental Health Department	June 2014	Annual Rolling Update
Torbay Council - Environmental Services	May 2016	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	September 2017	
Pollution Incidents to Controlled Waters		
Environment Agency - South West Region	September 1999	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - South West Region	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - South West Region	March 2013	As notified
Registered Radioactive Substances		
Environment Agency - South West Region	January 2015	
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 - South West Region - Devon Area	October 2017	Quarterly
Environment Agency - South West Region - Devon and Cornwall Area	October 2017	Quarterly
Water Abstractions		
Environment Agency - South West Region	October 2017	Quarterly
Water Industry Act Referrals		
Environment Agency - South West Region	October 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable

Data Currency

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones Environment Agency - Head Office	October 2017	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2017	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2017	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	November 2017	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	November 2017	Quarterly
Flood Defences Environment Agency - Head Office	November 2017	Quarterly
OS Water Network Lines Ordnance Survey	October 2017	6 Weekly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	October 2013	As notified
Surface Water Suitability Environment Agency - Head Office	October 2013	As notified
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	October 2017	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - South West Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South West Region - Devon Area	October 2017	Quarterly
Environment Agency - South West Region - Devon and Cornwall Area	October 2017	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South West Region - Devon Area	October 2017	Quarterly
Environment Agency - South West Region - Devon and Cornwall Area	October 2017	Quarterly
Local Authority Landfill Coverage		
Devon County Council	May 2000	Not Applicable
South Hams District Council - Environmental Health Department	May 2000	Not Applicable
Teignbridge District Council - Environmental Health Department	May 2000	Not Applicable
Torbay Council - Environmental Services	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Devon County Council	May 2000	Not Applicable
South Hams District Council - Environmental Health Department	May 2000	Not Applicable
Teignbridge District Council - Environmental Health Department	May 2000	Not Applicable
Torbay Council - Environmental Services	May 2000	Not Applicable
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites		
Environment Agency - South West Region - Devon Area	March 2003	Not Applicable
Environment Agency - South West Region - Devon and Cornwall Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - South West Region - Devon Area	March 2003	Not Applicable
Environment Agency - South West Region - Devon and Cornwall Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - South West Region - Devon Area	March 2003	Not Applicable
Environment Agency - South West Region - Devon and Cornwall Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	September 2017	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
South Hams District Council - Planning Department	February 2016	Annual Rolling Update
Teignbridge District Council	February 2016	Annual Rolling Update
Torbay Council	February 2016	Annual Rolling Update
Devon County Council	September 2008	Annual Rolling Update
Planning Hazardous Substance Consents		
South Hams District Council - Planning Department	February 2016	Annual Rolling Update
Teignbridge District Council	February 2016	Annual Rolling Update
Torbay Council	February 2016	Annual Rolling Update
Devon County Council	September 2008	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	November 2017	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	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	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	June 2015	Annually
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	September 2017	Quarterly
Fuel Station Entries Catalist Ltd - Experian	November 2017	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Points of Interest - Commercial Services PointX	September 2017	Quarterly
Points of Interest - Education and Health PointX	September 2017	Quarterly
Points of Interest - Manufacturing and Production PointX	September 2017	Quarterly
Points of Interest - Public Infrastructure PointX	September 2017	Quarterly
Points of Interest - Recreational and Environmental PointX	September 2017	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland Natural England	October 2017	Bi-Annually
Areas of Outstanding Natural Beauty Natural England	August 2017	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	August 2017	Bi-Annually
Marine Nature Reserves Natural England	August 2017	Bi-Annually
National Nature Reserves Natural England	August 2017	Bi-Annually
National Parks Natural England	August 2017	Bi-Annually
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	October 2015	
Ramsar Sites Natural England	August 2017	Bi-Annually
Sites of Special Scientific Interest Natural England	August 2017	Bi-Annually
Special Areas of Conservation Natural England	August 2017	Bi-Annually
Special Protection Areas Natural England	August 2017	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	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**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
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Teignbridge District Council - Environmental Health Department** Forde House, Brunel Road, Newton Abbot, Devon, TQ12 4XX	Telephone: 01626 361101 Fax: 01626 331874 Email: envc@teignbridge.gov.uk Website: www.teignbridge.gov.uk
4	**Torbay Council - Environmental Services** Roebuck House, Abbey Road, Torquay, Devon, TQ2 5EJ	Telephone: 01803 201201 Fax: 01803 218010 Email: environment@torbay.gov.uk Website: www.torbay.gov.uk
5	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 023 8079 2000 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	**Devon County Council** County Hall, Topsham Road, Exeter, Devon, EX2 4QD	Telephone: 01392 382000 Fax: 01392 382135 Website: www.devon.gov.uk
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk
9	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
-	**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 / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Holocene - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Flandrian
	HEAD	Head	Clay, Silt, Sand and Gravel	Quaternary - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	AGR	Aller Gravel Formation	Gravel	Eocene - Eocene
	UGS	Upper Greensand Formation	Sandstone	Cenomanian - Albian
	TOBR	Torbay Breccia Formation	Breccia and Sandstone, Interbedded	Cisuralian - Cisuralian
	WBR	Watcombe Breccia Formation	Siltstone and Sandstone	Permian - Permian
	WBR	Watcombe Breccia Formation	Breccia	Permian - Permian
	OBR	Oddicombe Breccia Formation	Breccia	Permian - Permian
	WWYM	Whiteway Mudstone Formation	Slate	Tournaisian - Famennian
	EOL	East Ogwell Limestone Formation	Limestone, Dolomitic	Frasnian - Givetian
	EOL	East Ogwell Limestone Formation	Limestone	Frasnian - Givetian
	FT	Foxley Tuff Formation	Tuff	Givetian - Givetian
	BLHT	Blair Hill Tuff Member	Tuff	Givetian - Givetian
	NOSL	Nordon Formation	Limestone	Frasnian - Eifelian
	NOSL	Nordon Formation	Metalimestone	Frasnian - Eifelian
	NOSL	Nordon Formation	Slate	Frasnian - Eifelian
	NOSL	Nordon Formation	Mudstone, Siltstone, Limestone and	Frasnian - Eifelian
			Sandstone	
	TQL	Torquay Limestone Formation	Limestone and Mudstone, Interbedded	Frasnian - Eifelian
	NOSL	Nordon Formation	Lava, Basaltic	Frasnian - Eifelian
	MLDL	Marldon Limestone Member	Limestone	Givetian - Eifelian
		Faults		

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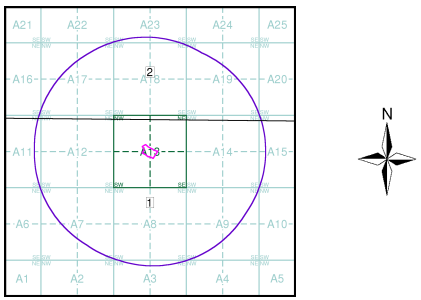
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**2**	**Map ID:**	**1**
Map Sheet No:	**339**	**Map Sheet No:**	**350**
Map Name:	**Newton Abbot**	**Map Name:**	**Torquay**
Map Date:	**1976**	**Map Date:**	**2004**
Bedrock Geology:	**Available**	**Bedrock Geology:**	**Available**
Superficial Geology:	**Available**	**Superficial Geology:**	**Available**
Artificial Geology:	**Available**	**Artificial Geology:**	**Available**
Faults:	**Not Supplied**	**Faults:**	**Not Supplied**
Landslip:	**Available**	**Landslip:**	**Available**
Rock Segments:	**Not Supplied**	**Rock Segments:**	**Not Supplied**

Geology 1:50,000 Maps - Slice A



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Customer Reference:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	1000

Site Details:

Land at Edginswell, Torquay

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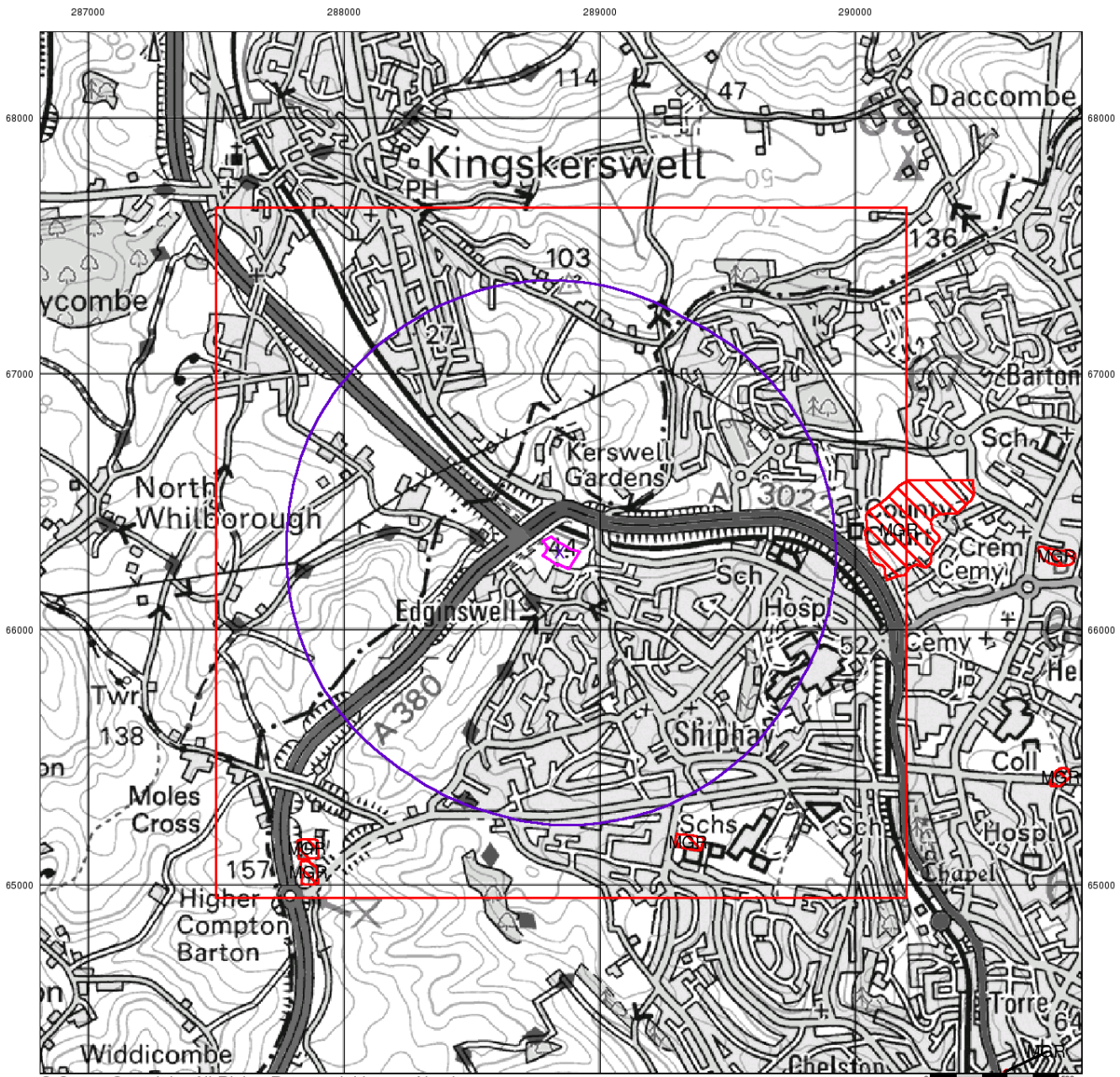
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Artificial Ground and Landslip

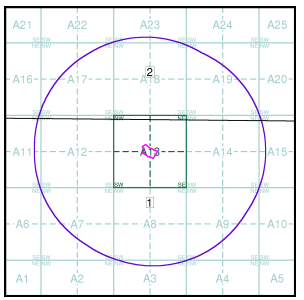
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



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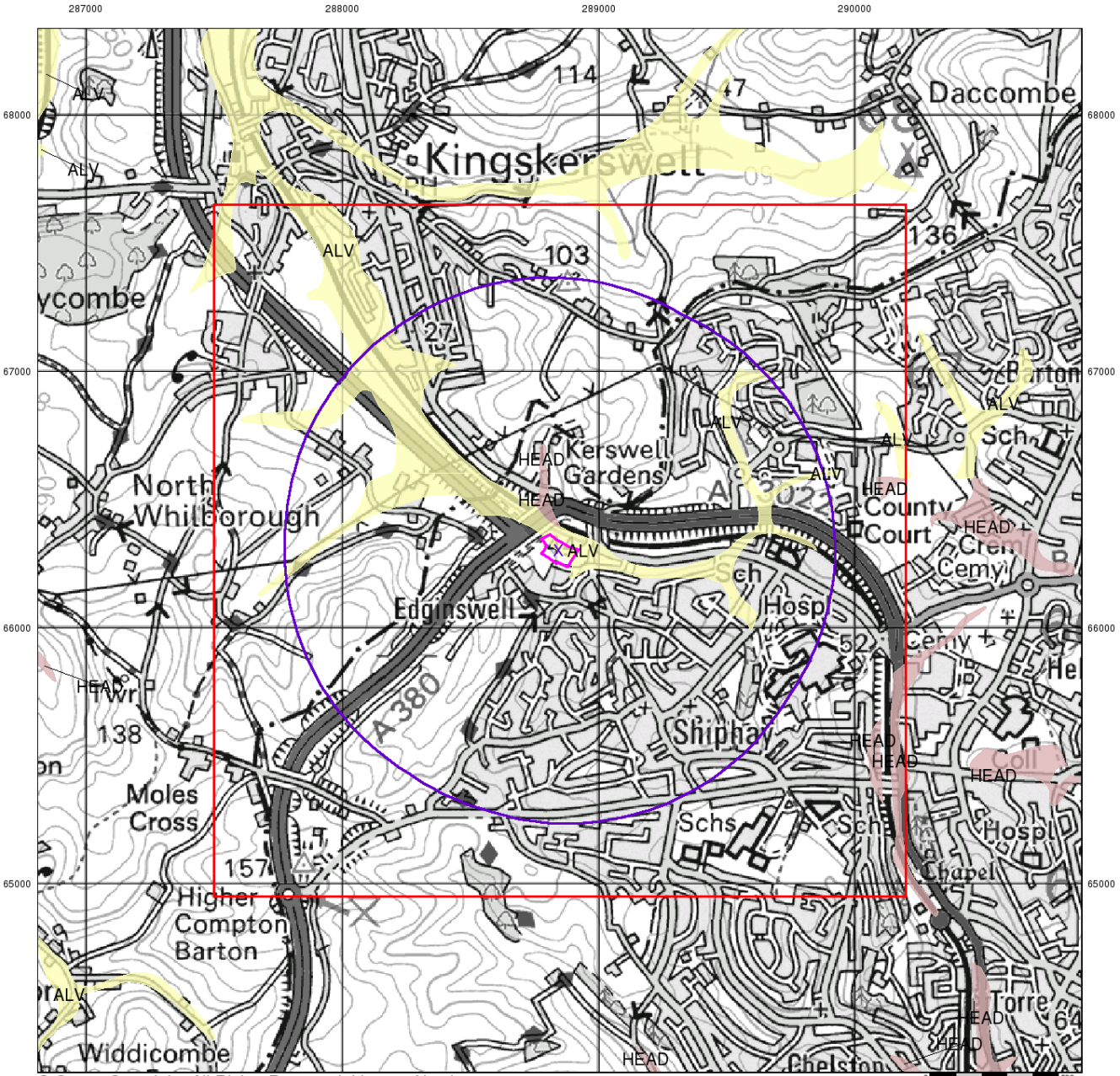

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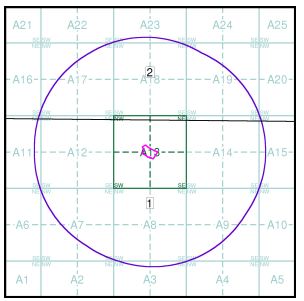
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



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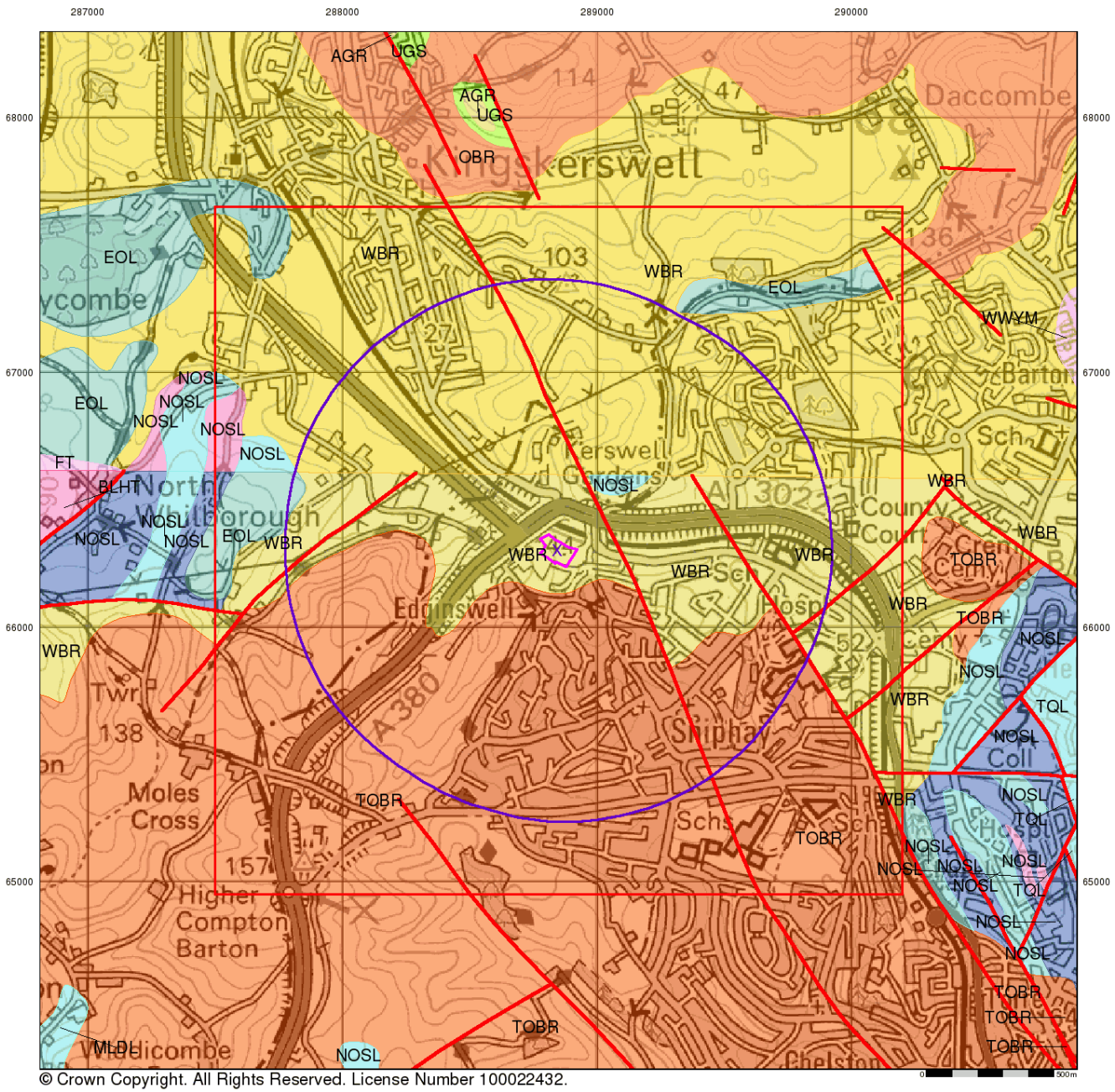

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Bedrock and Faults

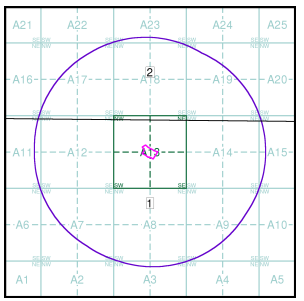
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



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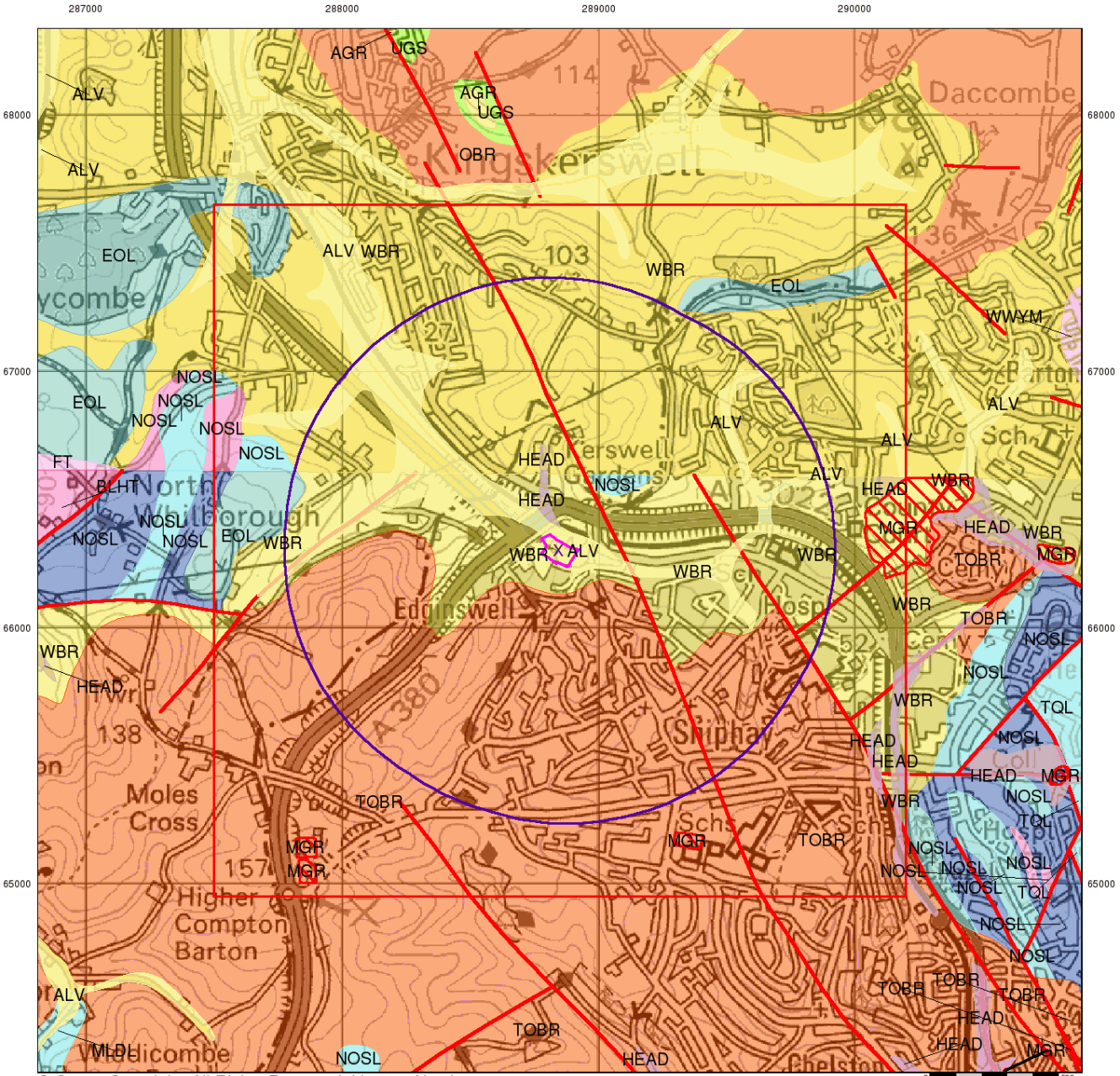

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

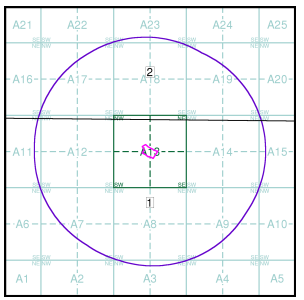
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



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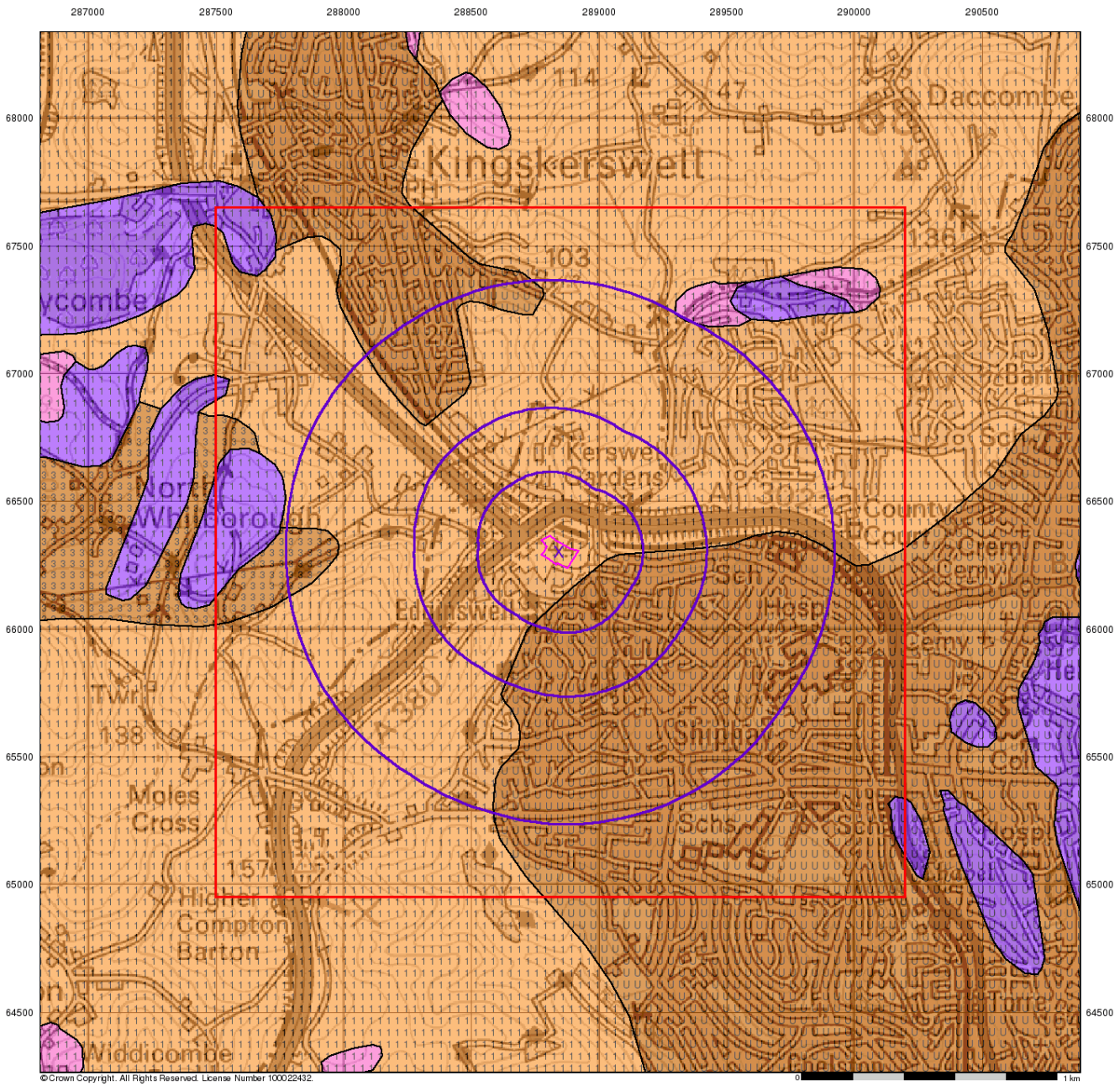

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Groundwater Vulnerability

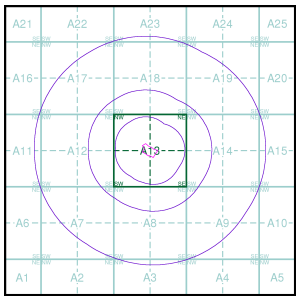
General

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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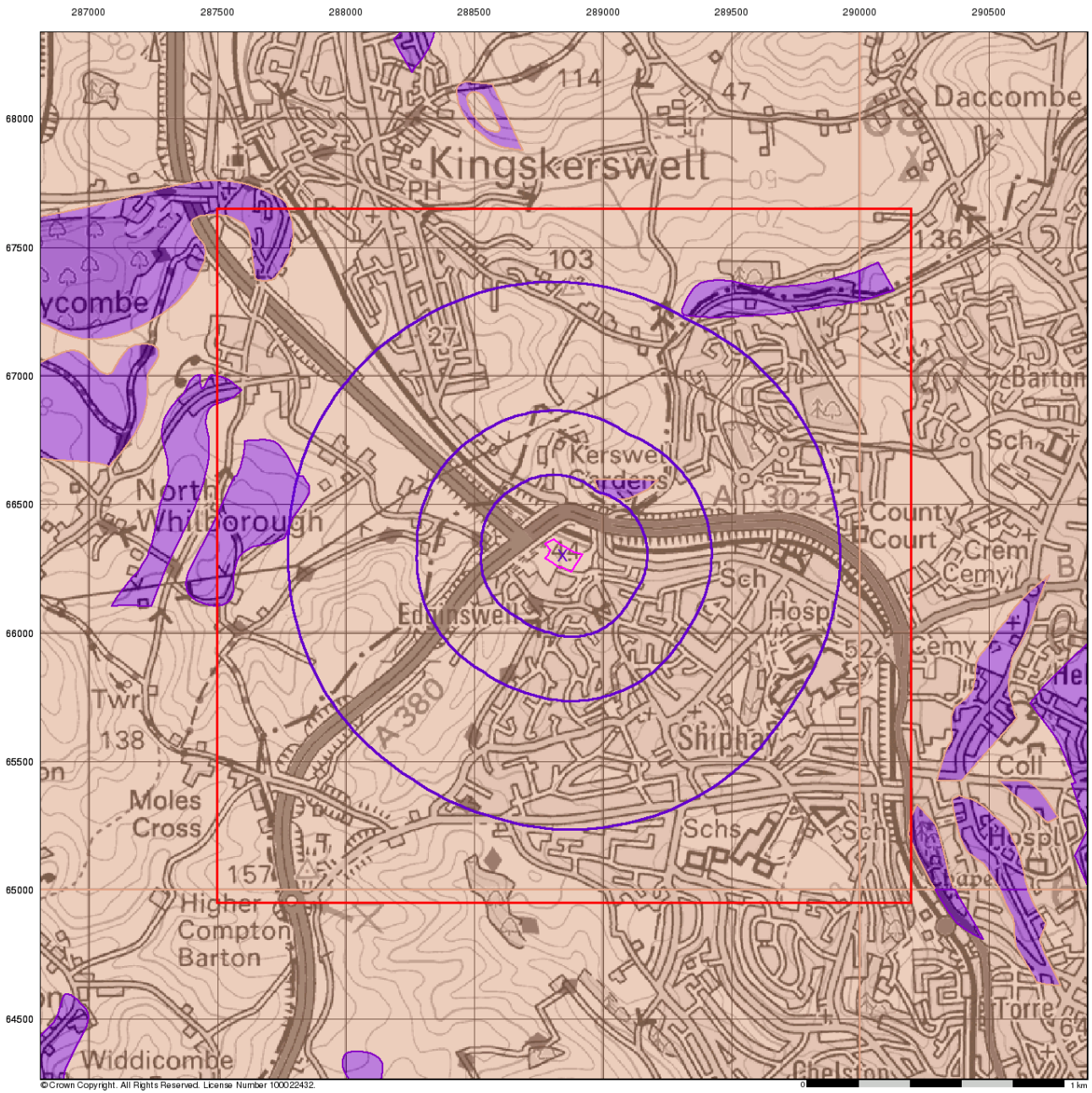

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Bedrock Aquifer Designation

General

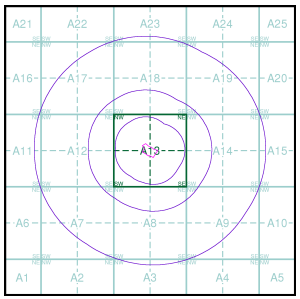
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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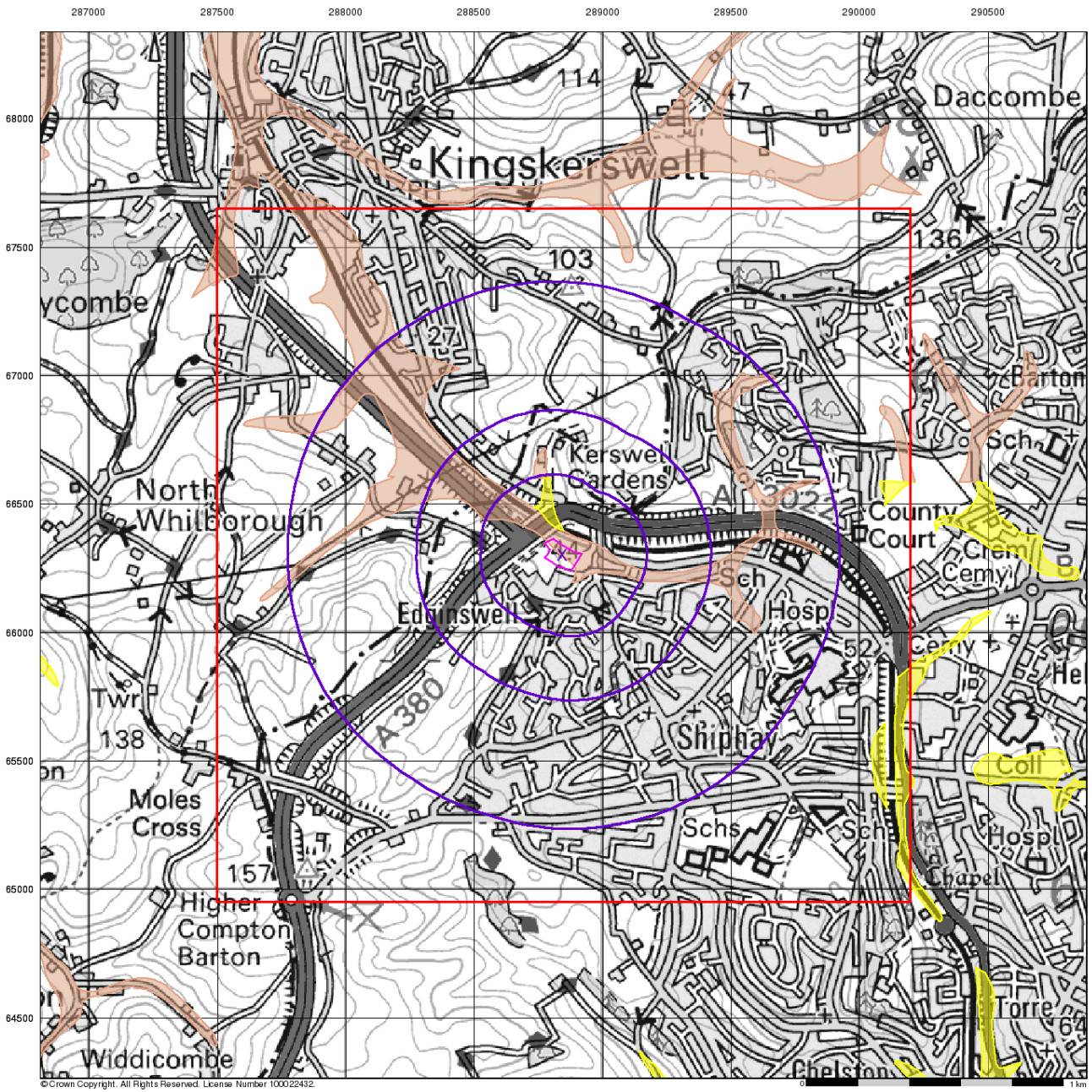

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Superficial Aquifer Designation

General

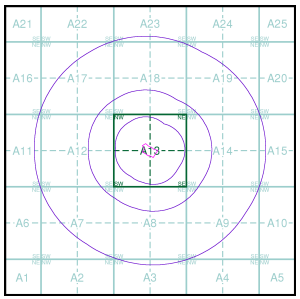
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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Slice:	A
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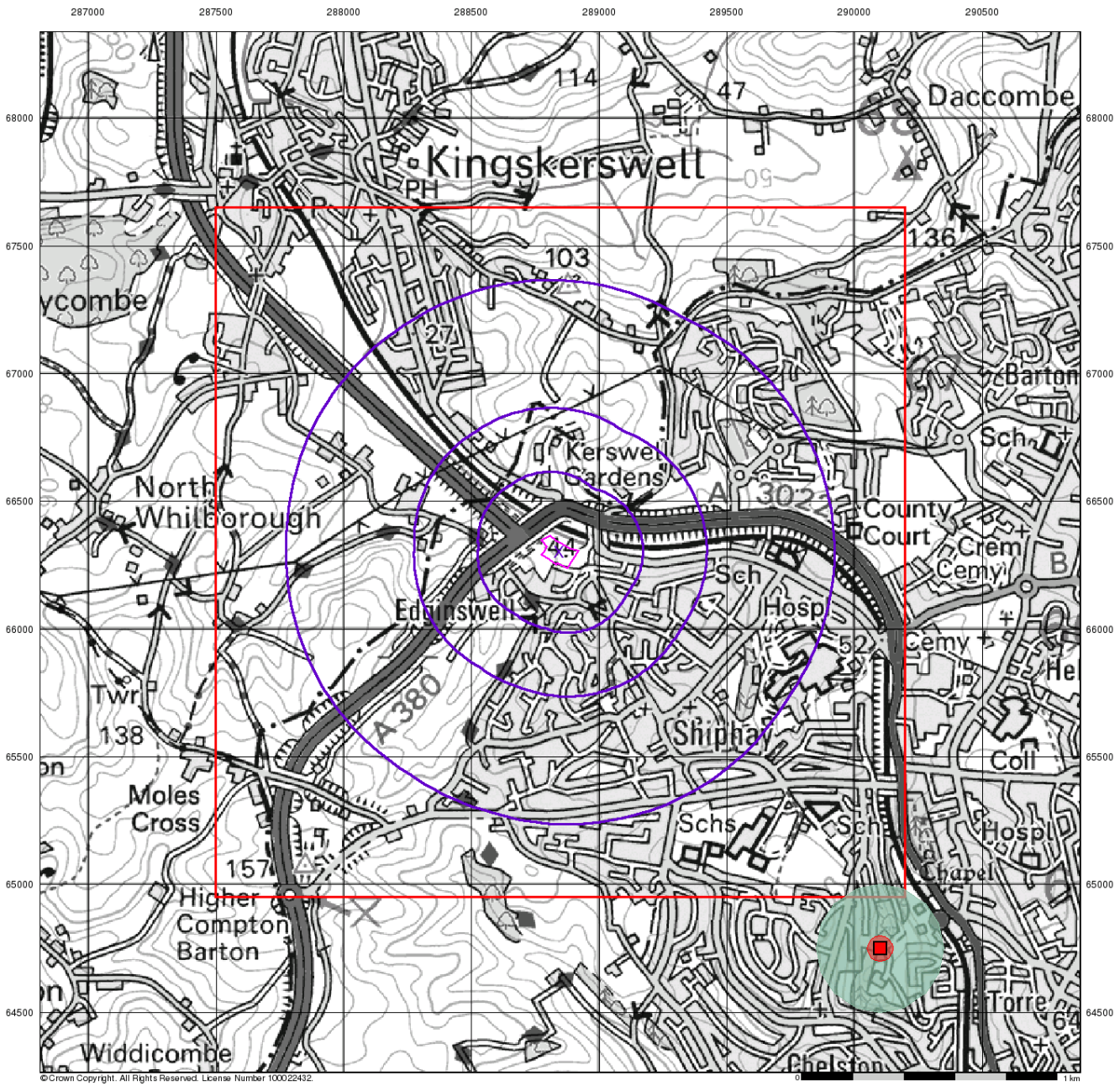

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Source Protection Zones

General

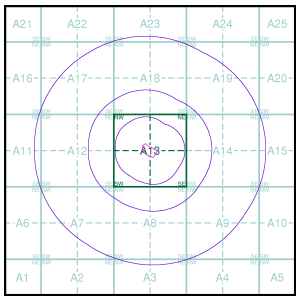
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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Site Details

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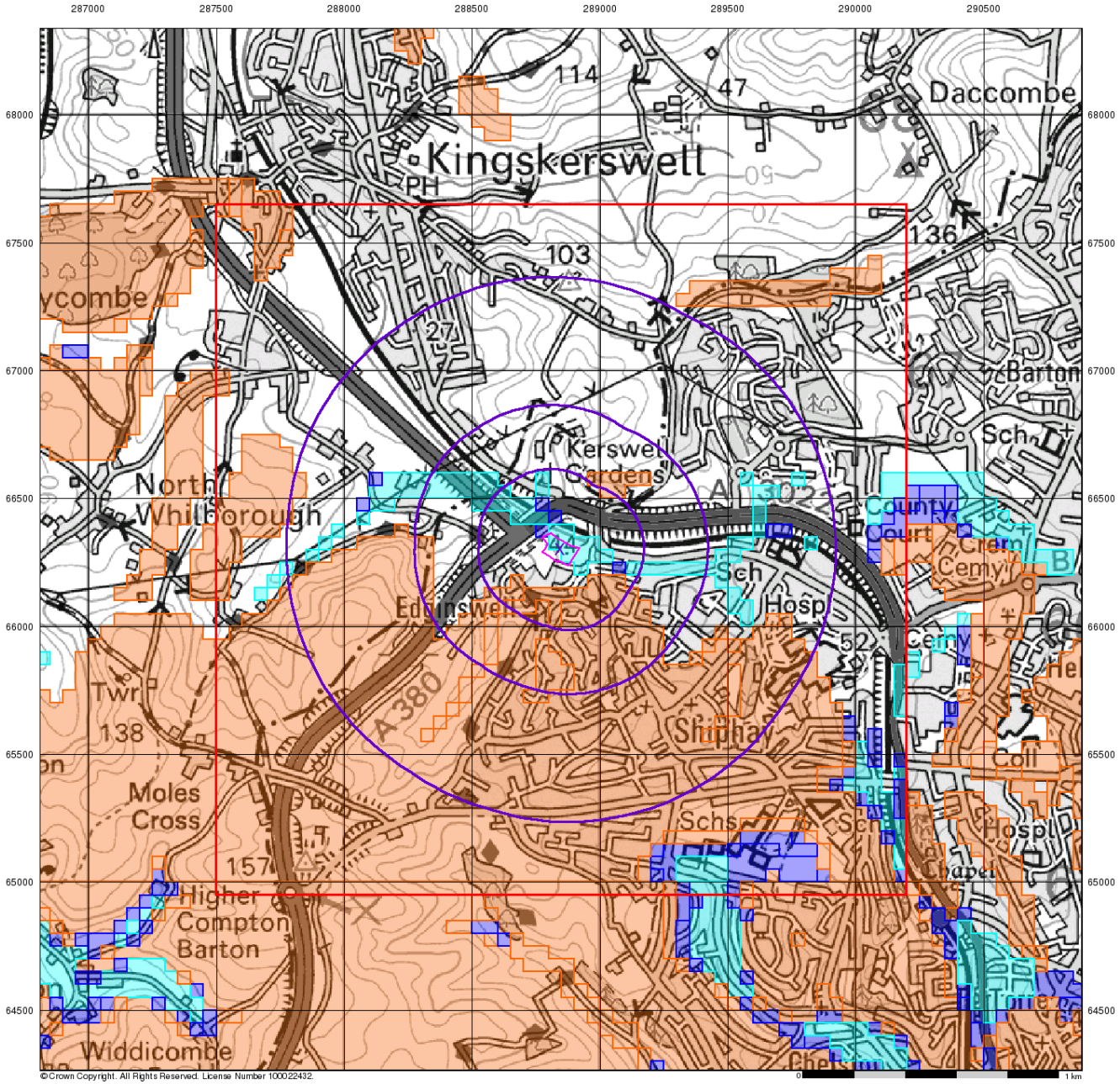

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BGS Flood GFS Data

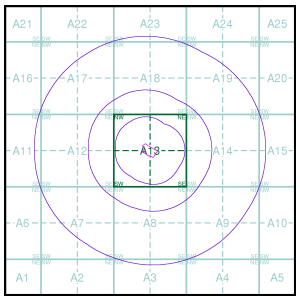
General

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

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



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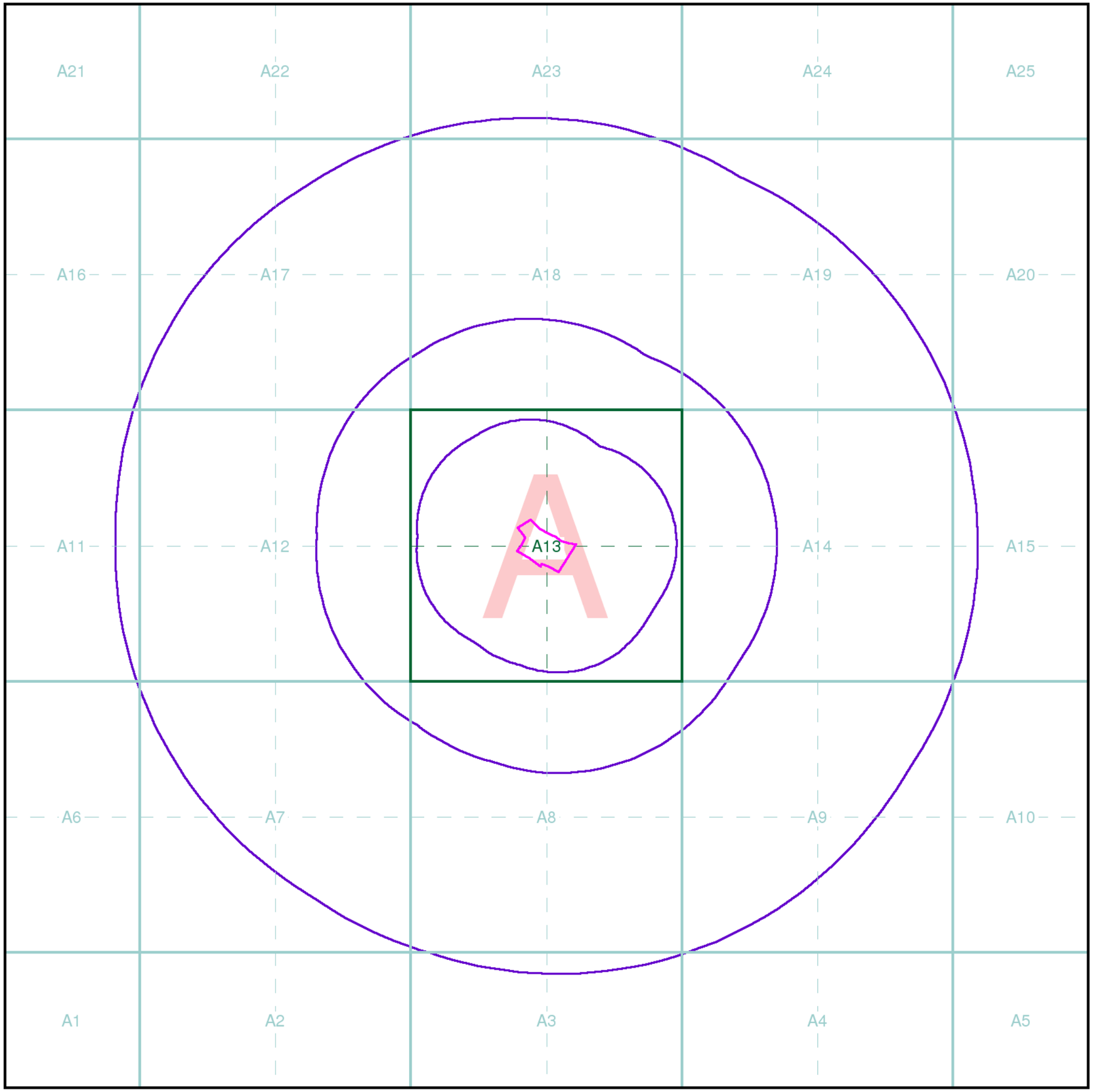

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Index Map

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:

Map data
British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL
Environment Agency
NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Client Details
Ms R Brown, Soiltechnics, Cedar Barn, White Lodge, Walgrave, Northampton, NN6 9PY

Order Details
Order Number:	148421159_1_1
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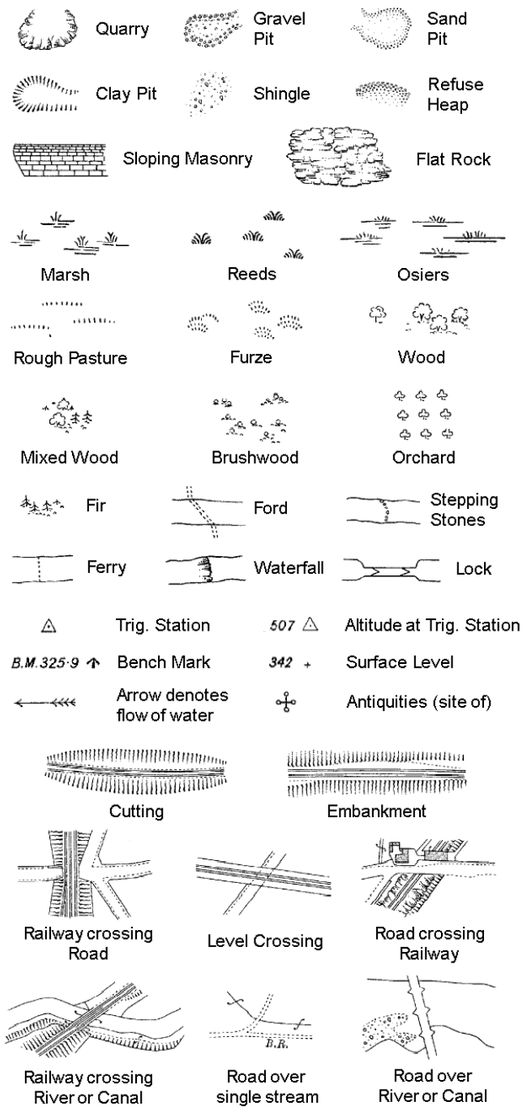
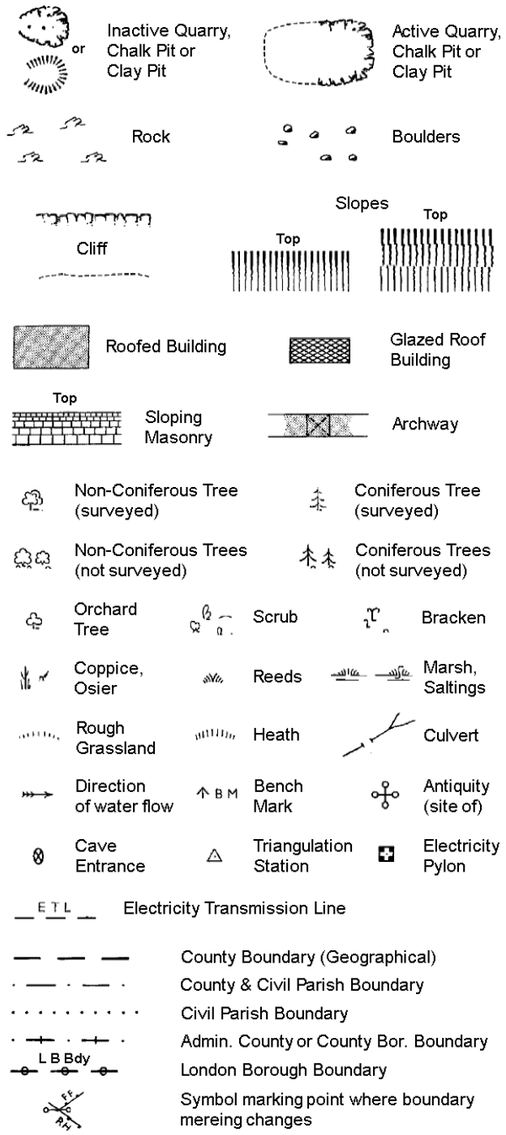
Historical Mapping Legends

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



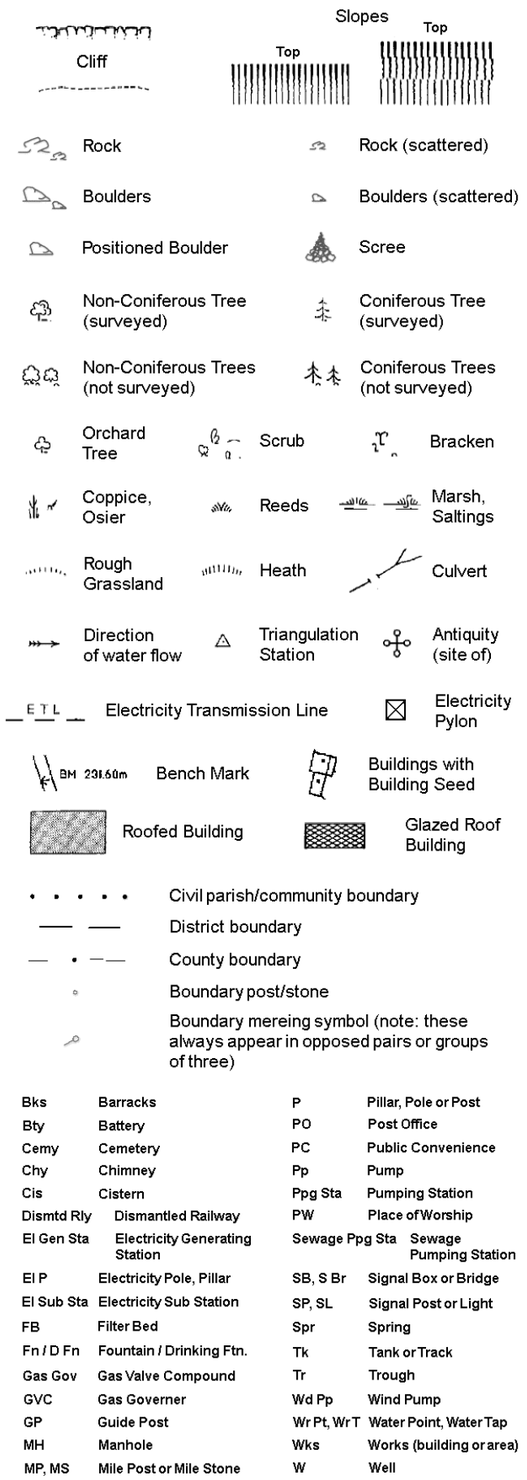
B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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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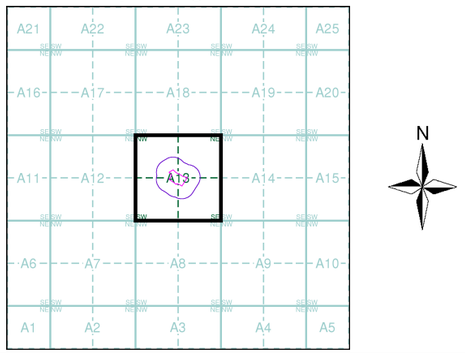
Historical Mapping & Photography included:

Historical Map - Segment A13



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	100

Site Details

Land at Edginswell, Torquay

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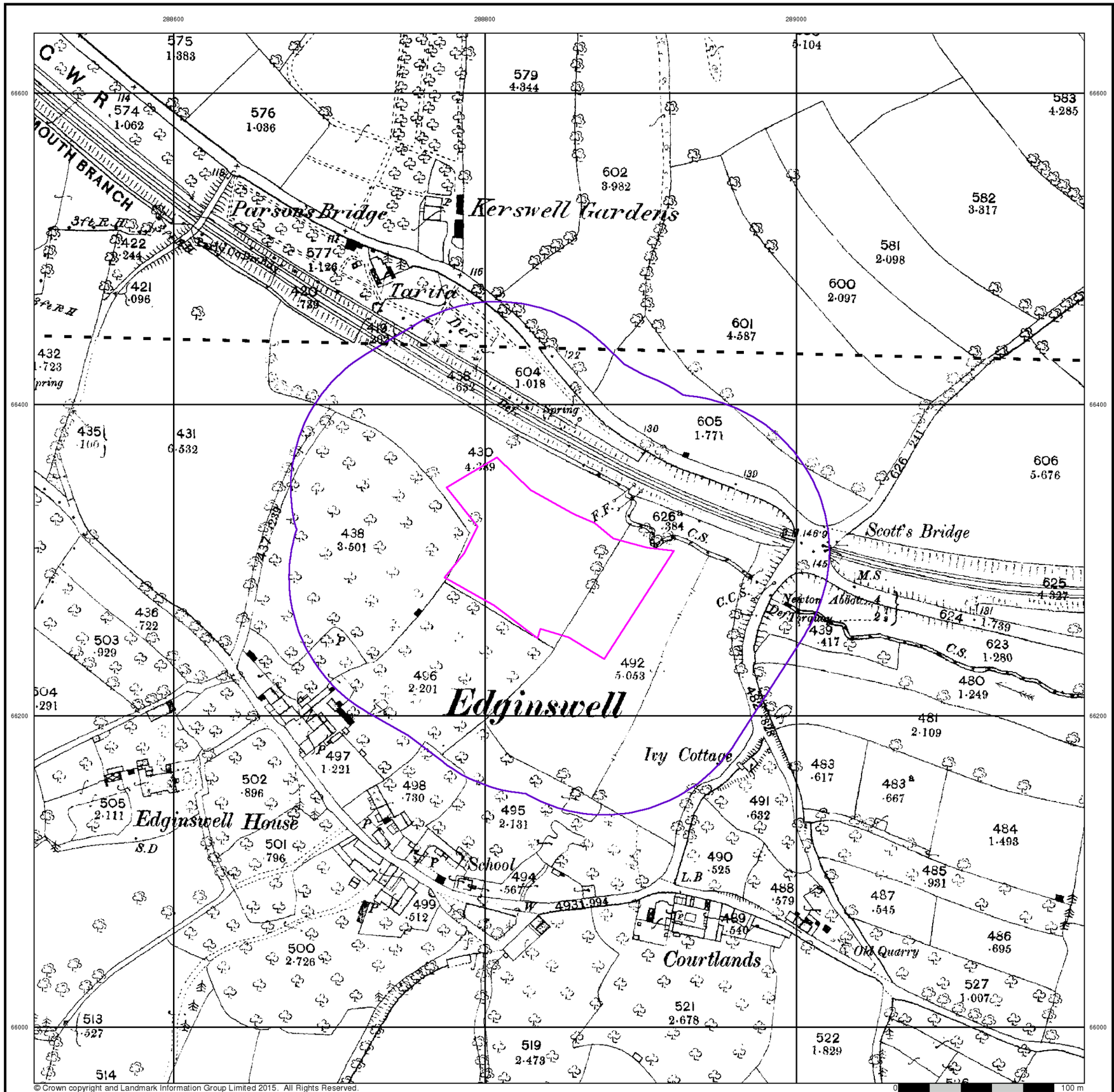
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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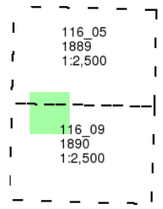
Devon

Published 1889 - 1890

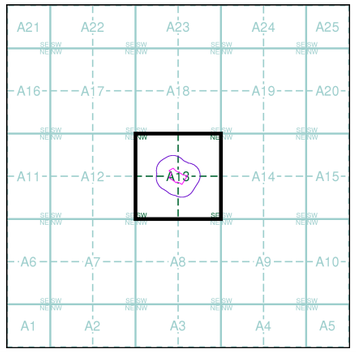
Source map scale - 1:2,500

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



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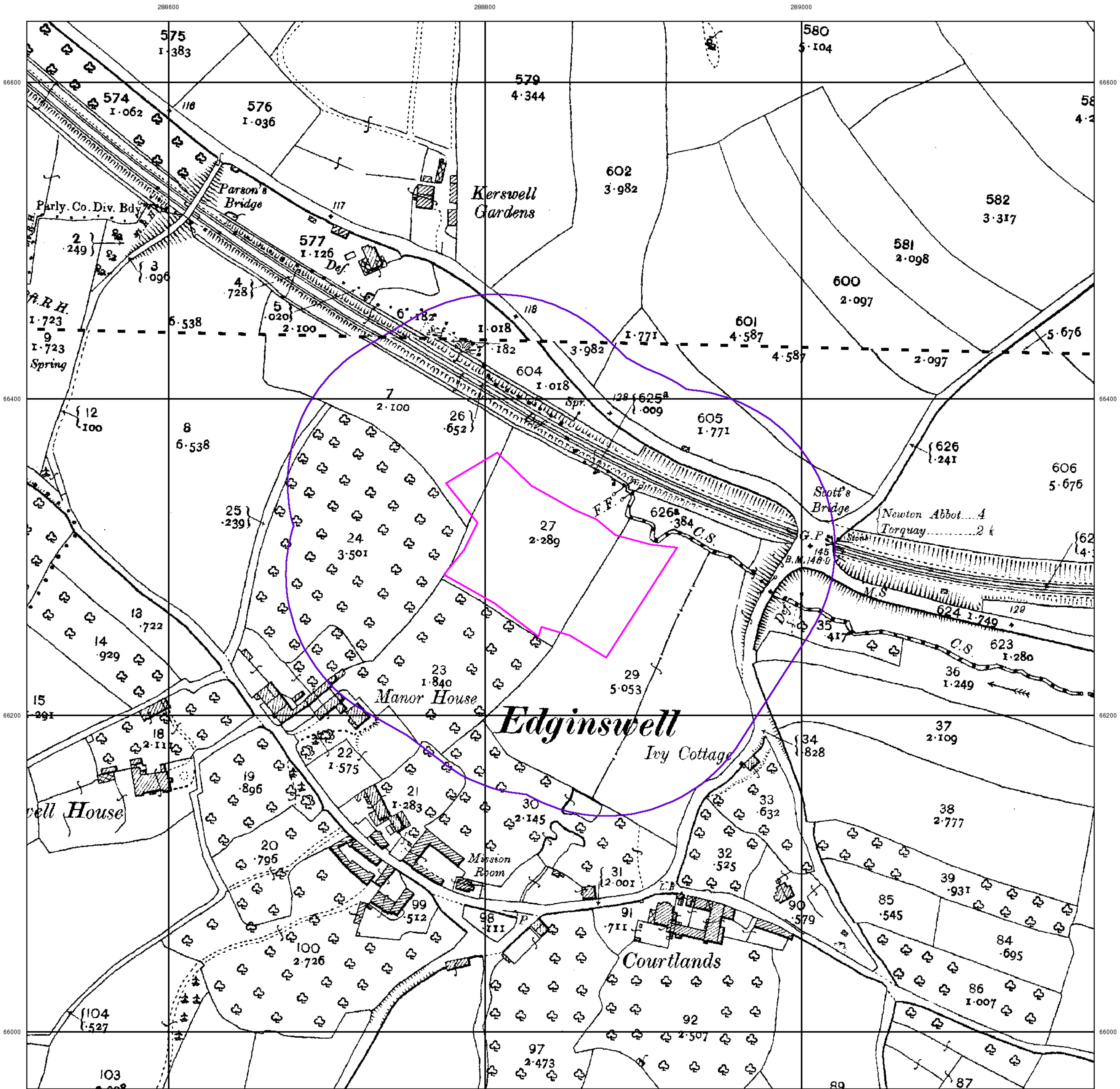

0 100 m

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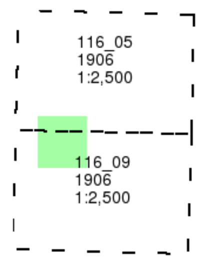
Devon

Published 1906

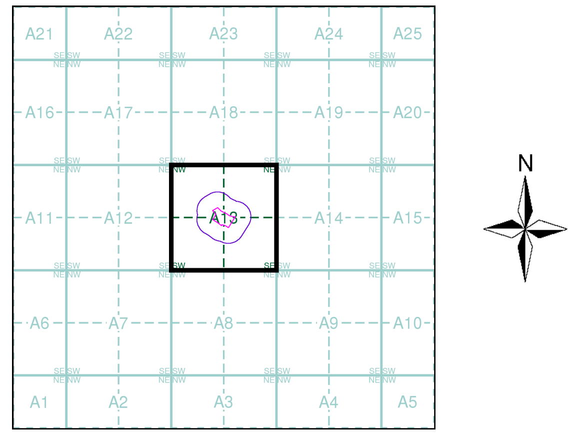
Source map scale - 1:2,500

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



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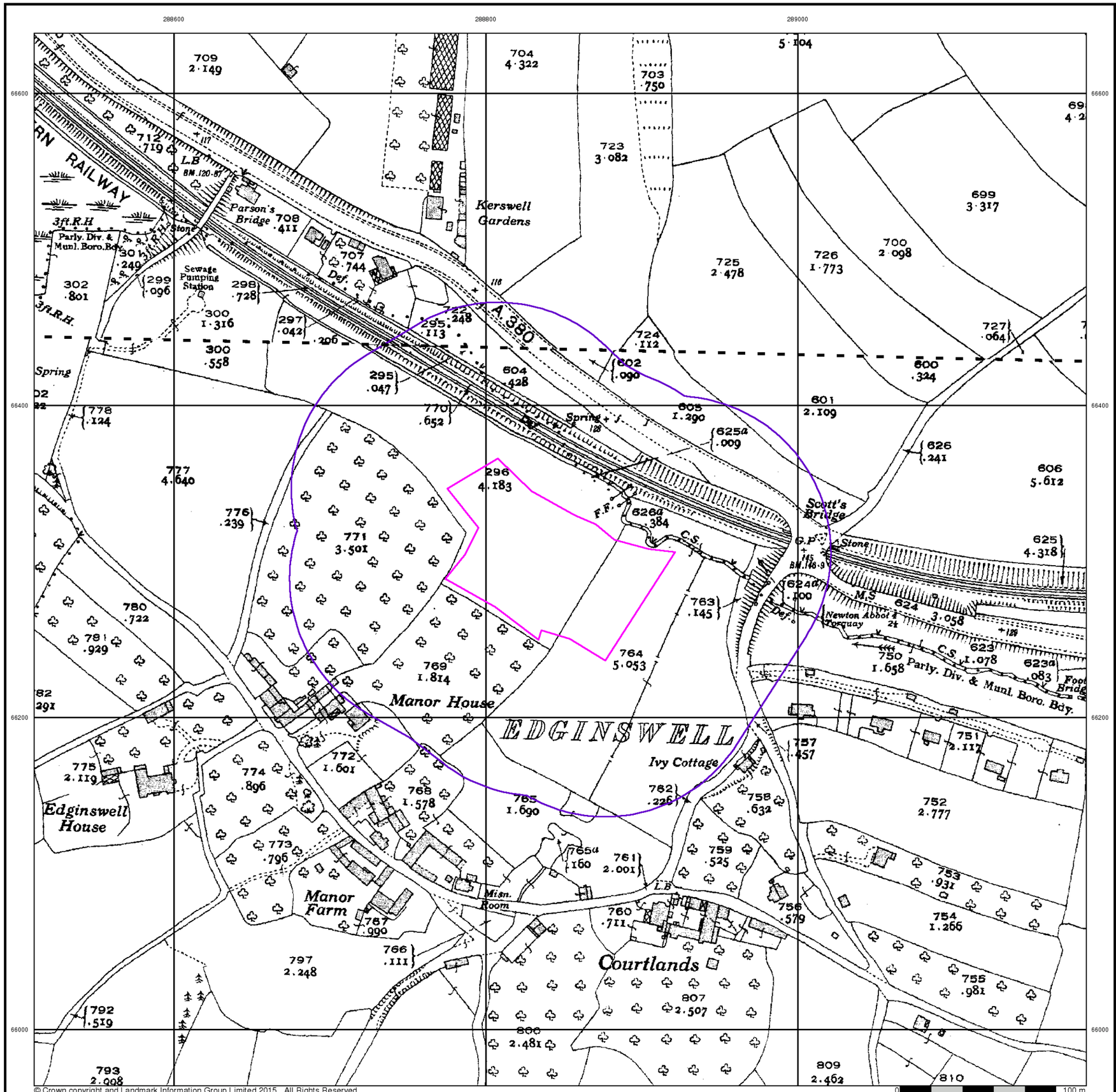

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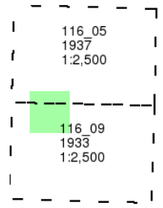
Devon

Published 1933 - 1937

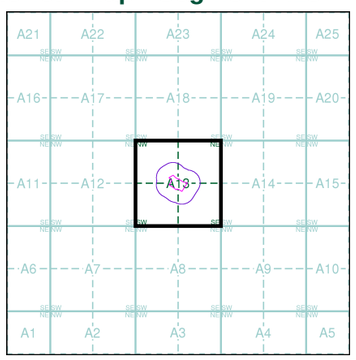
Source map scale - 1:2,500

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

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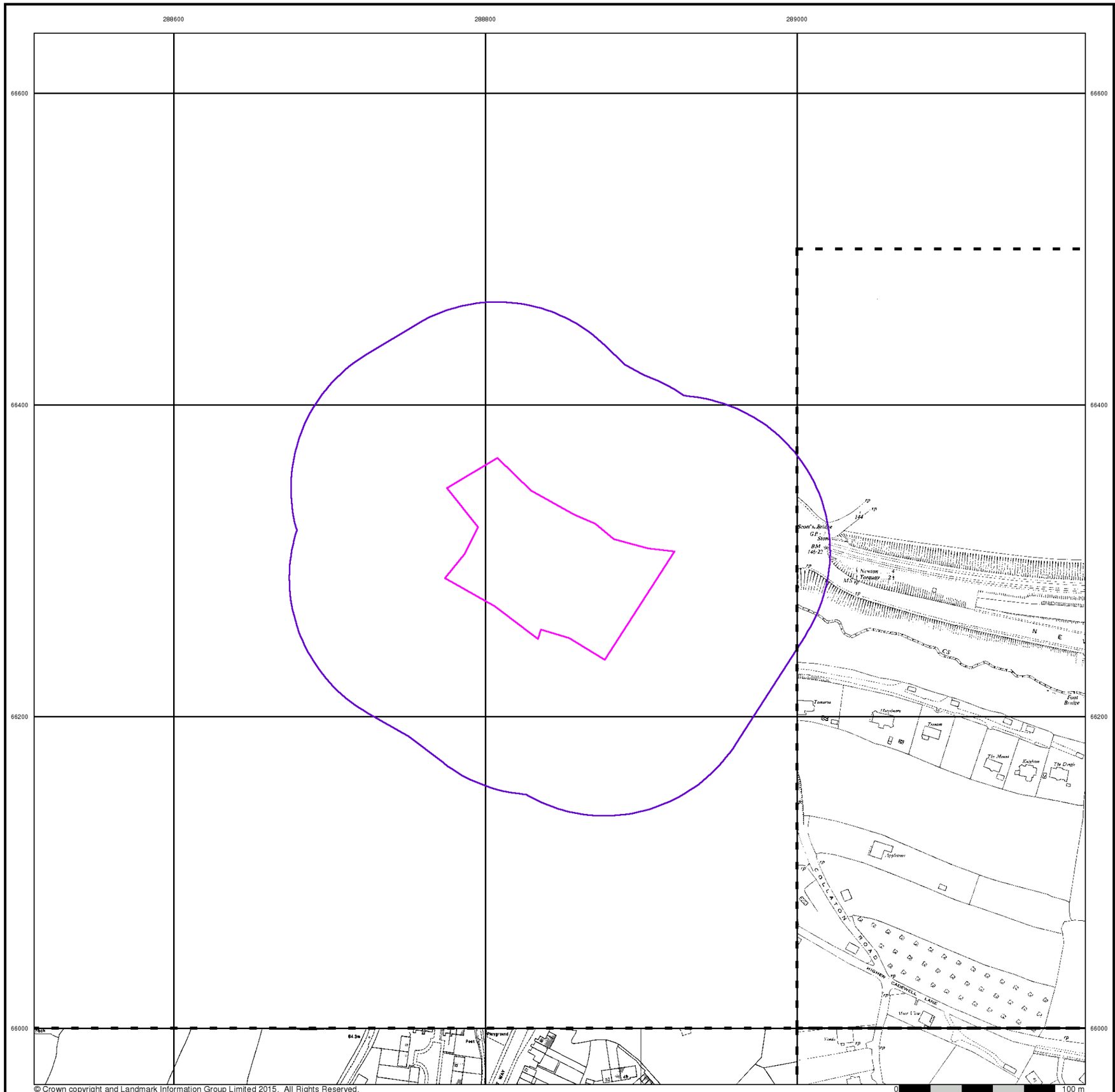

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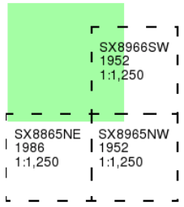
Ordnance Survey Plan

Published 1952 - 1986

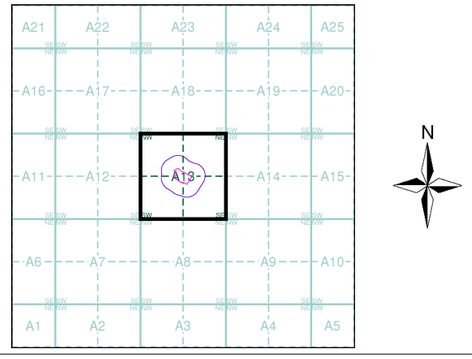
Source map scale - 1:1,250

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)



Historical Map - Segment A13



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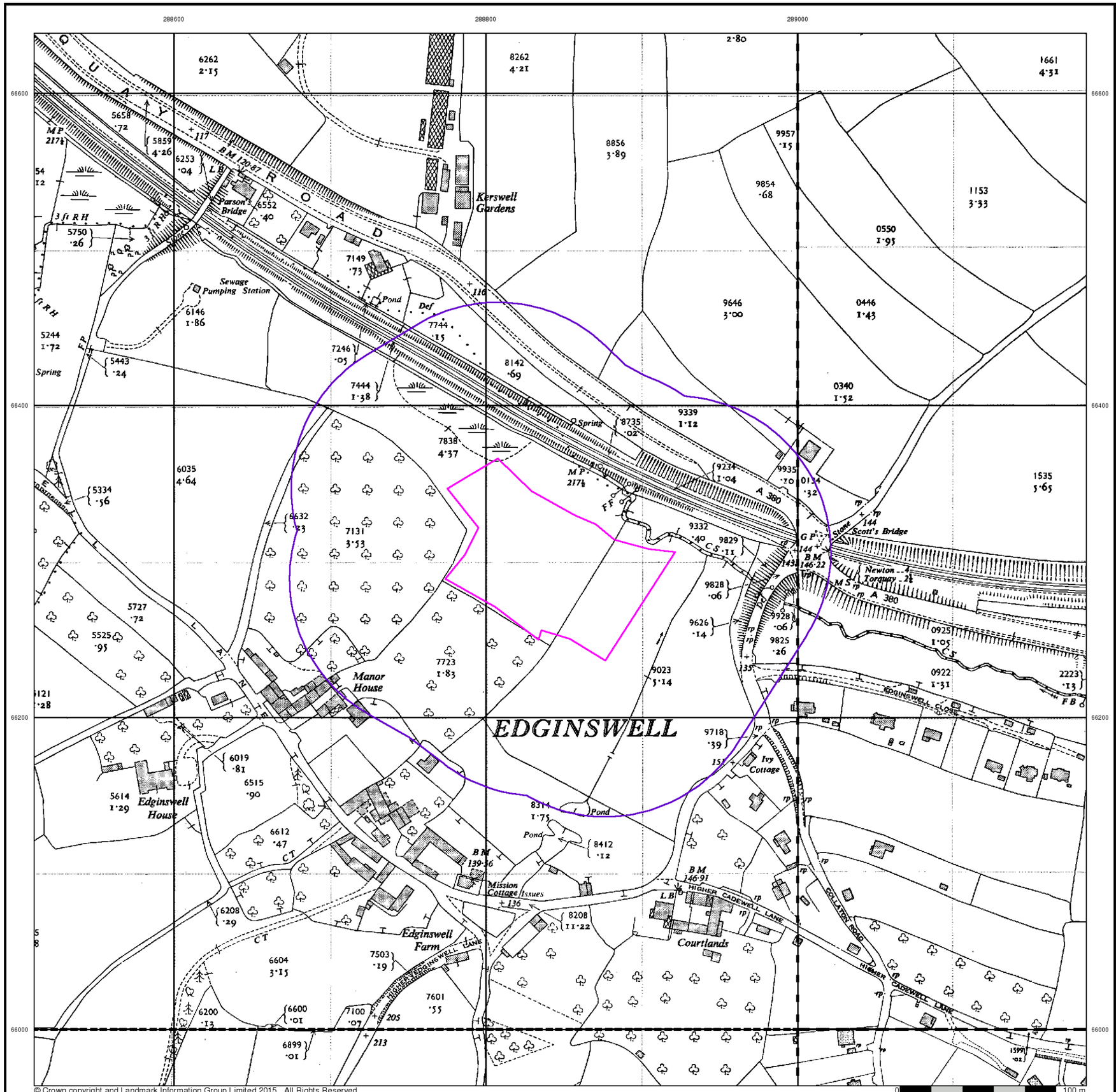

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Ordnance Survey Plan

Published 1953 - 1955

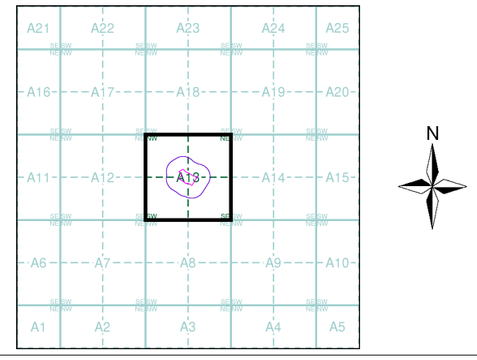
Source map scale - 1:2,500

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)

SX8866 1955 1:2,500	SX8966 1954 1:2,500
SX8865 1955 1:2,500	SX8965 1953 1:2,500

Historical Map - Segment A13



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
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Site Details

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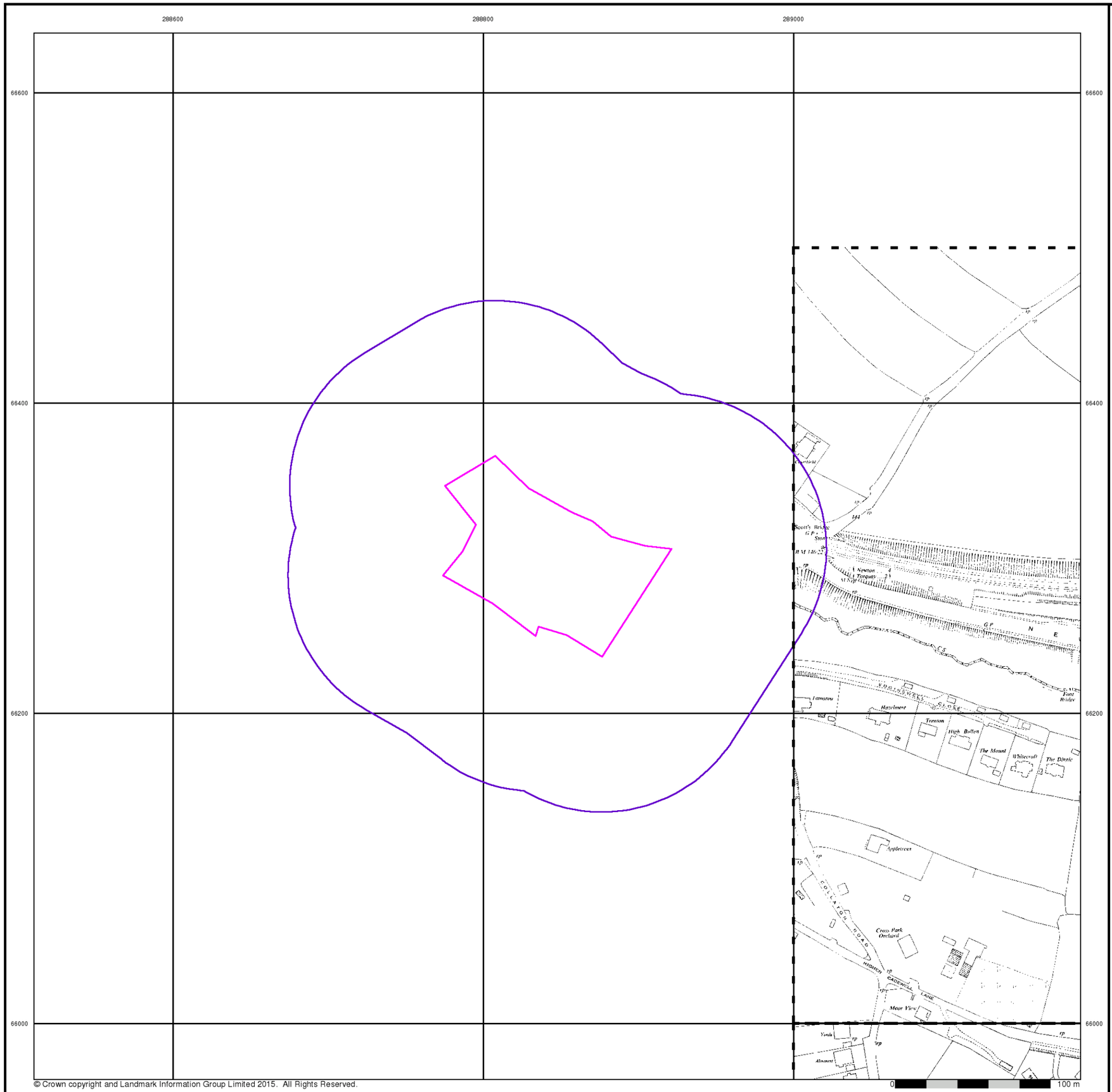

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Ordnance Survey Plan

Published 1957 - 1958

Source map scale - 1:1,250

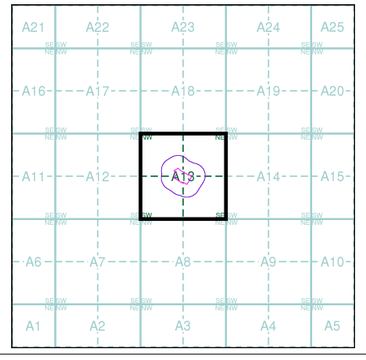
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

SX8966SW
1957
1:1,250

SX8965NW
1958
1:1,250

Historical Map - Segment A13



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	100

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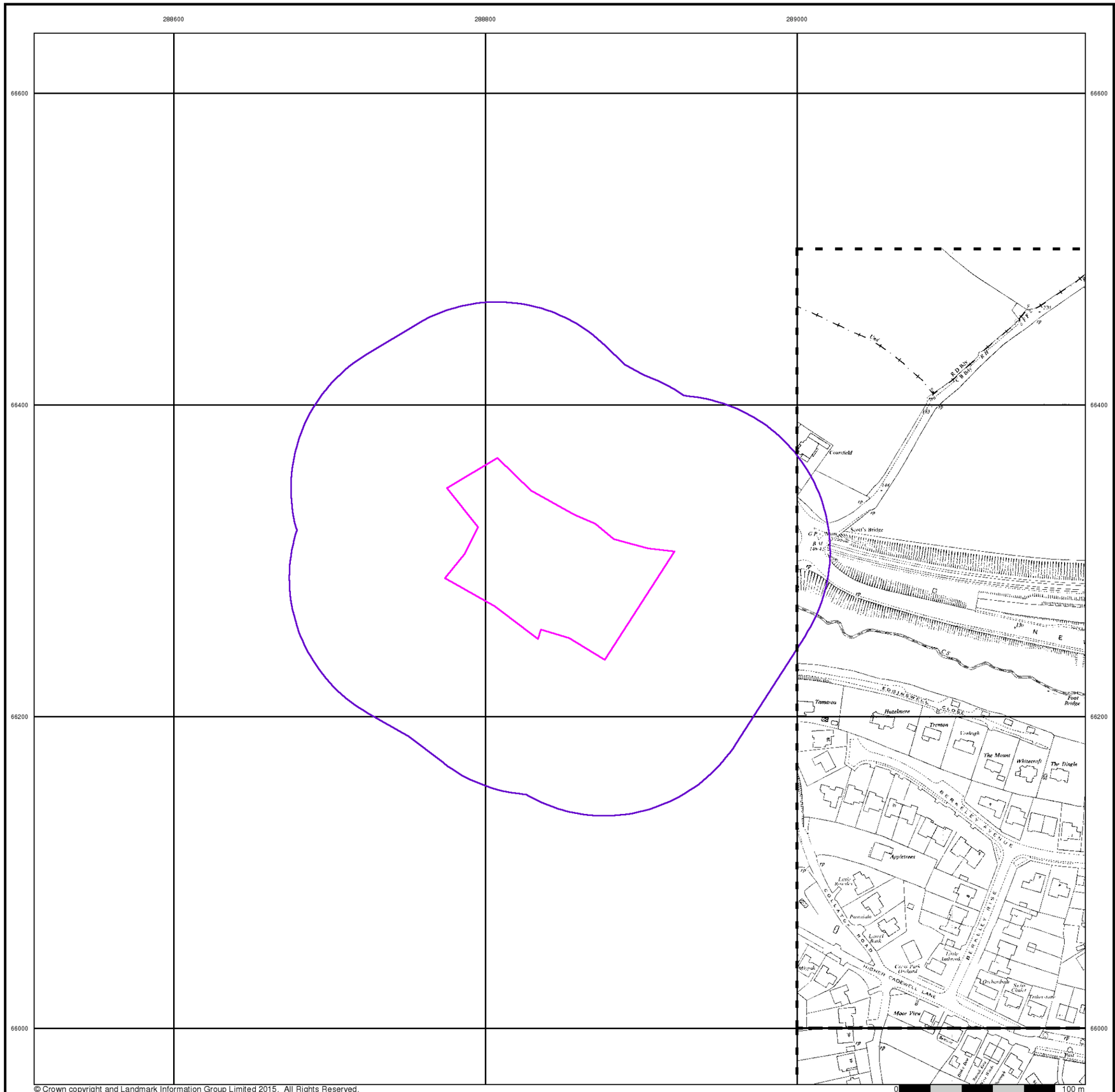

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Ordnance Survey Plan
Published 1965 - 1969
Source map scale - 1:1,250

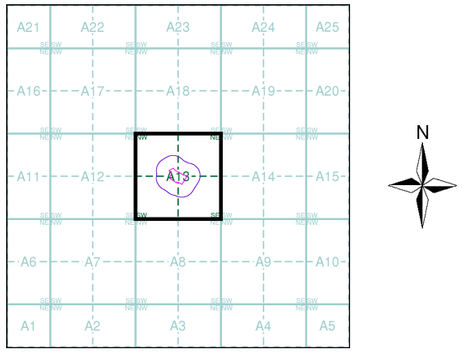
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

SX8966SW
1969
1:1,250

SX8965NW
1965
1:1,250

Historical Map - Segment A13



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	100

Site Details

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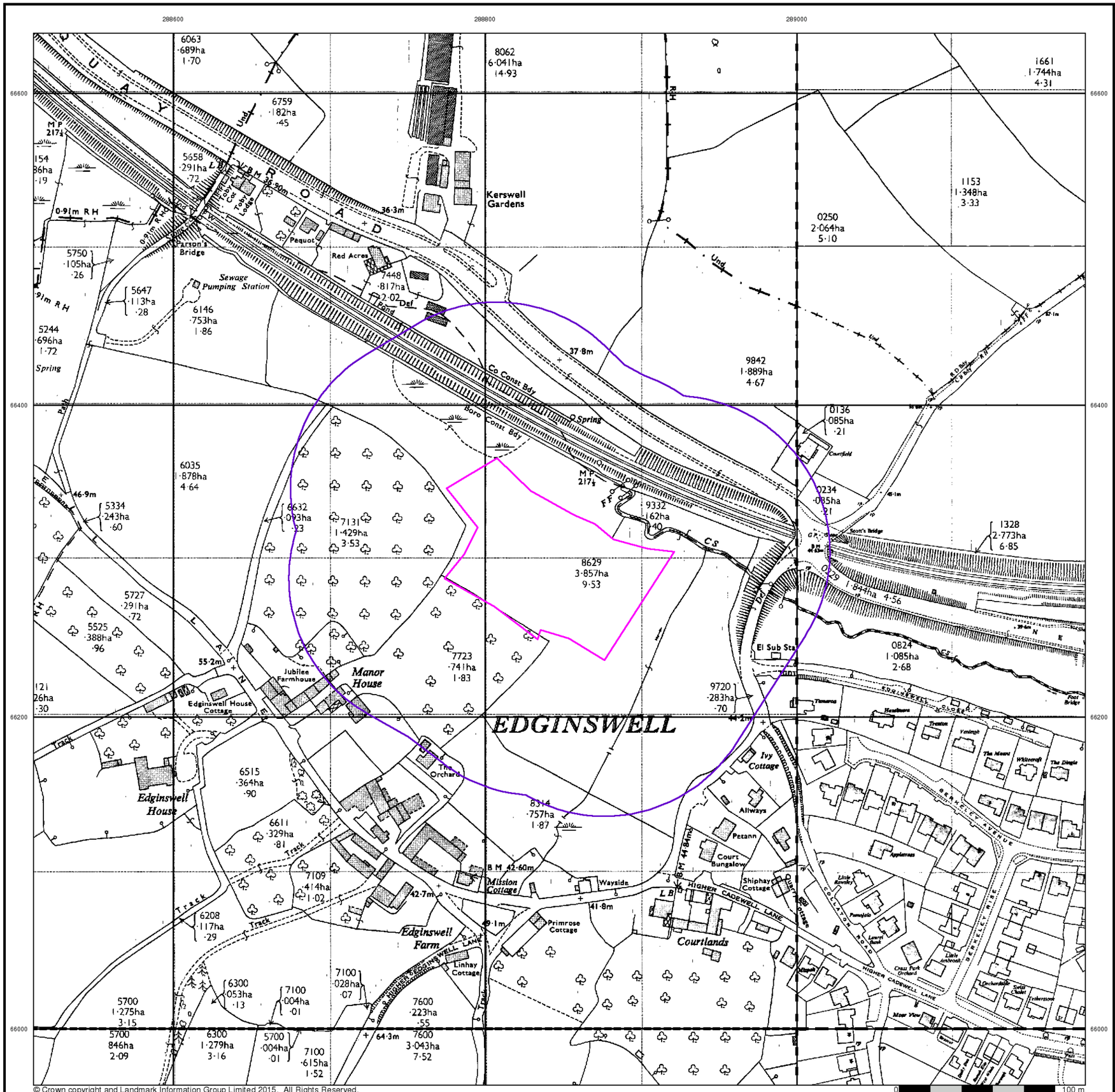

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Ordnance Survey Plan

Published 1970 - 1971

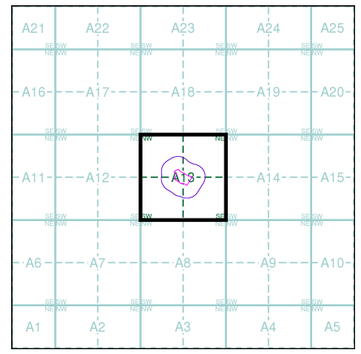
Source map scale - 1:2,500

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)

SX8866 1970 1:2,500	SX8966 1970 1:2,500
SX8865 1971 1:2,500	SX8965 1971 1:2,500

Historical Map - Segment A13



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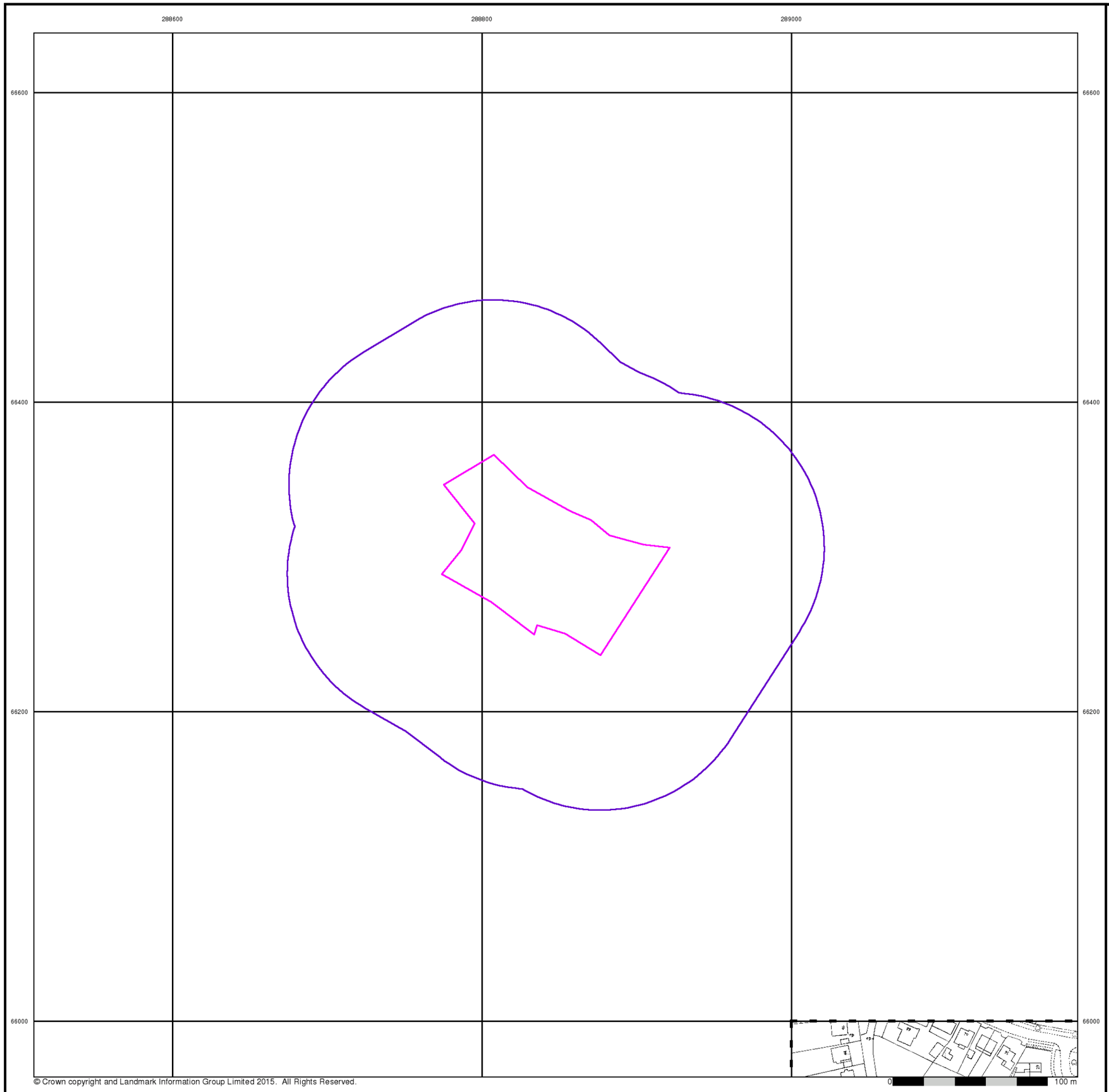

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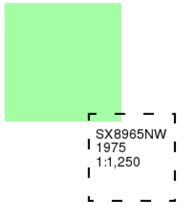
Ordnance Survey Plan

Published 1975

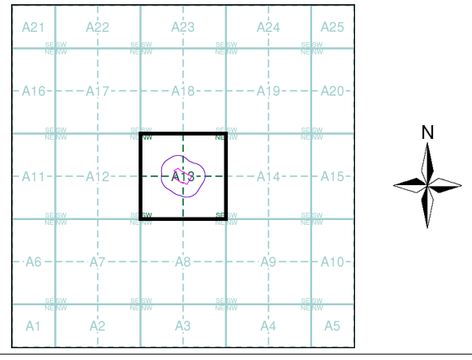
Source map scale - 1:1,250

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)



Historical Map - Segment A13



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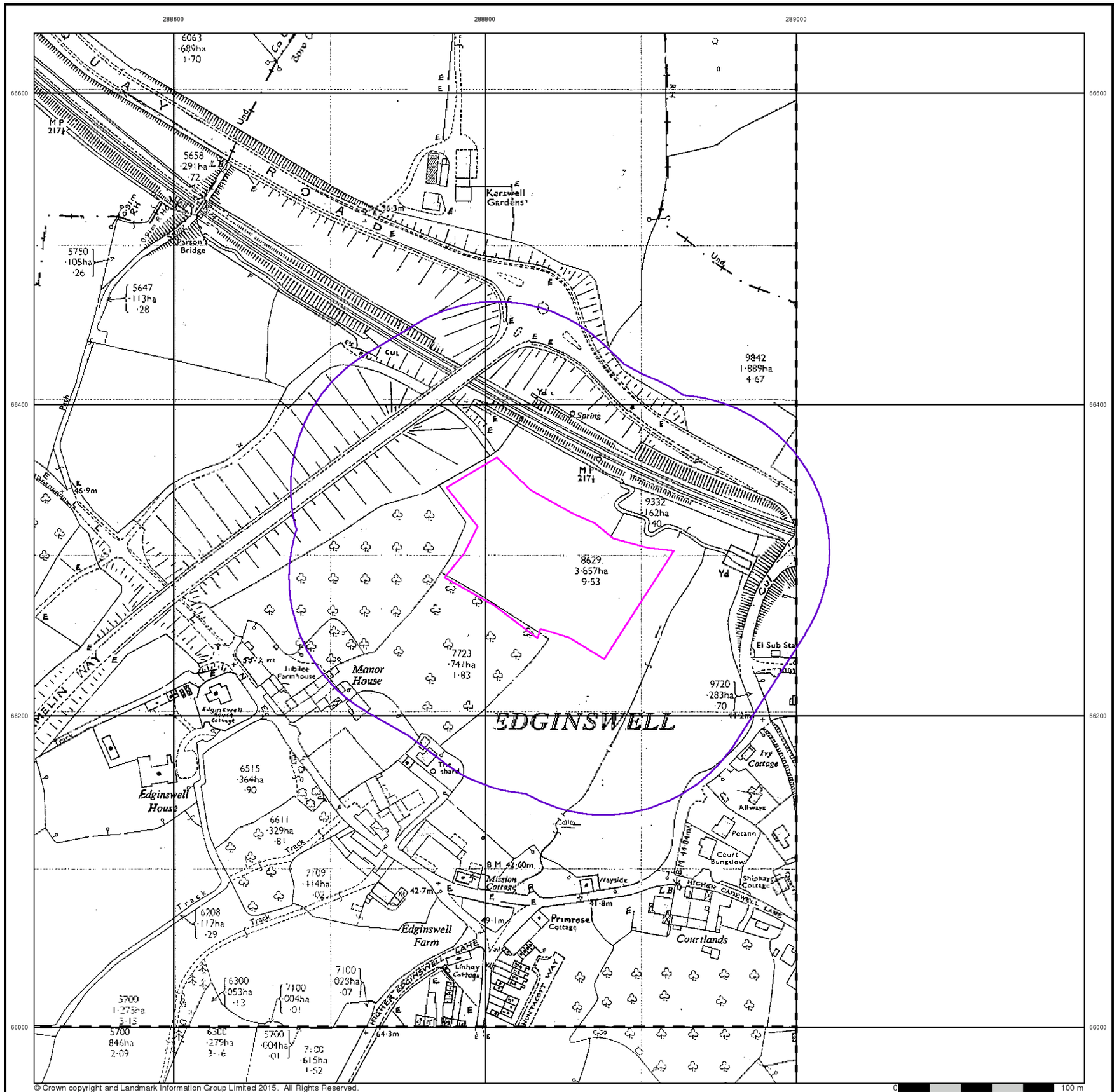

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Additional SIMs

Published 1979

Source map scale - 1:2,500

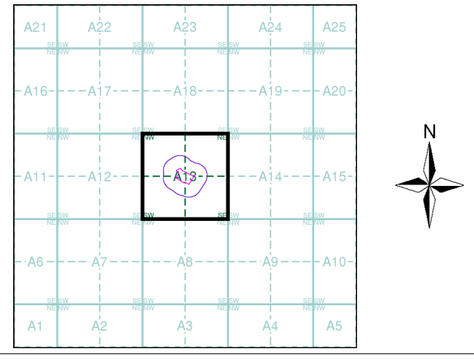
The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SX8866
1979
1:2,500

SX8865
1979
1:2,500

Historical Map - Segment A13



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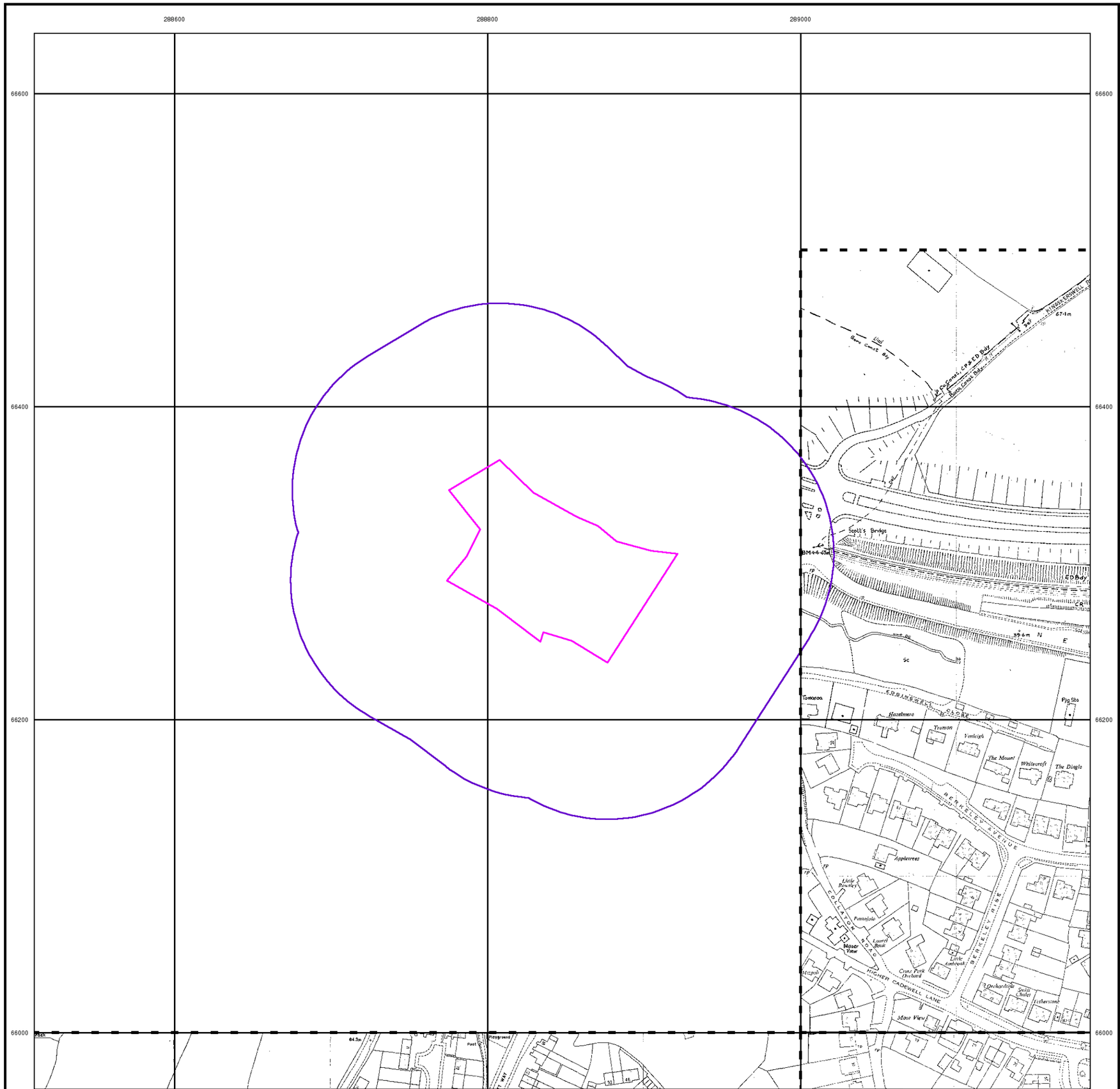

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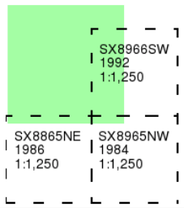
Additional SIMs

Published 1984 - 1992

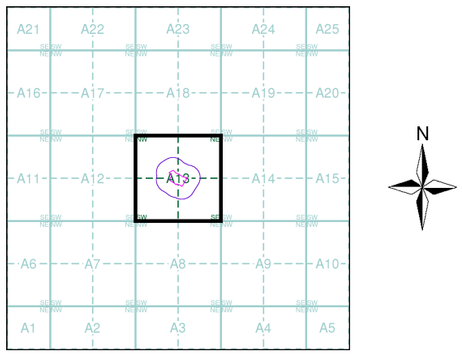
Source map scale - 1:1,250

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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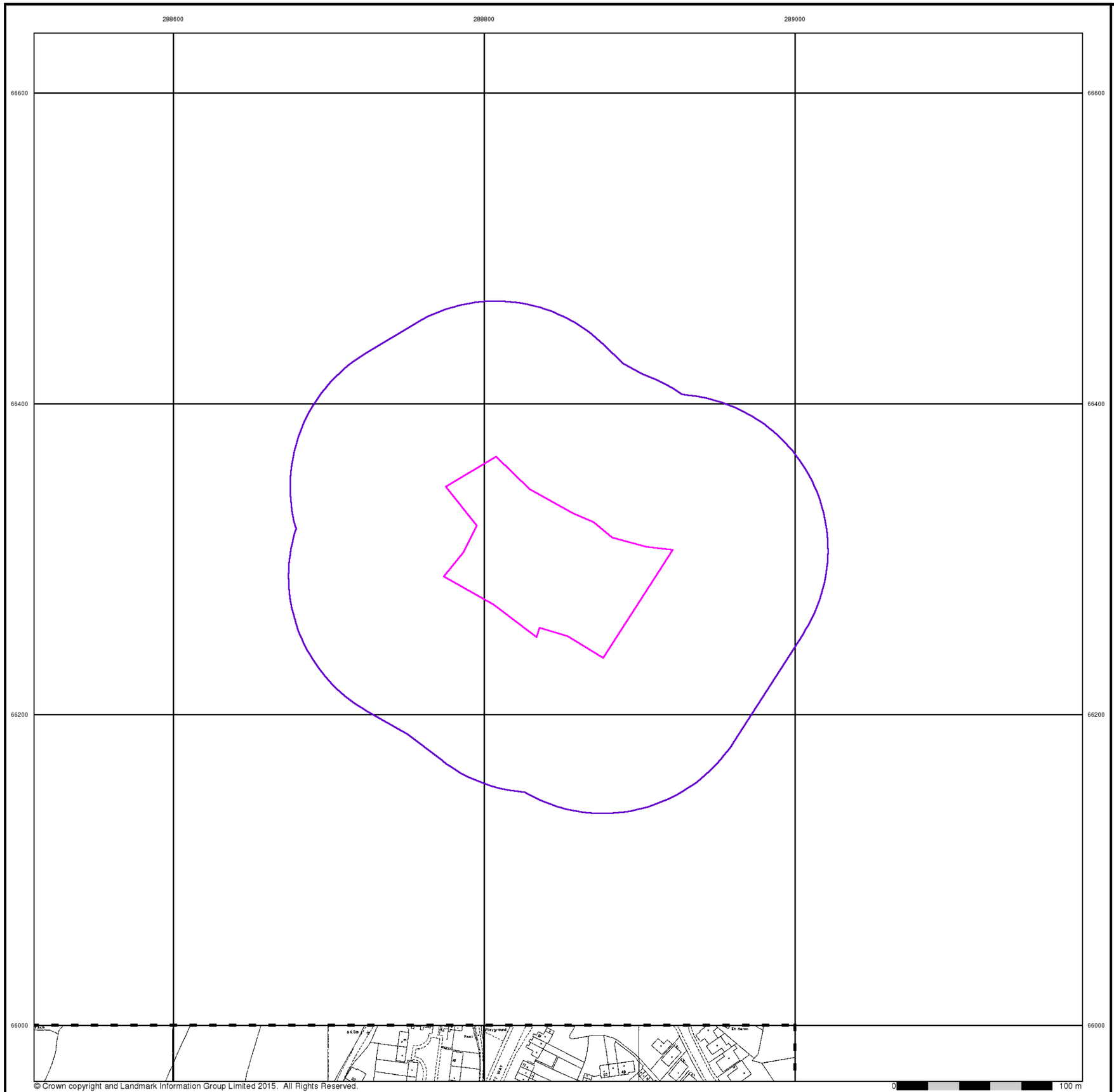

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Additional SIMs

Published 1990

Source map scale - 1:1,250

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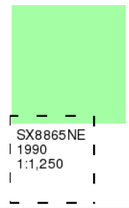
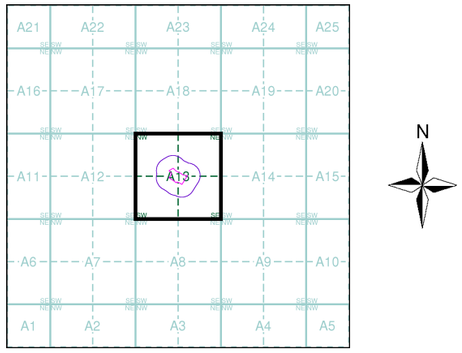
Map Name(s) and Date(s)



Historical Map - Segment A13



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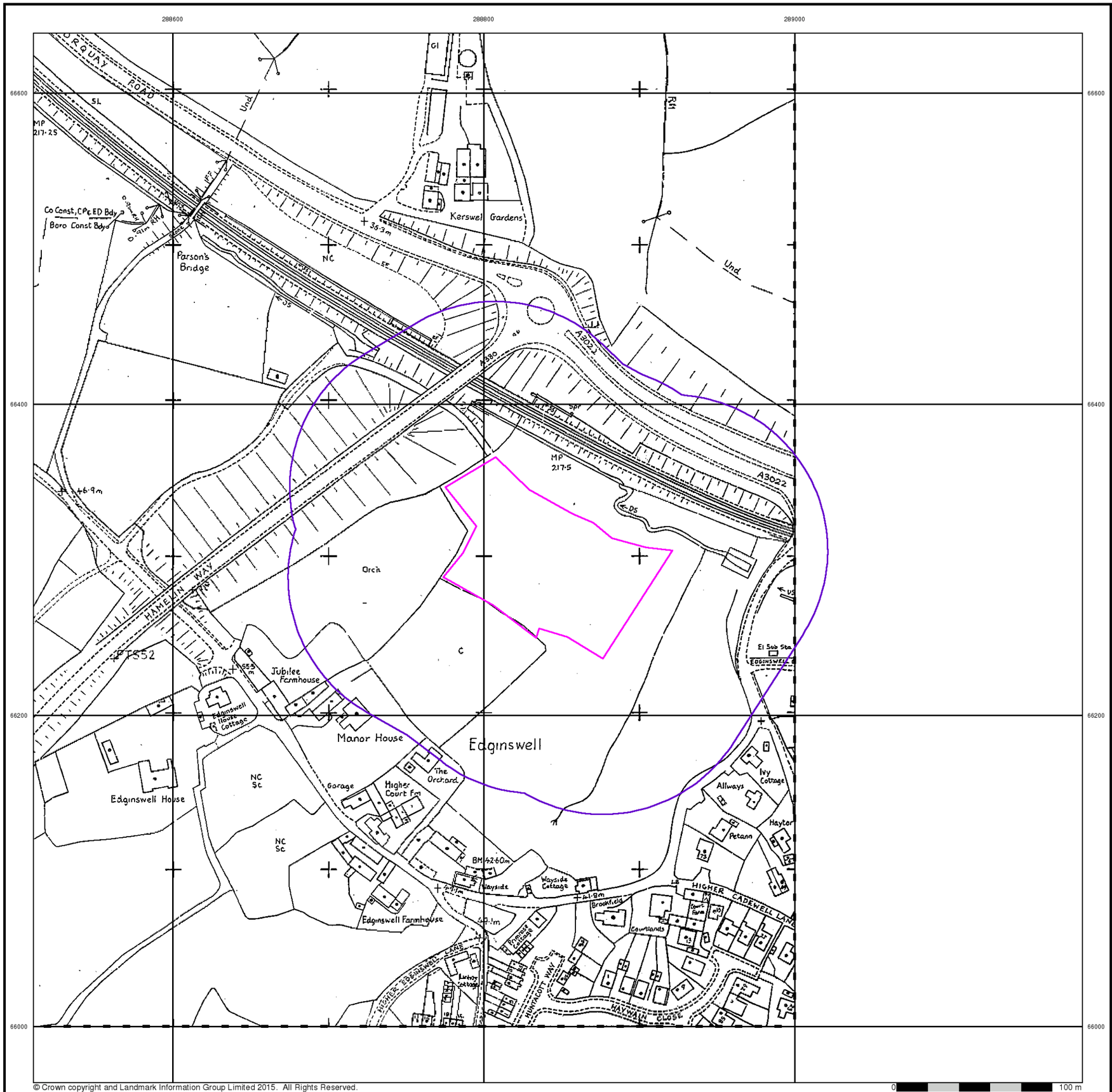
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	100

Site Details

Land at Edginswell, Torquay

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



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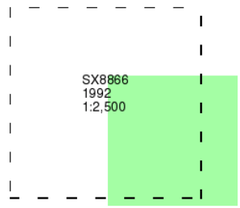
Additional SIMs

Published 1992

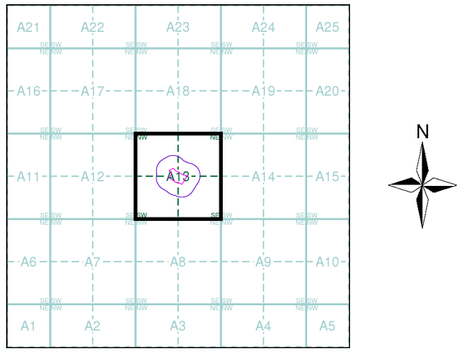
Source map scale - 1:2,500

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:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	100

Site Details

Land at Edginswell, Torquay

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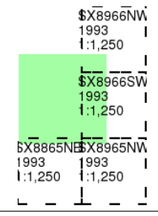
Large-Scale National Grid Data

Published 1993

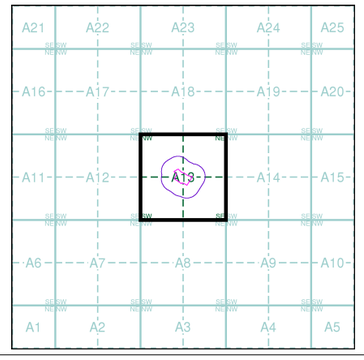
Source map scale - 1:1,250

'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)



Historical Map - Segment A13



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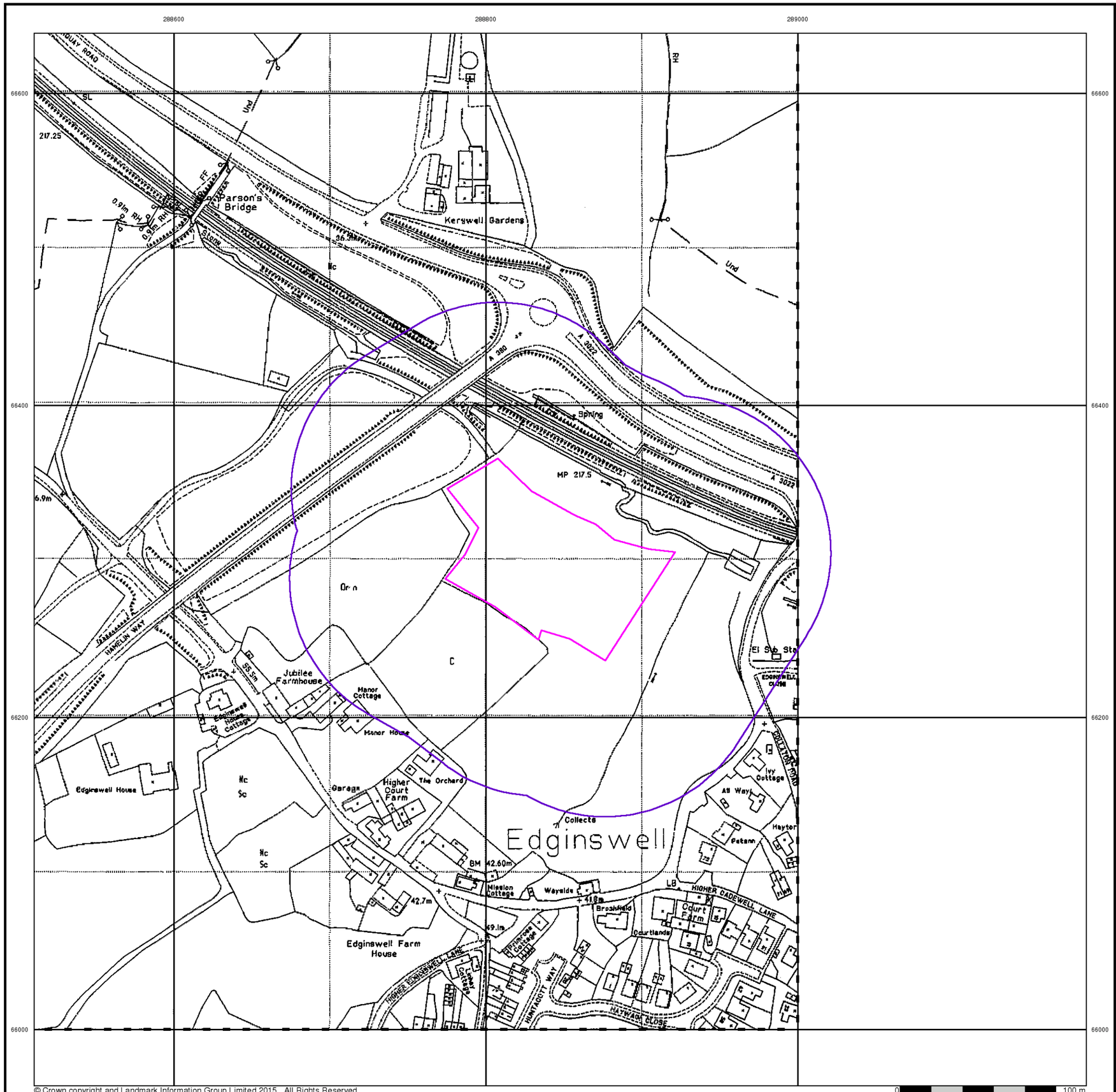

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Large-Scale National Grid Data

Published 1993

Source map scale - 1:2,500

'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.

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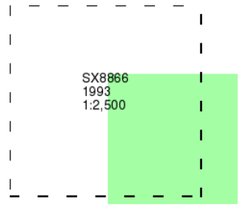
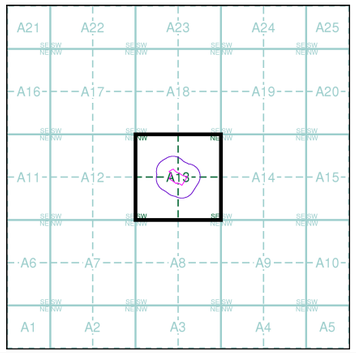


Historical Map - Segment A13



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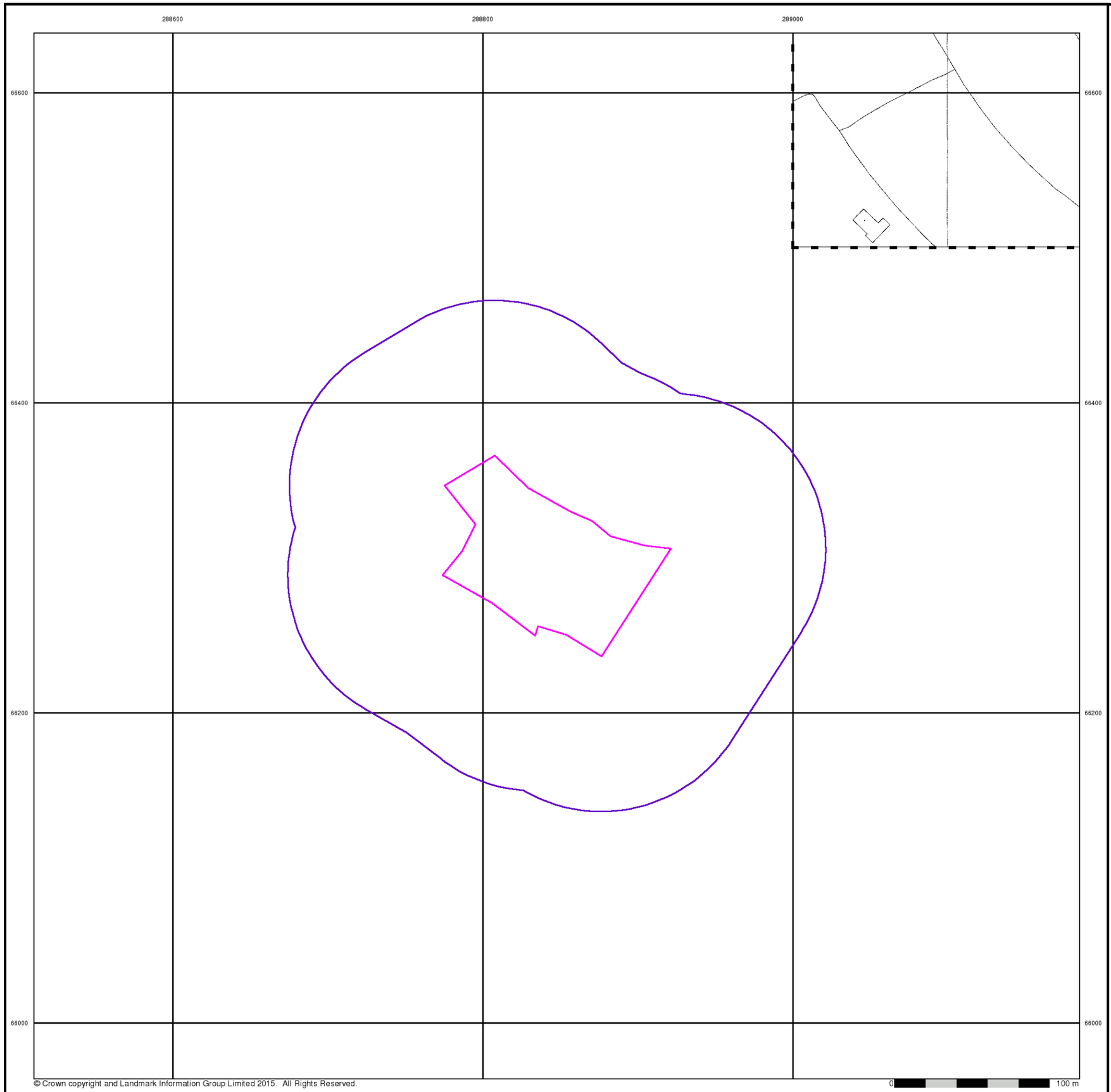

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Large-Scale National Grid Data

Published 1994

Source map scale - 1:1,250

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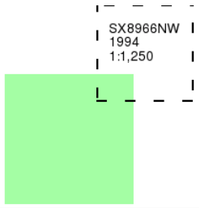
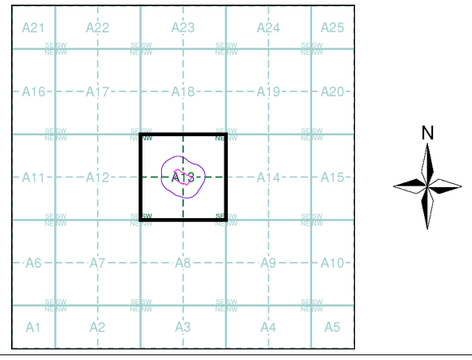
Map Name(s) and Date(s)



Historical Map - Segment A13



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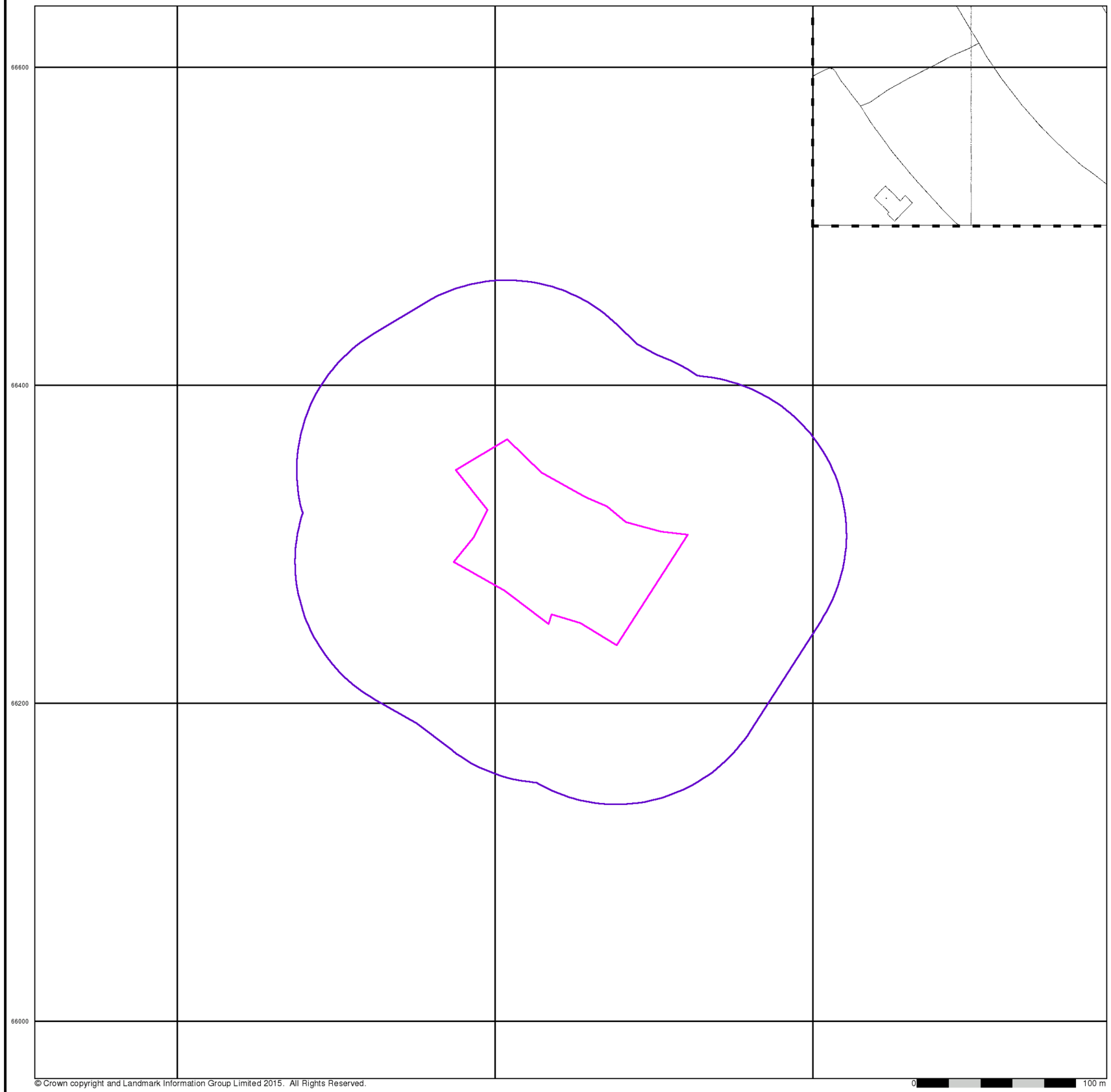

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Large-Scale National Grid Data

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.

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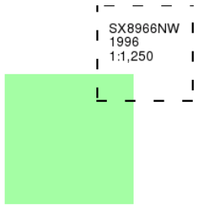
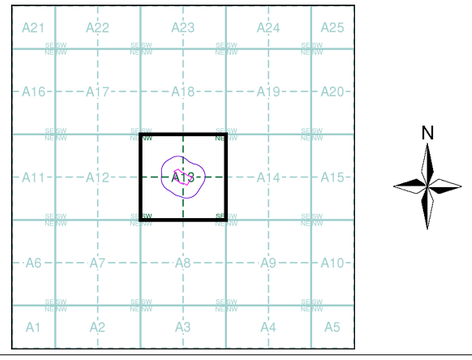


Historical Map - Segment A13



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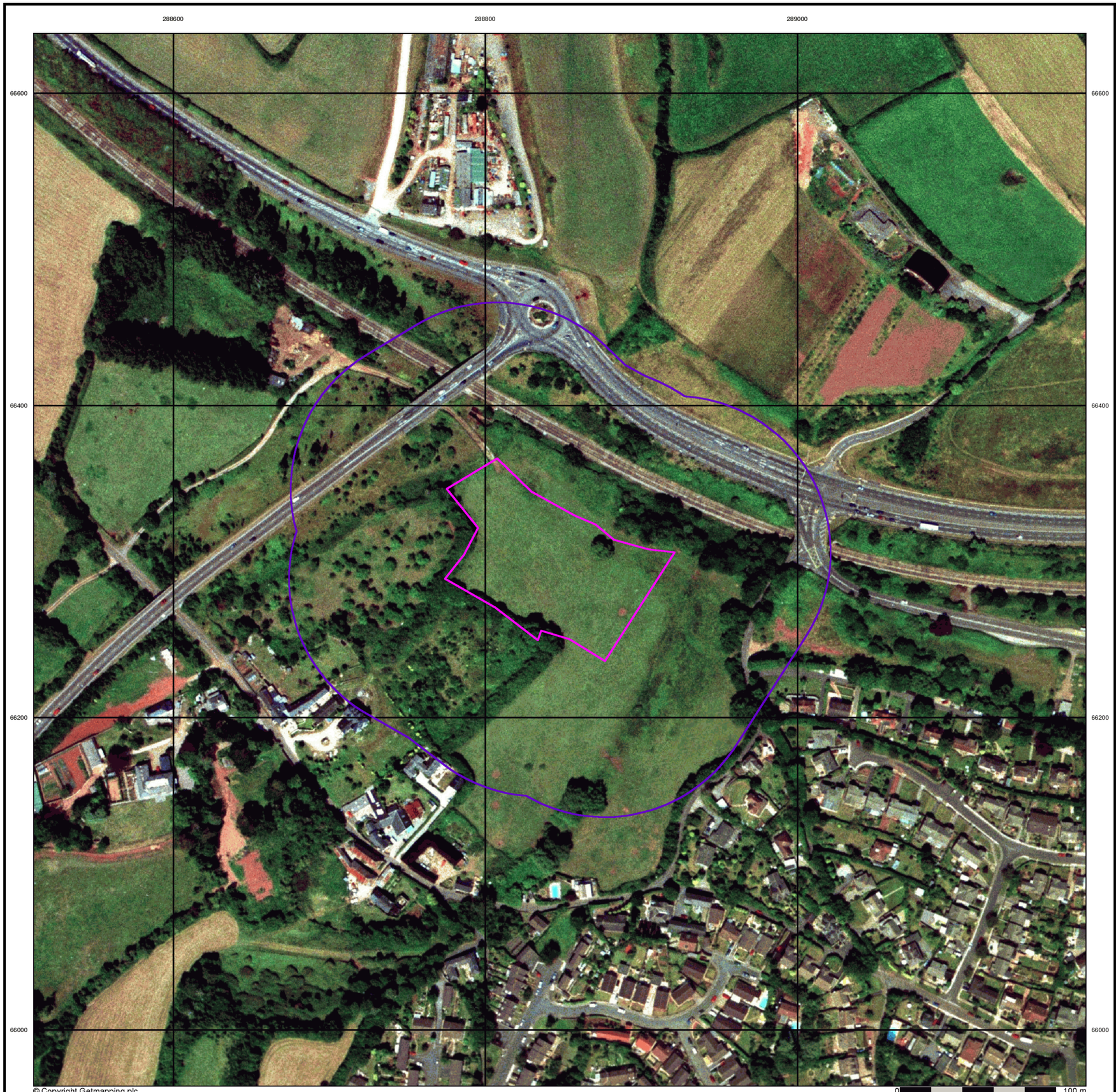

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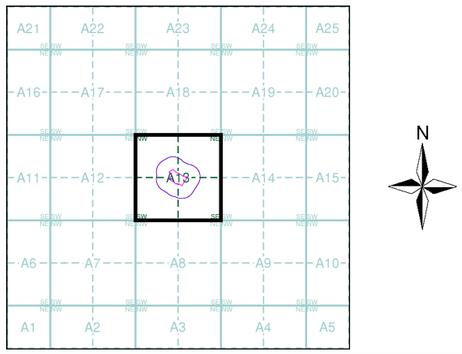
Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



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Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	100

Site Details

Land at Edginswell, Torquay

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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

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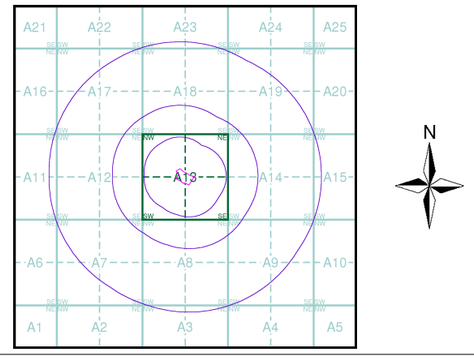
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Devon	1:10,560	1869 - 1887	3
Devon	1:10,560	1889	4
Devon	1:10,560	1906	5
Devon	1:10,560	1933 - 1935	6
Devon	1:10,560	1938 - 1939	7
Ordnance Survey Plan	1:10,000	1963 - 1964	8
Ordnance Survey Plan	1:10,000	1968	9
Torbay	1:10,000	1976	10
Ordnance Survey Plan	1:10,000	1978	11
Ordnance Survey Plan	1:10,000	1981	12
Ordnance Survey Plan	1:10,000	1990 - 1991	13
Ordnance Survey Plan	1:10,000	1993	14
10K Raster Mapping	1:10,000	1999	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2017	17

Historical Map - Slice A



Order Details

Order Number: 148421159_1_1
Customer Ref: STP4262
National Grid Reference: 288840, 66300
Slice: A
Site Area (Ha): 0.97
Search Buffer (m): 1000

Site Details

Land at Edginswell, Torquay

Landmark INFORMATION GROUP
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Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Fireproof Building
- Prominent Fireproof Building
- Non-fireproof Building
- Non-fireproof Building (non-dwelling)
- Factory, mill, and flour mill, with chimneys
- Factory, mill, and flour mill, without chimneys
- Power Station, drawn to scale (эл.ст.)
- Hydroelectric Power Station (ГЭС)
- Radio Station, drawn to scale
- Telephone Station, drawn to scale
- Abandoned Open-pit Mine or Quarry
- Open-pit Salt Mine (сол.)
- Pit (–1,5)
- Oil Deposit or Well (нефть)
- Oil Seepage (нефть)
- Tailings Pile (+7.0 отвал)
- Fuel Storage Tanks (скл. гор.)
- Natural Gas Tank (газг.)
- Bench Mark (125.4 / 125.1)
- Drill Hole (бур.)
- Burial Mound (+2.0)
- Triangulation Point on Burial Mound (+1.2 / 67.8)
- Single-track Railroad (Fill, раз., платф., Cut)
- Double-track Railroad and Station Building (Small Bridge, ст., Tunnel, тун., Pipe (Culvert))
- Coniferous Forest (сосна 24 / 0.30)
- Deciduous Forest (клен 12 / 0.20)
- Mixed Forest (ель береза 20 / 0.25)
- Lawns
- Citrus Orchard
- Wet Ground
- Scattered Vegetation

243,8 — Values for prominent elevations

186.0 — Numbers for spot elevations, depth soundings, contour lines, etc.

0,2 — Velocity of the current, width of river bed, depth of river

180/12 180/12 — Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	ъ (–)
Д д (D)	Л л (L)	У у (U)	ы (Y)
Е е (E)	М м (M)	Ф ф (F)	ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Partly Demolished Buildings
- Demolished Buildings
- Built-Up Area with Fireproof Buildings Predominant
- Built-Up Area with Non-Fireproof Buildings Predominant
- Individual Fireproof Building
- Prominent Industrial Building
- Individual Dwelling, Fireproof
- Ruins of an Individual Dwelling
- Factory or Mill Chimney
- Factory or Mill with Chimney (бум.)
- Factory or Mill without Chimney (скип.)
- Mine or Open Pit Mine (медн.)
- Operating Shaft or Mine (кам. уг.)
- Non-Operating Shaft or Mine
- Salt Mine (сол.)
- Tailings Pile
- Pit (–1.7)
- Stone Quarry (гл. пес. кам.)
- Gas Pump or Service Station
- Fuel Storage or Natural Gas Tank
- Oil or Natural Gas Derrick
- Small Hydroelectric Power Station
- Power Station
- Transformer Station (б.тр.)
- Cemetery
- Burial Mound (height in metres) (+8.1)
- Triangulation Point on Burial Mound (95.7)
- Triangulation Point (92.6)
- Bench Mark (52.1)
- Bench Mark (monumented) (71.1)
- Telegraph Office
- Telephone Station
- Radio Station
- Radio Tower
- Airfield or Seaplane Base
- Landing Strip
- Main Highway (Cut, Fill, Km Post, Plantings, Telegraph/Telephone Lines)
- Highway under Construction
- Improved Dirt Road (former truck road) (Width of Road 6, Steep Grade)
- Double-track Railroad with First Class Station (Small Bridge, ст., Pipe (Culvert), Tunnel)
- Dismantled Railroad
- Railroad Under Construction
- Shore Embankment
- River or Ditch with Embankment (+2.4)
- Direction and velocity of current (0.2, 135.1, Water Gauge, Water Level Mark)
- Well (К. 125.0 гл.8м (г.-сол.))
- Water Reservoir or Rain Water Pit (вдхр.)
- Spring (156.2 кл.)
- Isobath with value (20)
- Heavy (Index) Contour Line
- Contour Line and Value (20)
- Half Contour Line
- Spot Elevation Value (347.1)
- Coniferous
- Deciduous
- Mixed
- Scrub

Key to Numbers on Mapping

SX86NE_Torbay

No.	Description
9	Factory (Car Repairs)

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Devon	1:10,560	1869 - 1887	3
Devon	1:10,560	1889	4
Devon	1:10,560	1906	5
Devon	1:10,560	1933 - 1935	6
Devon	1:10,560	1938 - 1939	7
Ordnance Survey Plan	1:10,000	1963 - 1964	8
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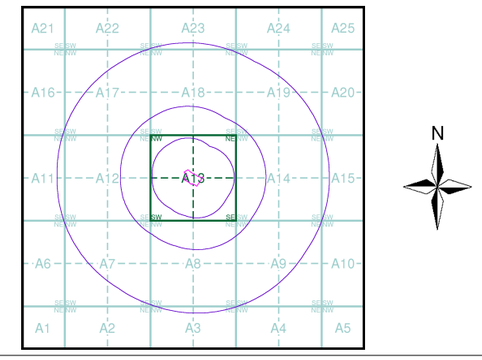
Ordnance Survey Plan	1:10,000	1990 - 1991	13
Ordnance Survey Plan	1:10,000	1993	14
10K Raster Mapping	1:10,000	1999	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2017	17

Russian Map - Slice A



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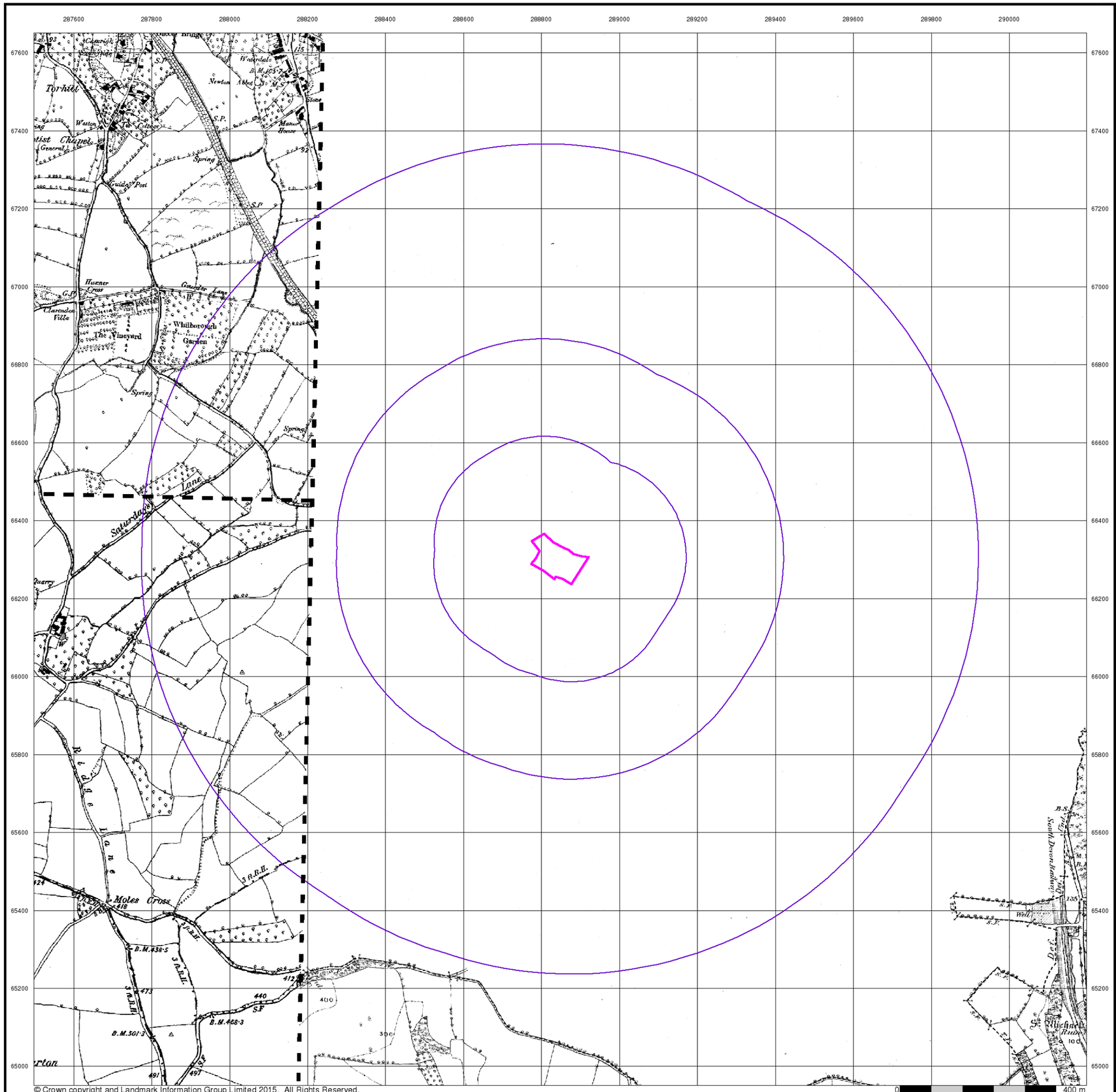

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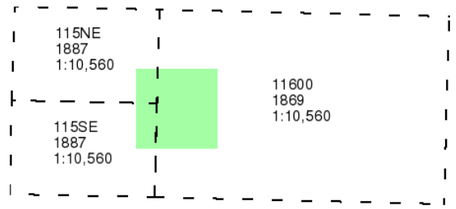
Devon

Published 1869 - 1887

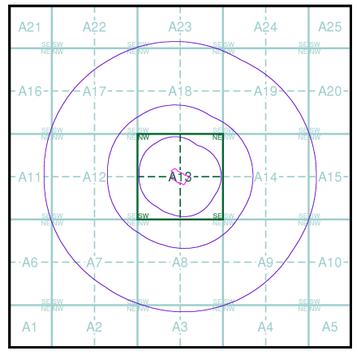
Source map scale - 1:10,560

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



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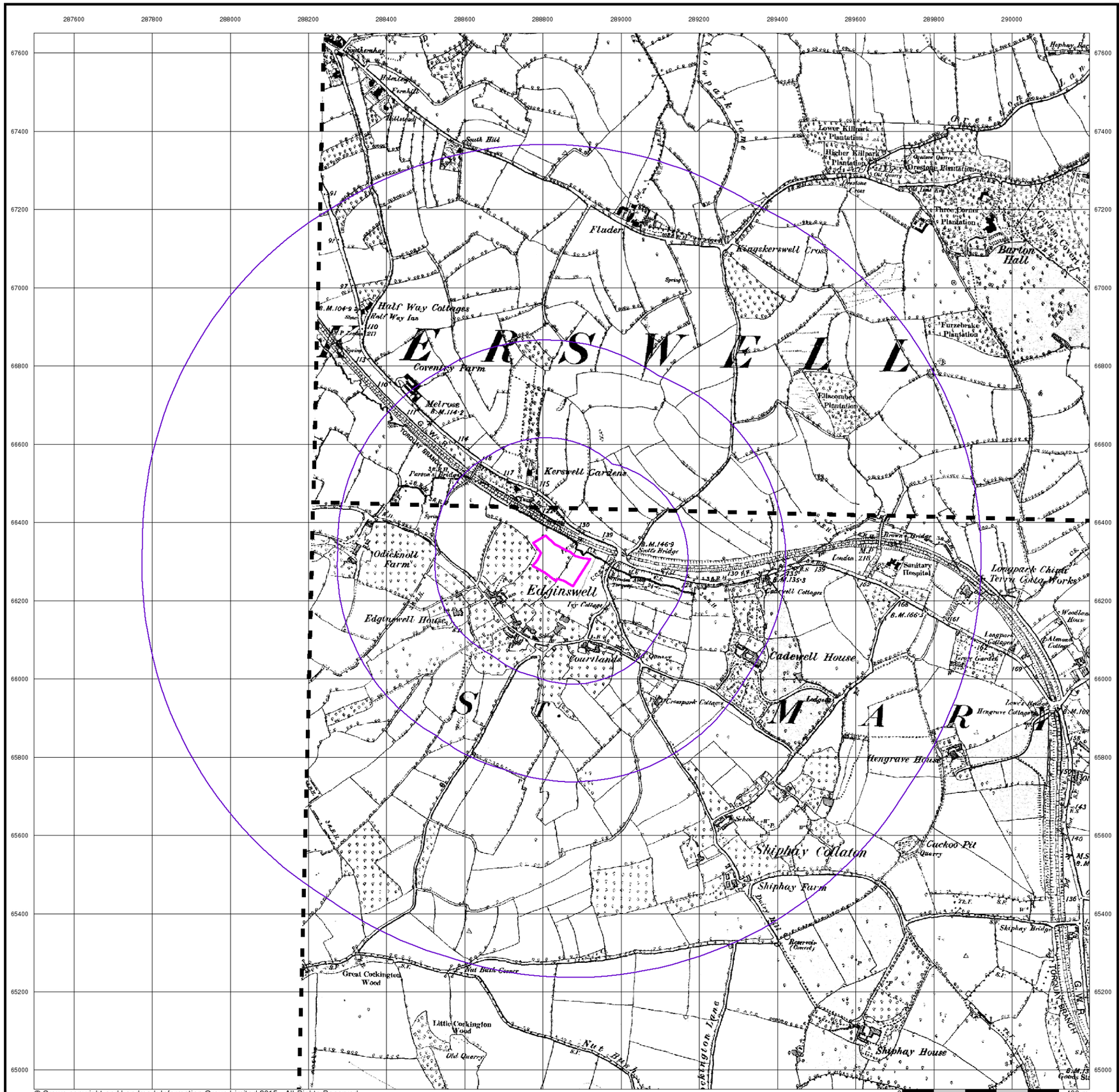

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Devon

Published 1889

Source map scale - 1:10,560

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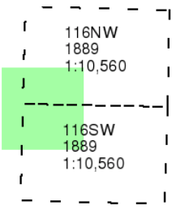
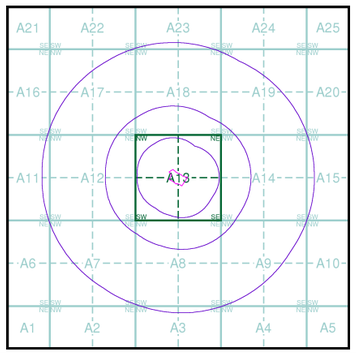
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	1000

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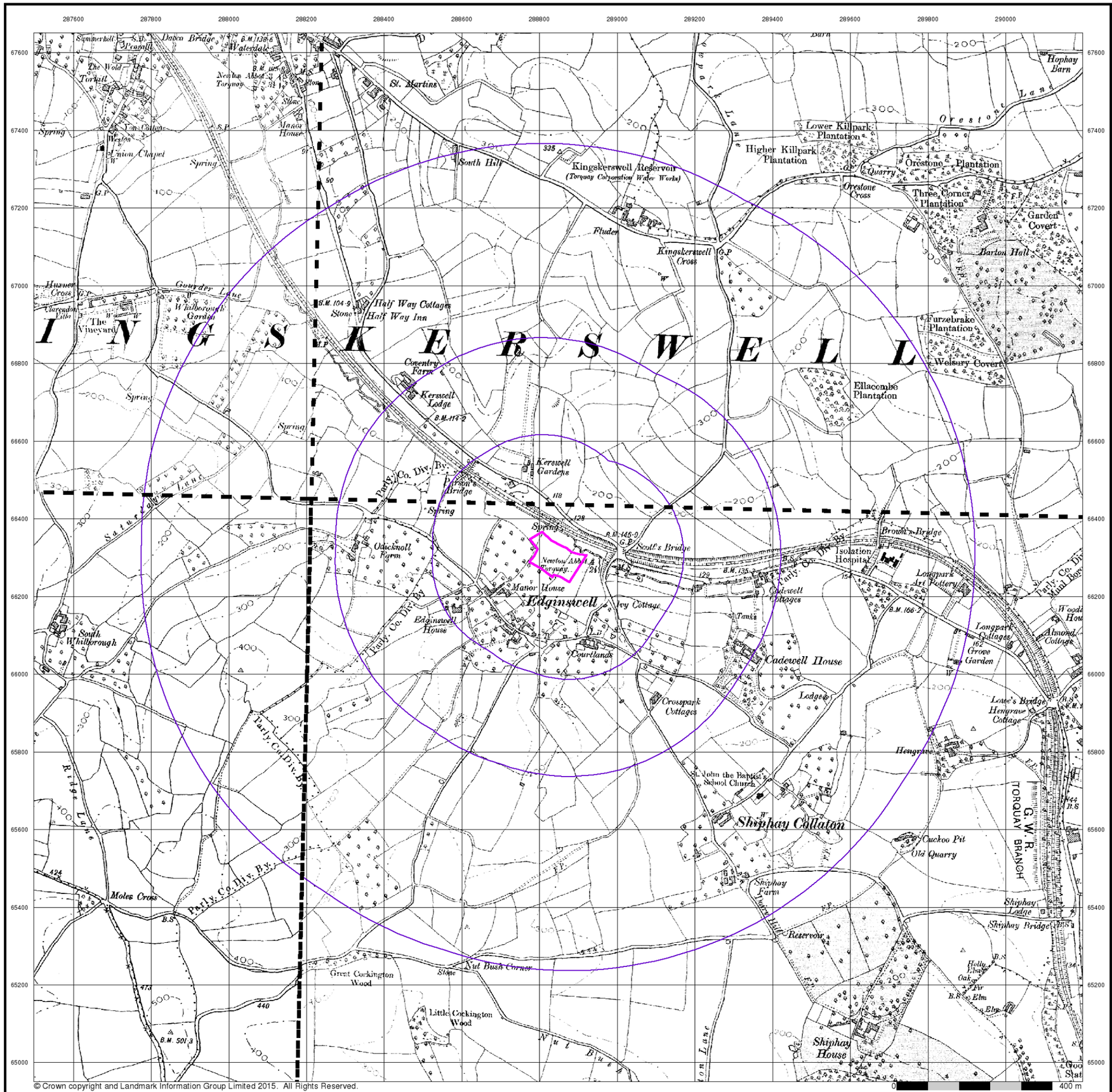

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Published 1906

Source map scale - 1:10,560

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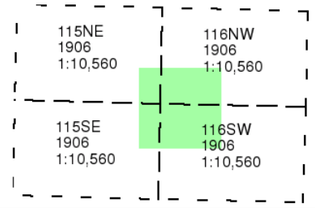
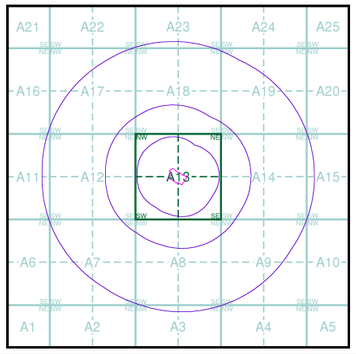


Historical Map - Slice A



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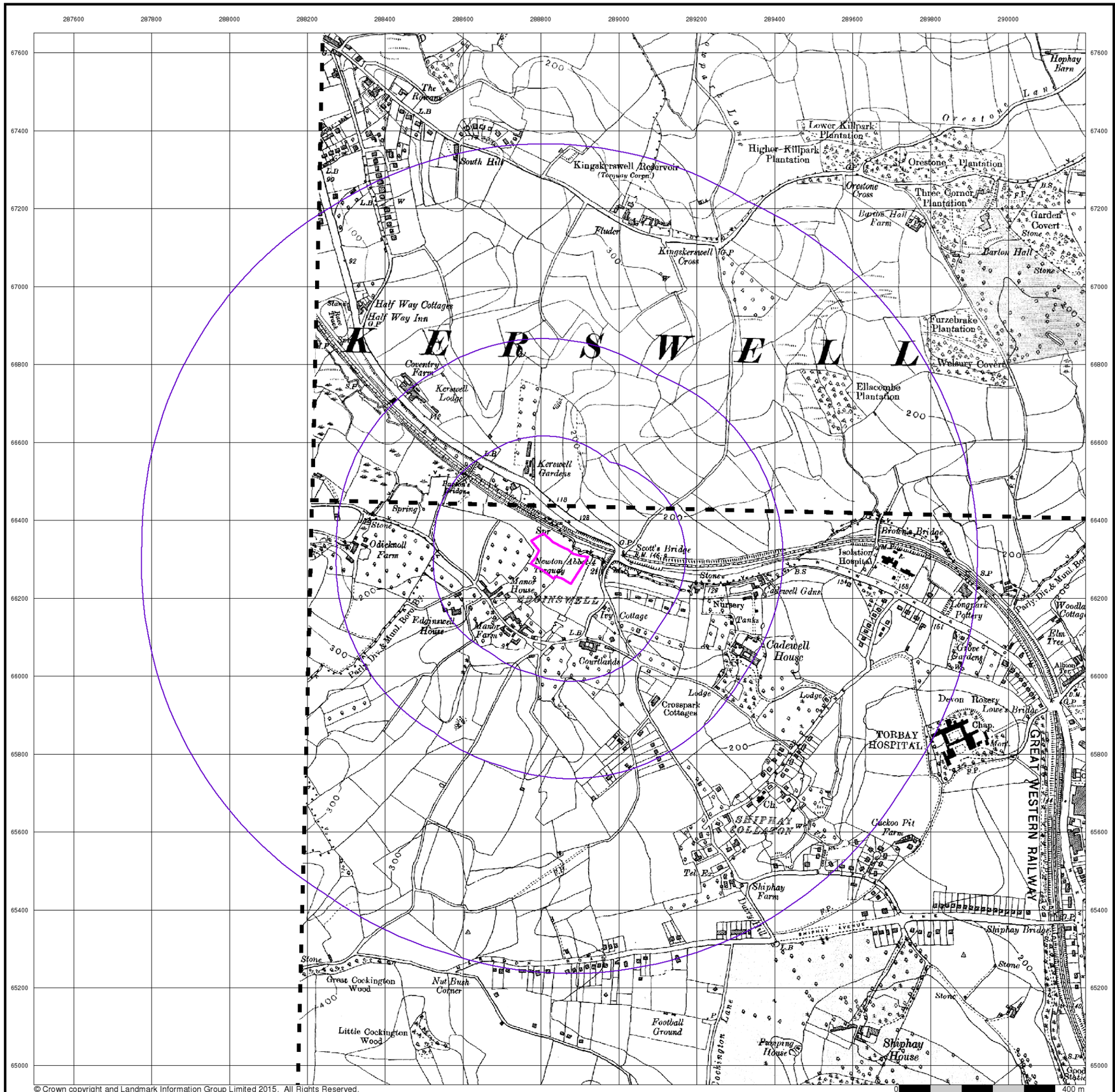

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Published 1933 - 1935

Source map scale - 1:10,560

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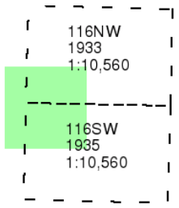
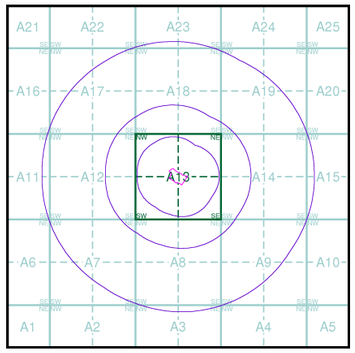


Historical Map - Slice A



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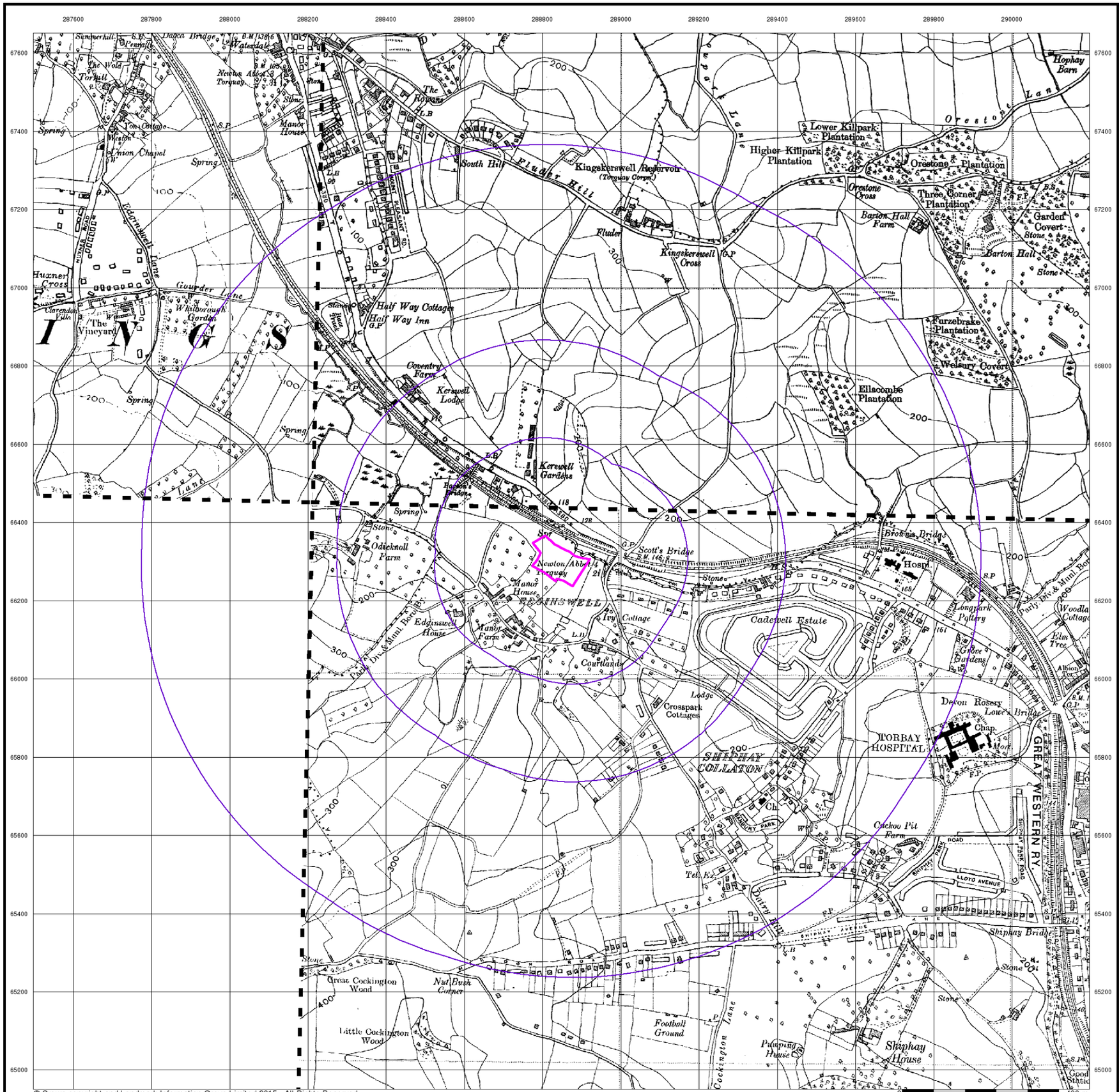

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Published 1938 - 1939

Source map scale - 1:10,560

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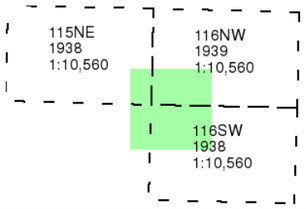
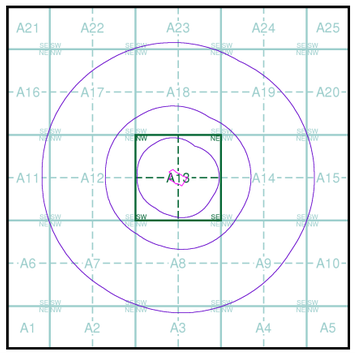


Historical Map - Slice A



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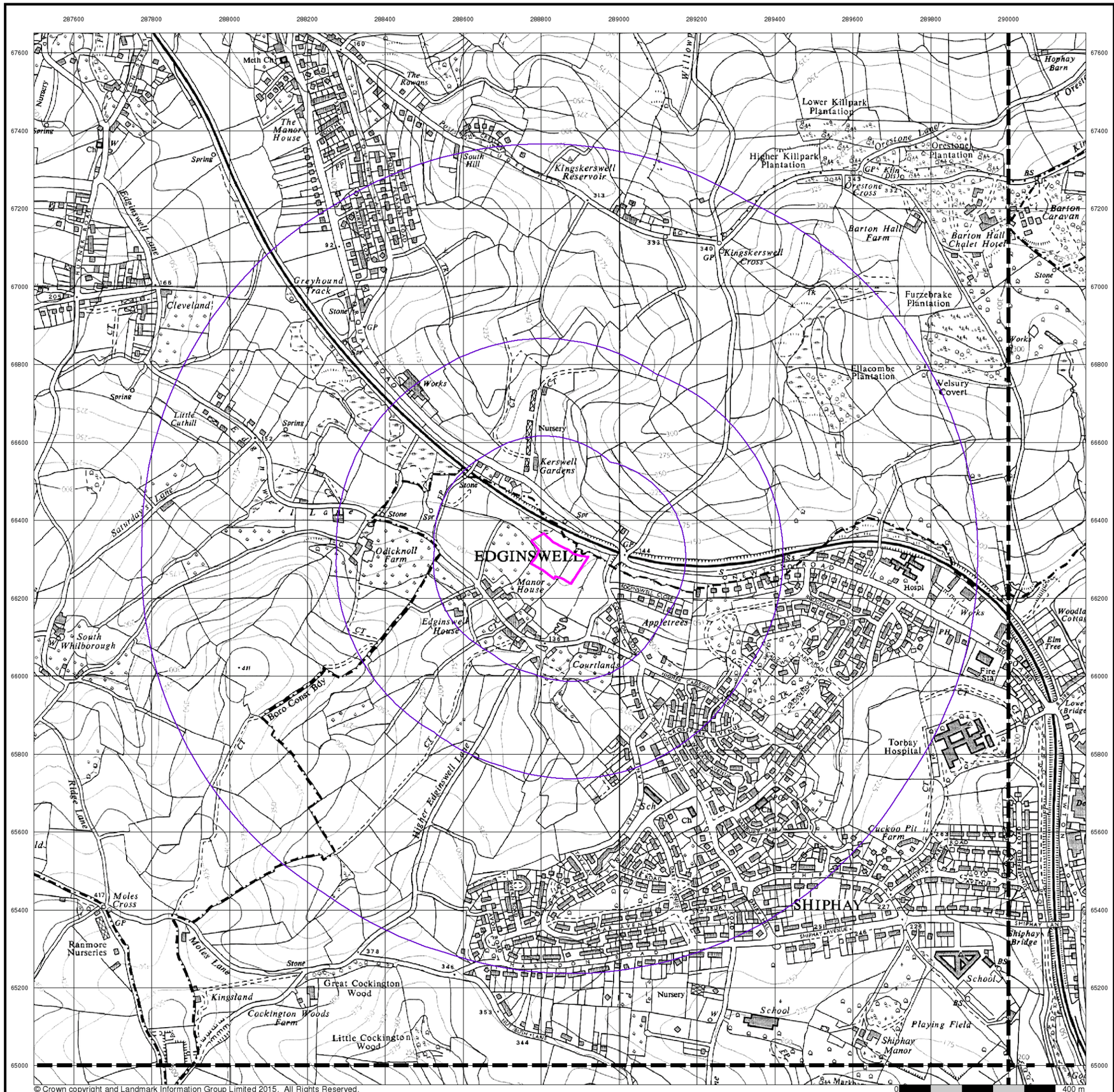

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Ordnance Survey Plan

Published 1963 - 1964

Source map scale - 1:10,000

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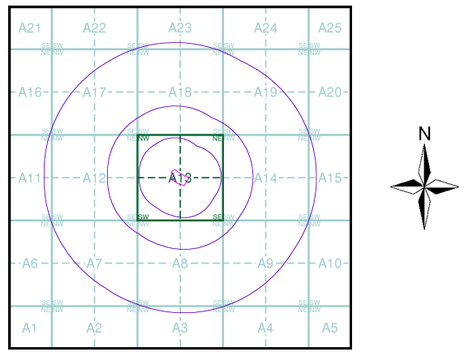
Map Name(s) and Date(s)

SX86NE 1964 1:10,560	SX96NW 1963 1:10,560
SX86SE 1963 1:10,560	SX96SW 1964 1:10,560

Historical Map - Slice A



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
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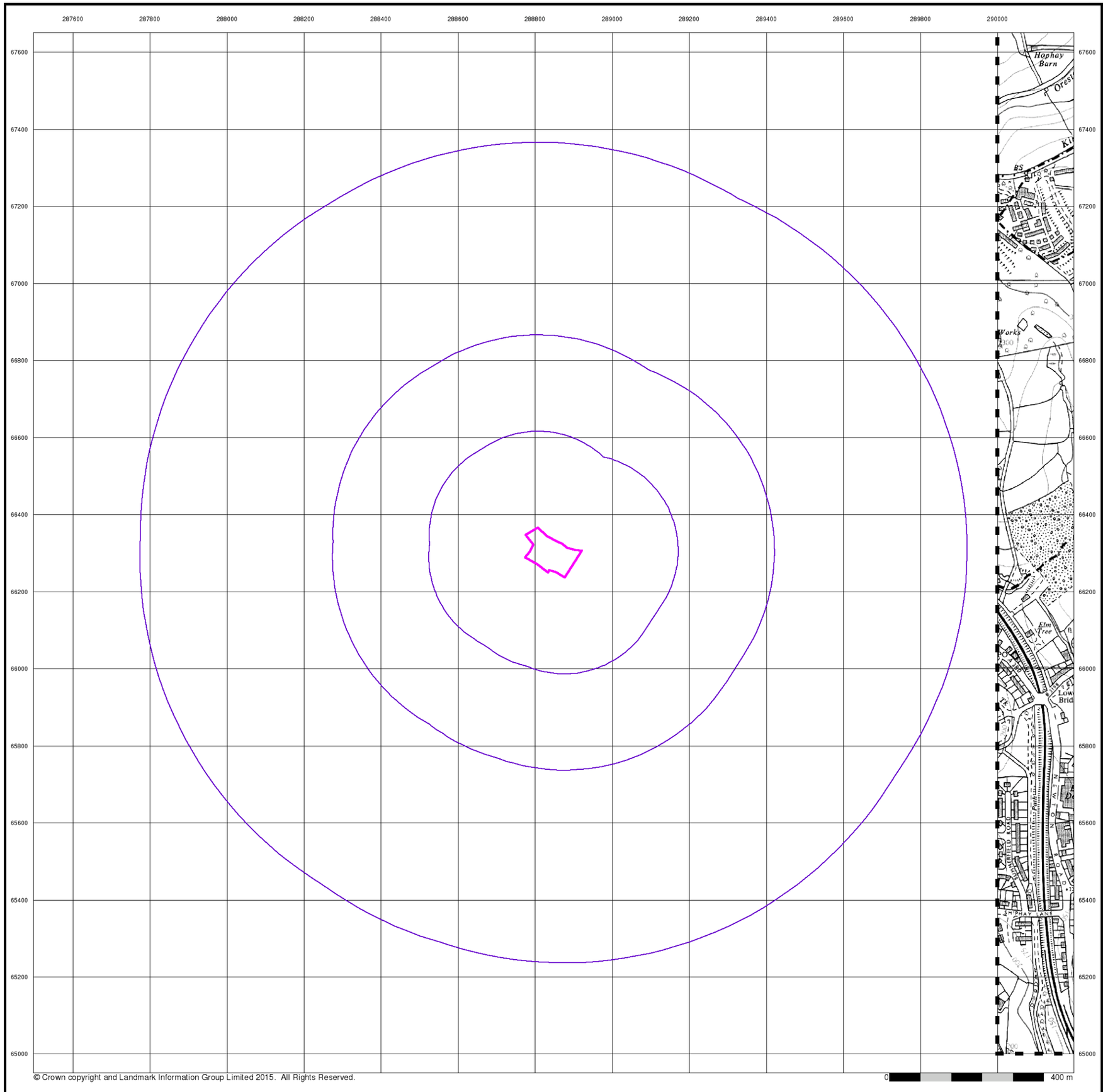

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Ordnance Survey Plan

Published 1968

Source map scale - 1:10,000

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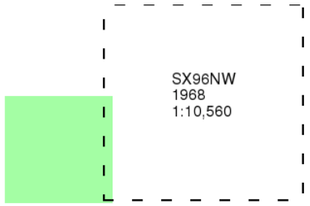
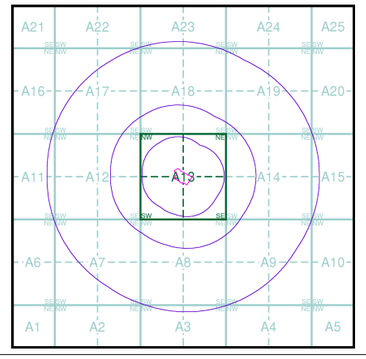


Historical Map - Slice A



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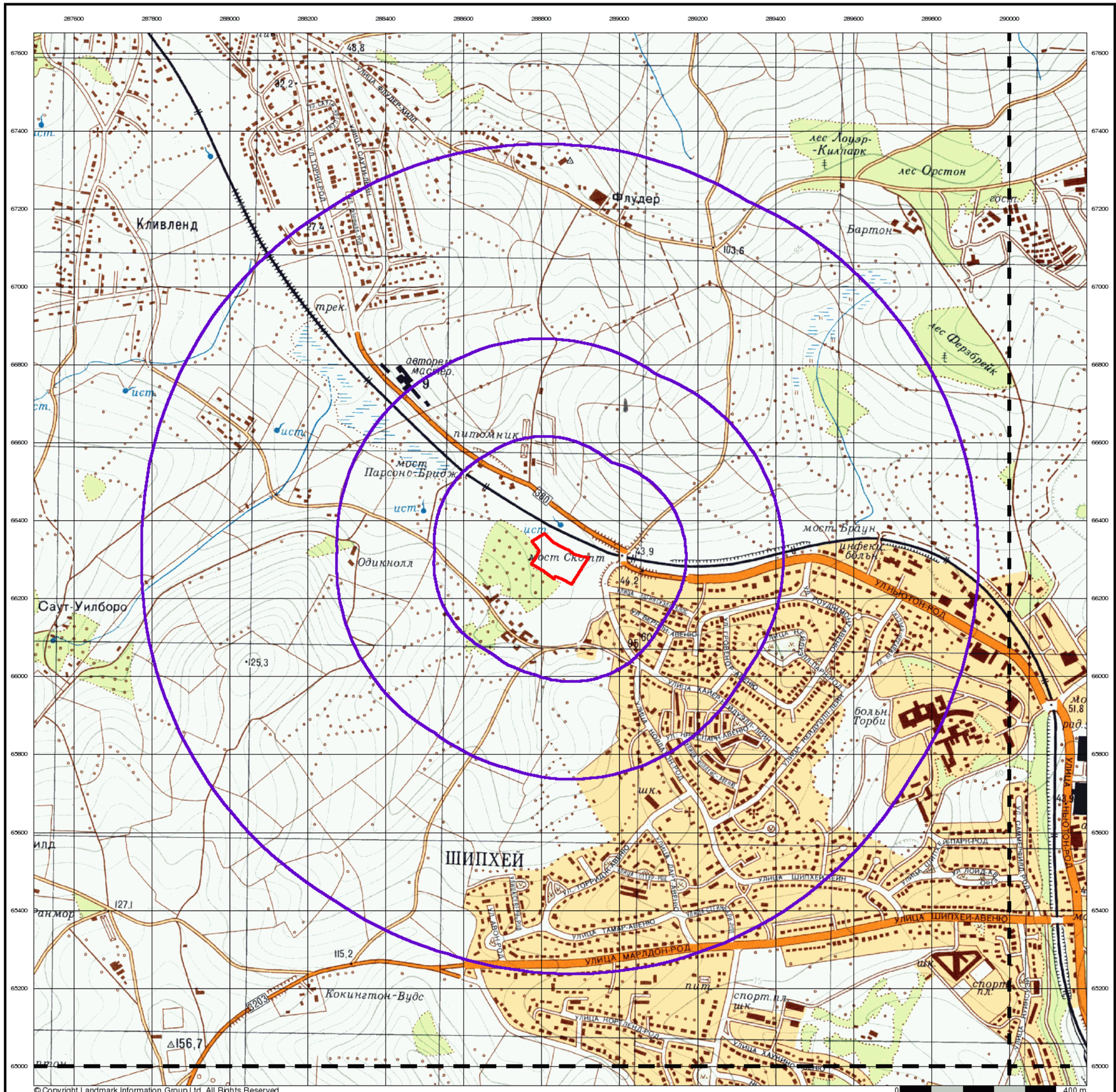

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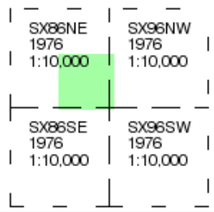
Torbay

Published 1976

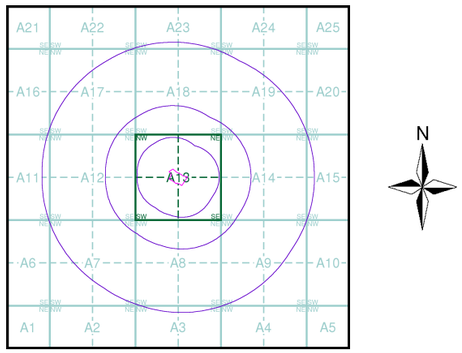
Source map scale - 1:10,000

These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.
They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)



Russian Map - Slice A



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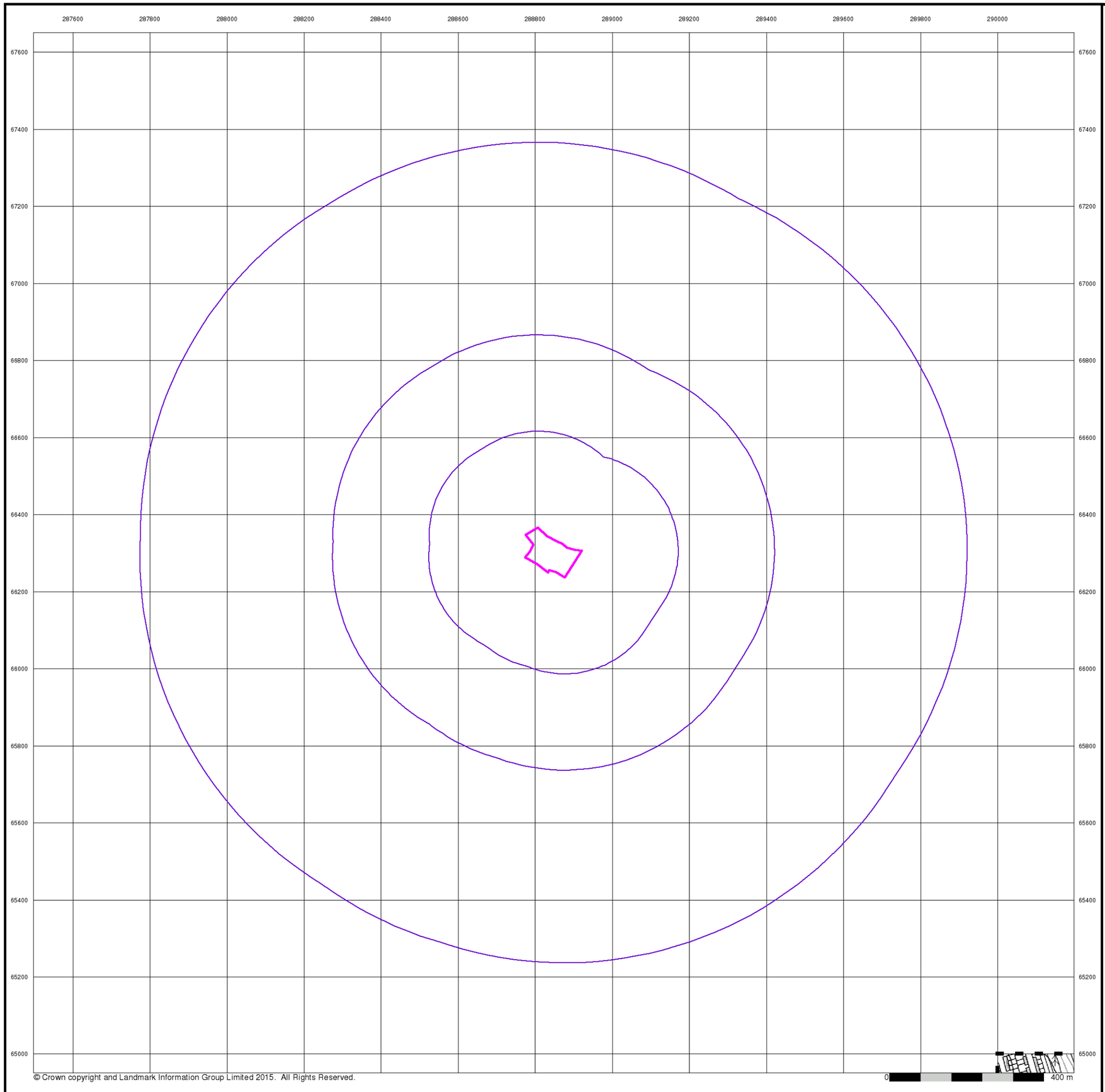

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Ordnance Survey Plan

Published 1978

Source map scale - 1:10,000

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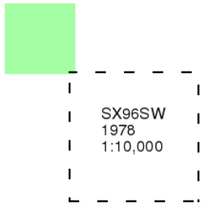
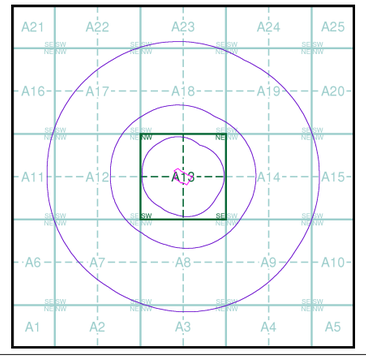


Historical Map - Slice A



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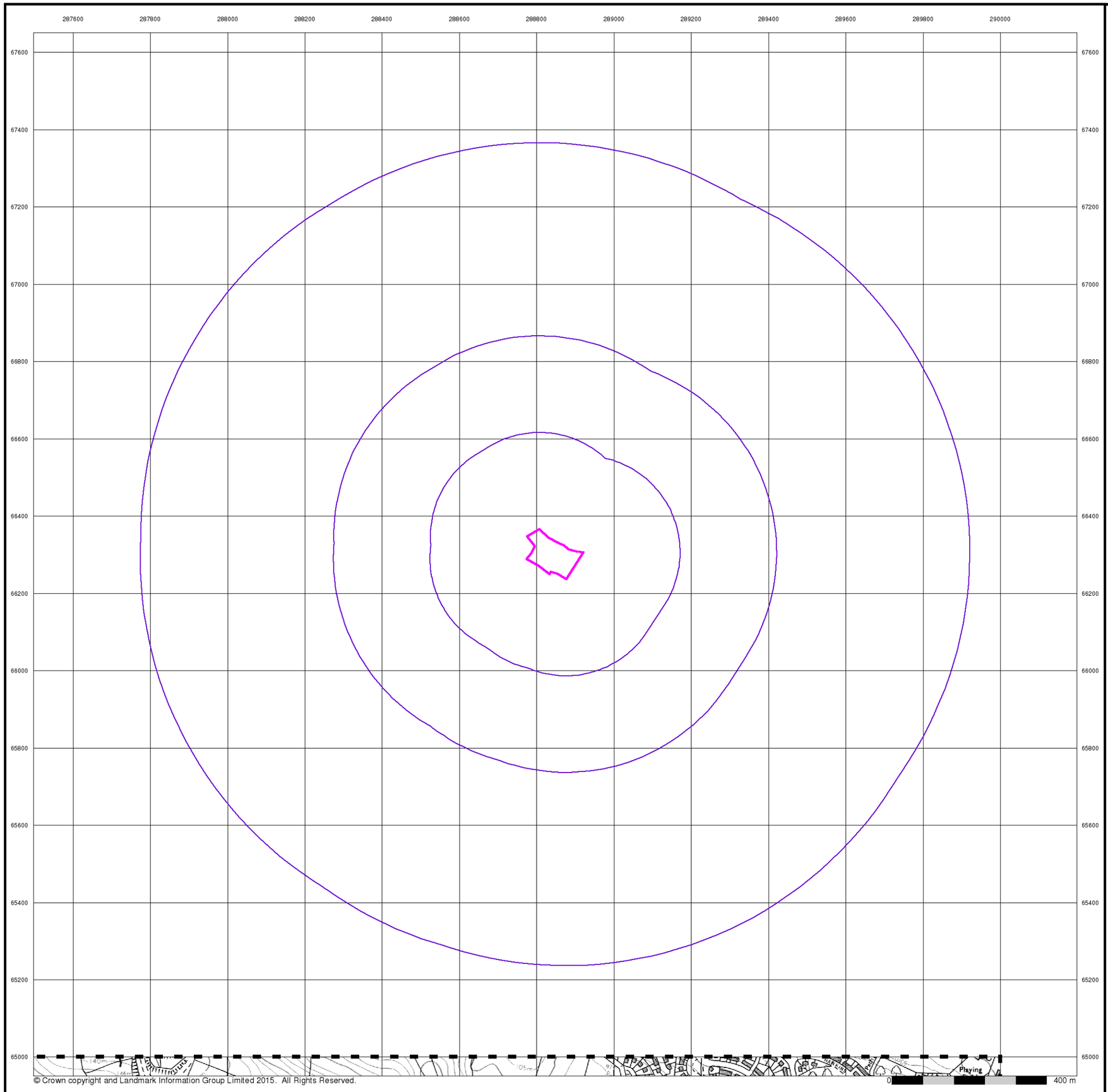

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Published 1981

Source map scale - 1:10,000

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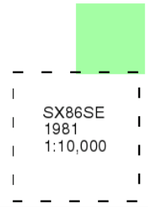
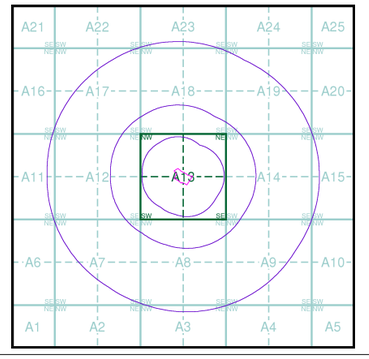


Historical Map - Slice A



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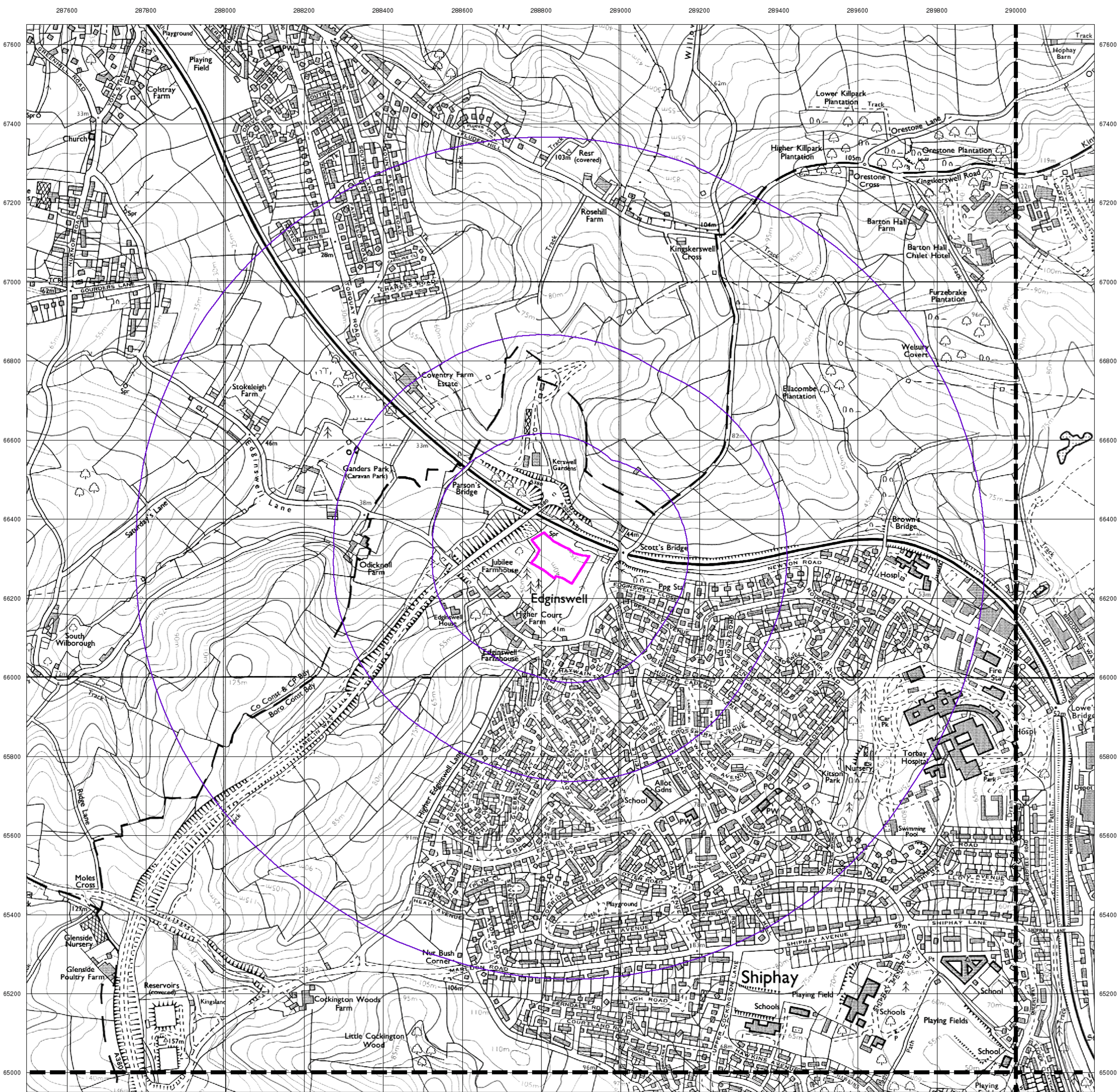

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Ordnance Survey Plan

Published 1990 - 1991

Source map scale - 1:10,000

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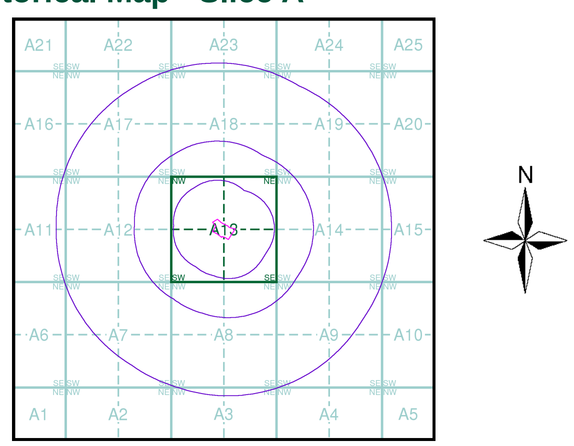
Map Name(s) and Date(s)

SX86NE 1991 1:10,000	SX96NW 1990 1:10,000
SX86SE 1990 1:10,000	SX96SW 1990 1:10,000

Historical Map - Slice A



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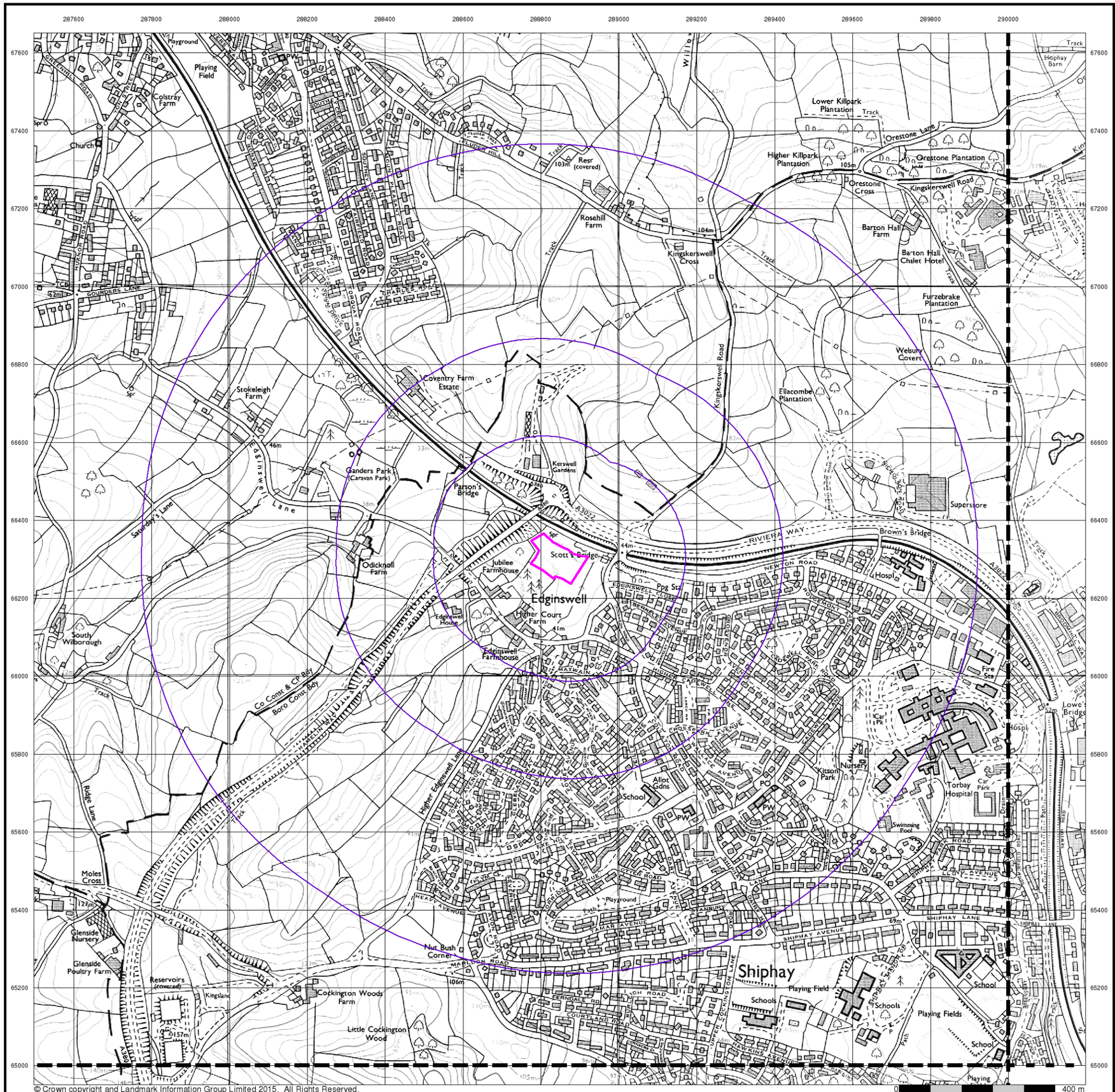

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Published 1993

Source map scale - 1:10,000

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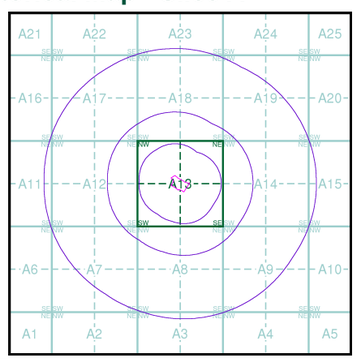
Map Name(s) and Date(s)

SX86NE 1993 1:10,000

SX96NW 1993 1:10,000

SX86SE 1993 1:10,000

Historical Map - Slice A



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	1000

Site Details

Land at Edginswell, Torquay

Landmark INFORMATION GROUP

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

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10k Raster Mapping

Published 1999

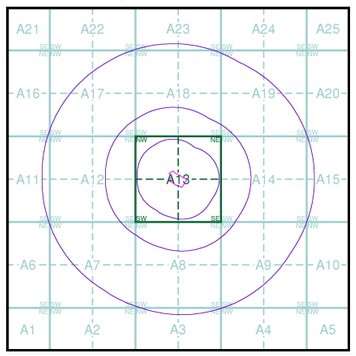
Source map scale - 1:10,000

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)

SX86NE 1999 1:10,000	SX96NW 1999 1:10,000
SX86SE 1999 1:10,000	SX96SW 1999 1:10,000

Historical Map - Slice A



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10k Raster Mapping

Published 2006

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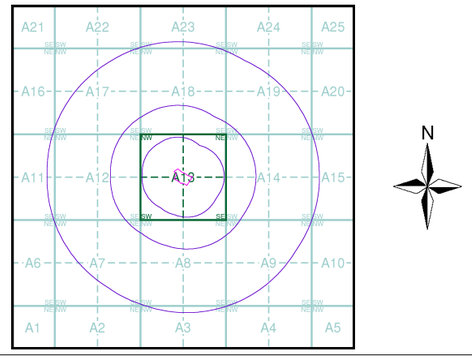
Map Name(s) and Date(s)

SX86NE 2006 1:10,000	SX96NW 2006 1:10,000
SX86SE 2006 1:10,000	SX96SW 2006 1:10,000

Historical Map - Slice A



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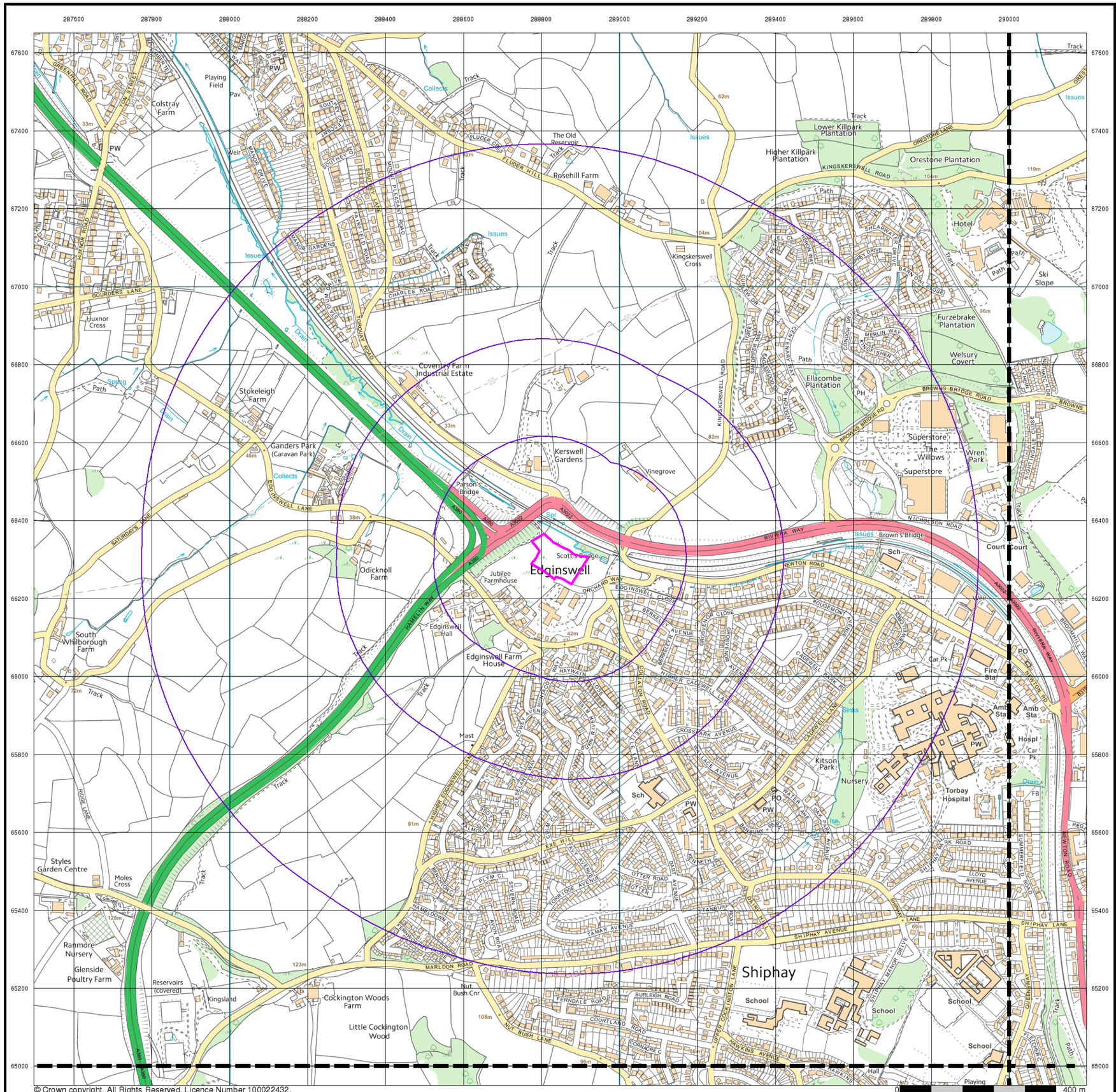

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VectorMap Local

Published 2017

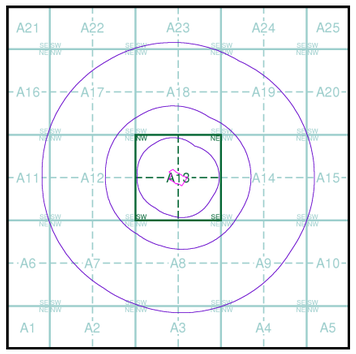
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

SX86NE 2017 Variable	SX96NW 2017 Variable
SX86SE 2017 Variable	SX96SW 2017 Variable

Historical Map - Slice A



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Slice:	A
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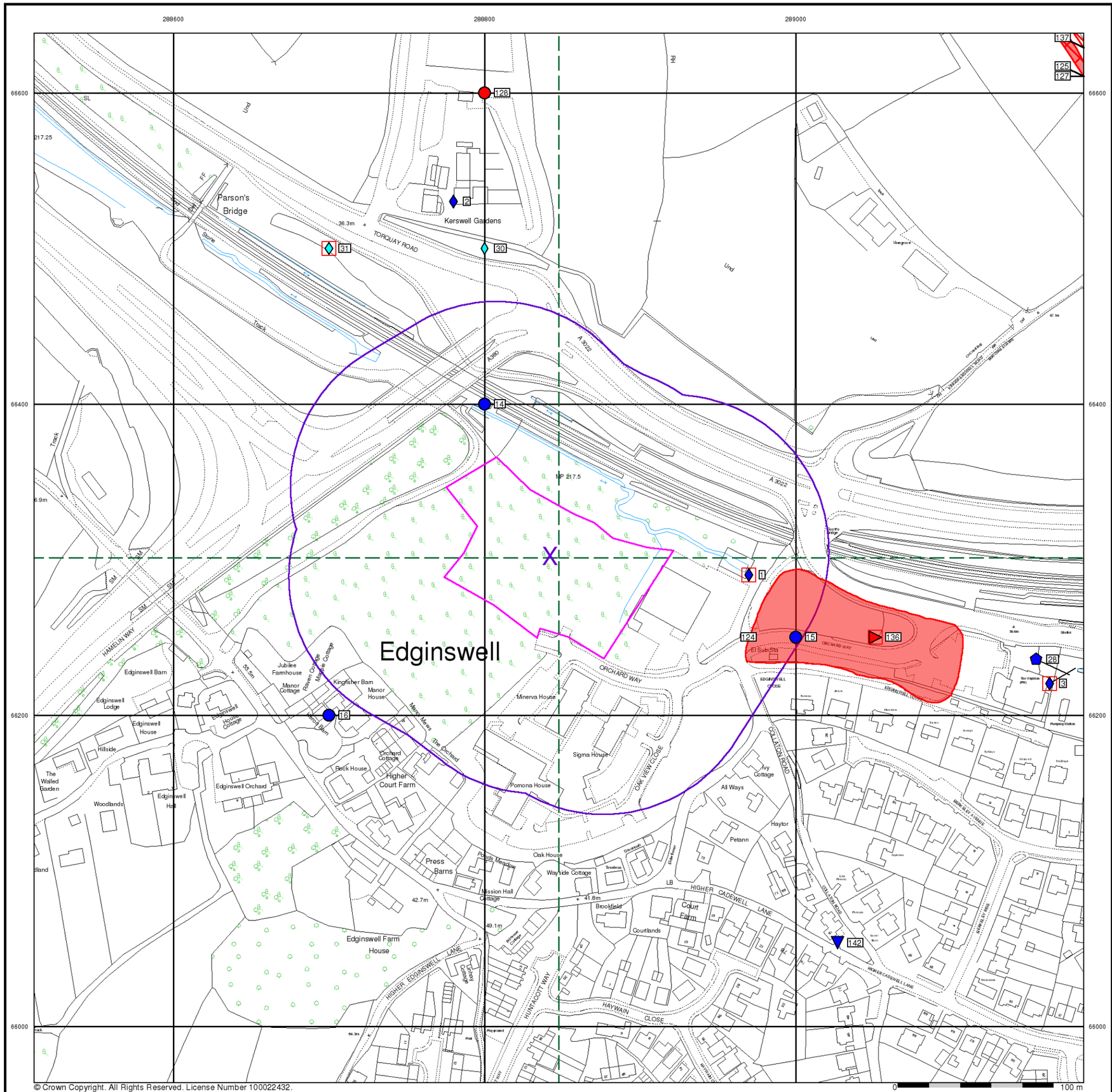

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General

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

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

Hazardous Substances

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

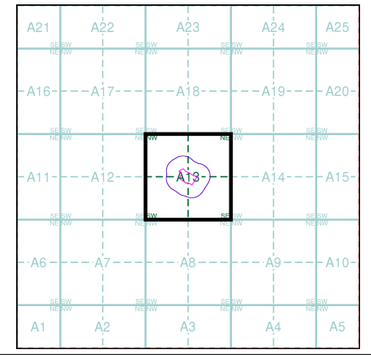
Geological

- BGS Recorded Mineral Site

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
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- 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

Site Sensitivity Map - Segment A13



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Plot Buffer (m):	100

Site Details

Land at Edginswell, Torquay

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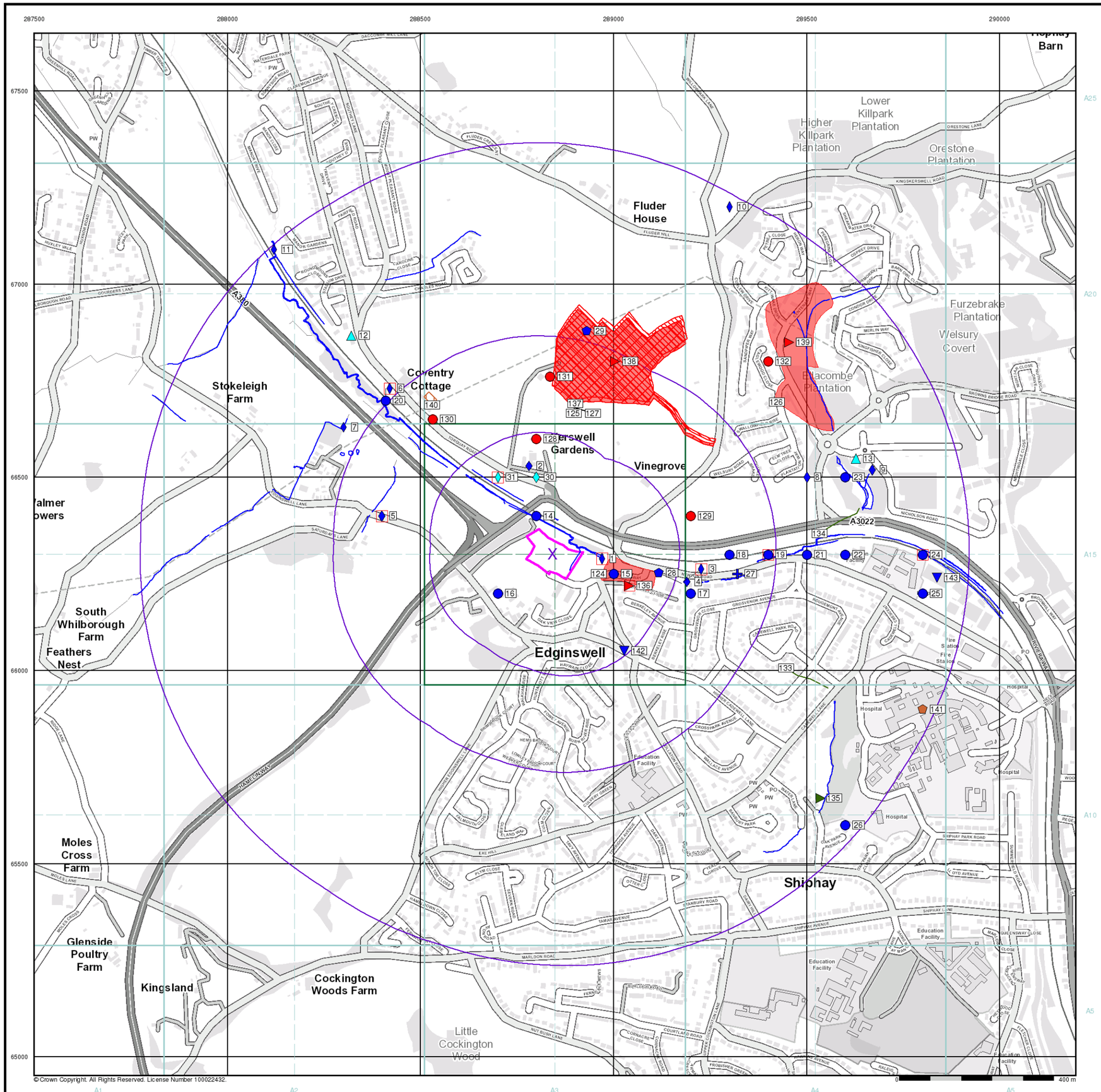

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General

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

Hazardous Substances

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

Geological

- BGS Recorded Mineral Site

Waste

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- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
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- Licensed Waste Management Facility (Location)
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- Local Authority Recorded Landfill Site
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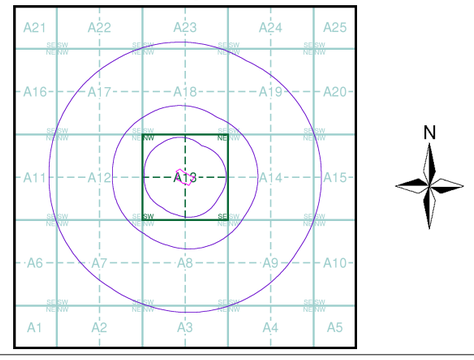
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- 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

Site Sensitivity Map - Slice A



Order Details

Order Number:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	1000

Site Details

Land at Edginswell, Torquay

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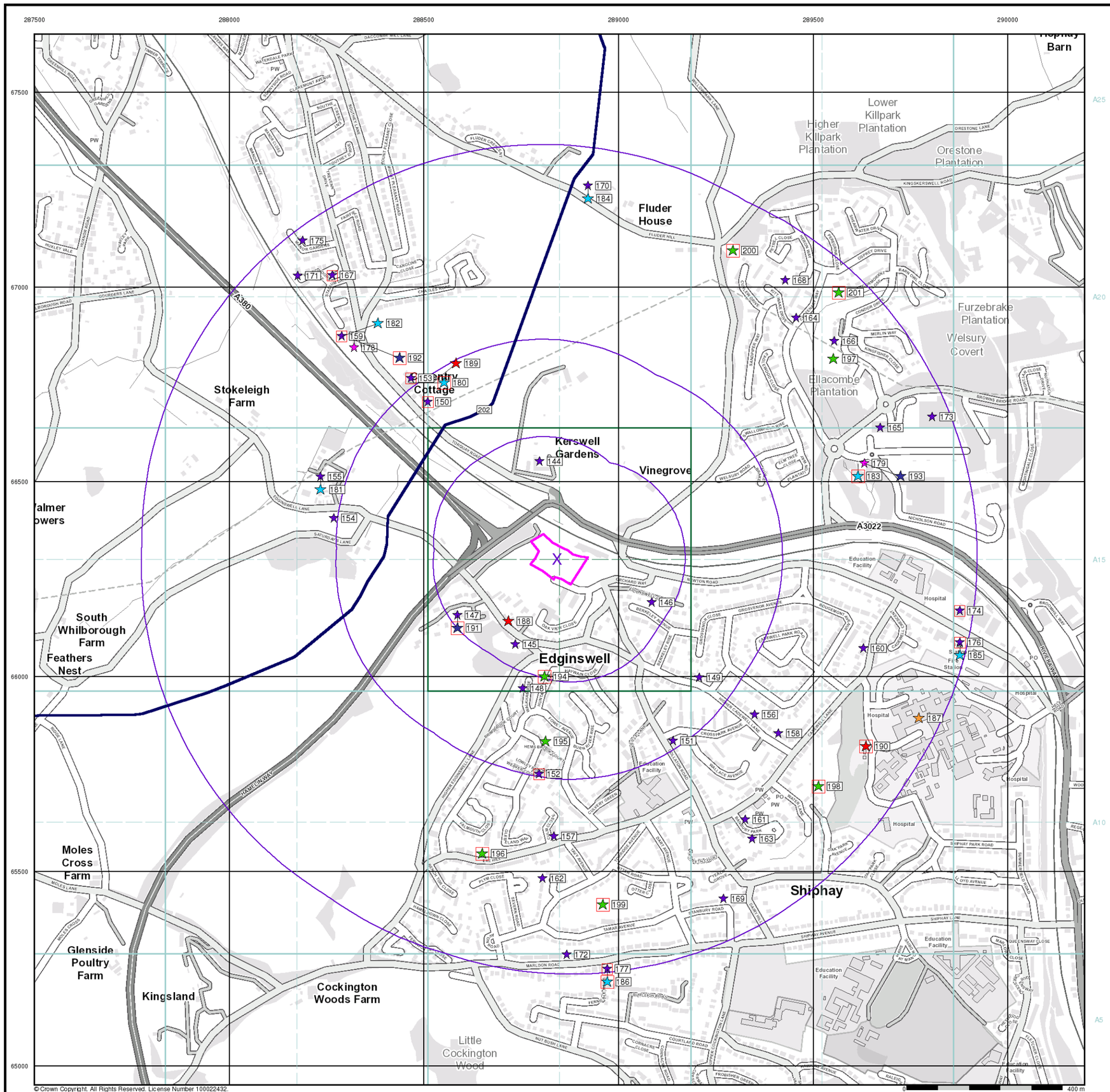

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Industrial Land Use Map

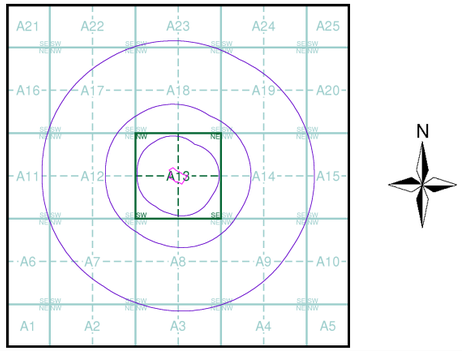
General

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



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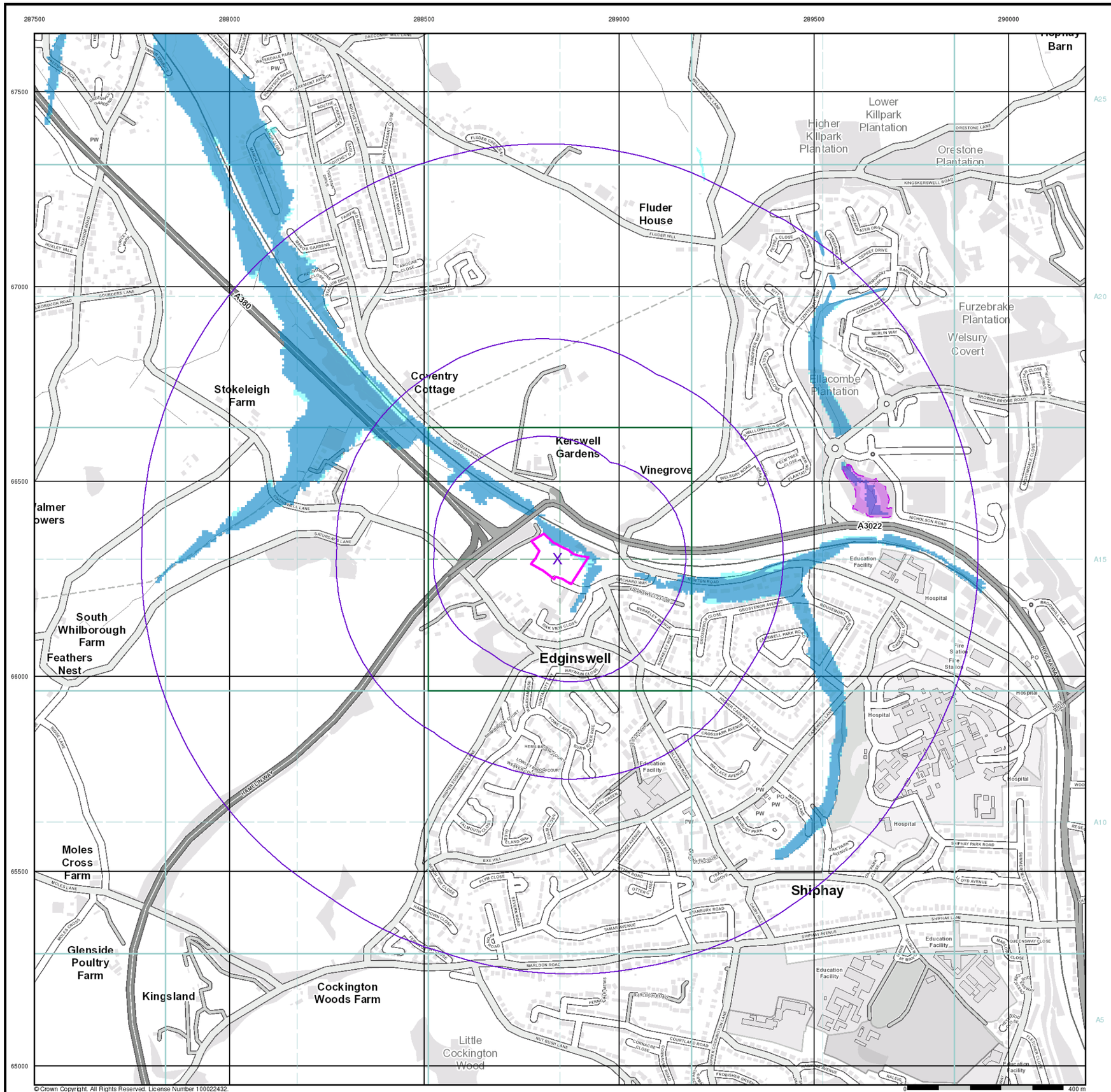

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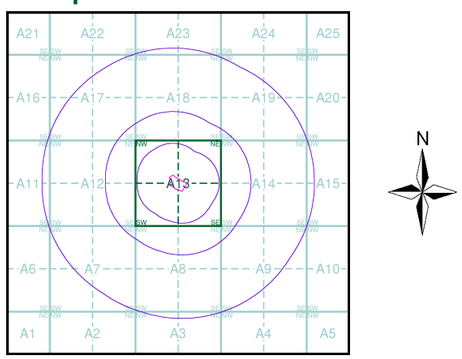
General

- 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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Search Buffer (m):	1000

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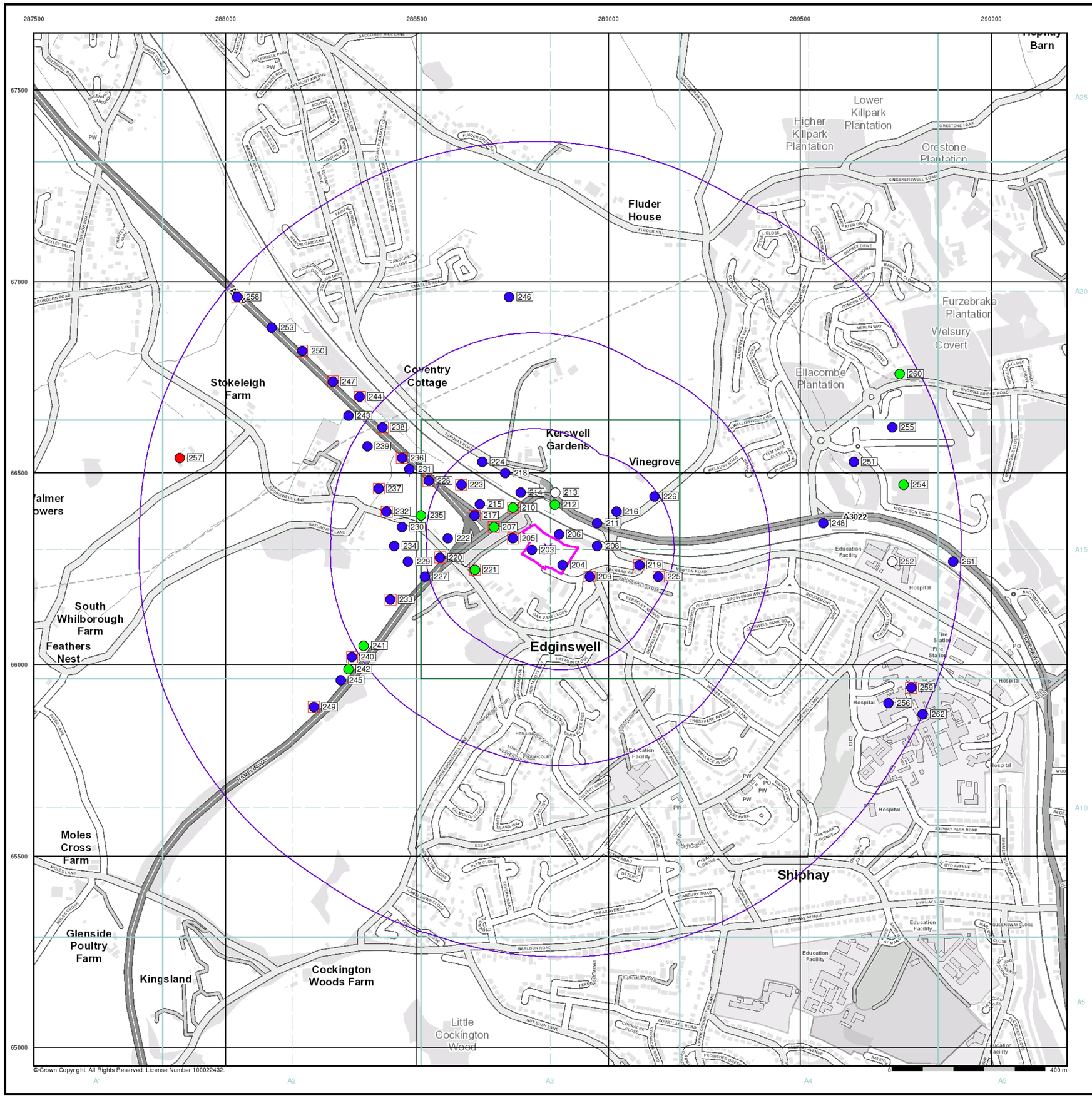

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General

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

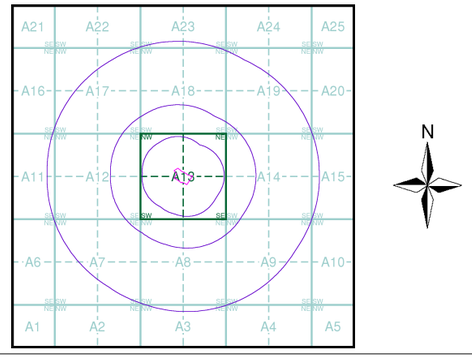
Agency and Hydrological (Boreholes)

- 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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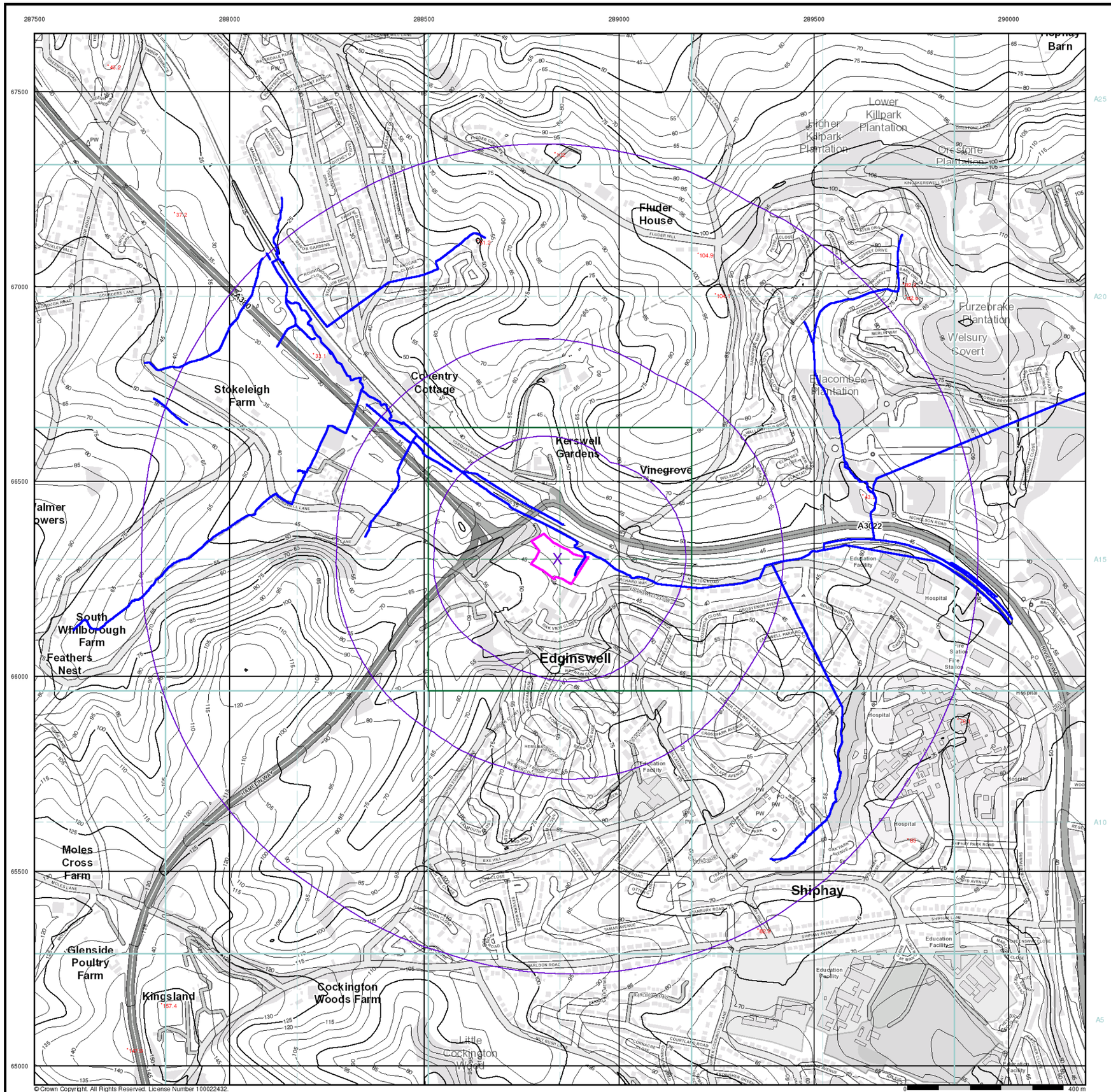
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	1000

Site Details

Land at Edginswell, Torquay



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General

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

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

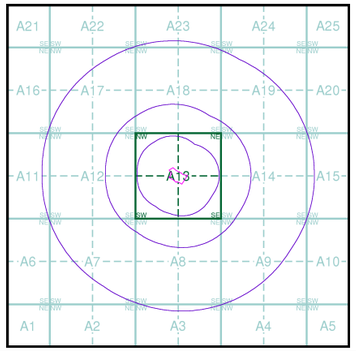
Standard Contour 105 100 95

Master Contour

Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



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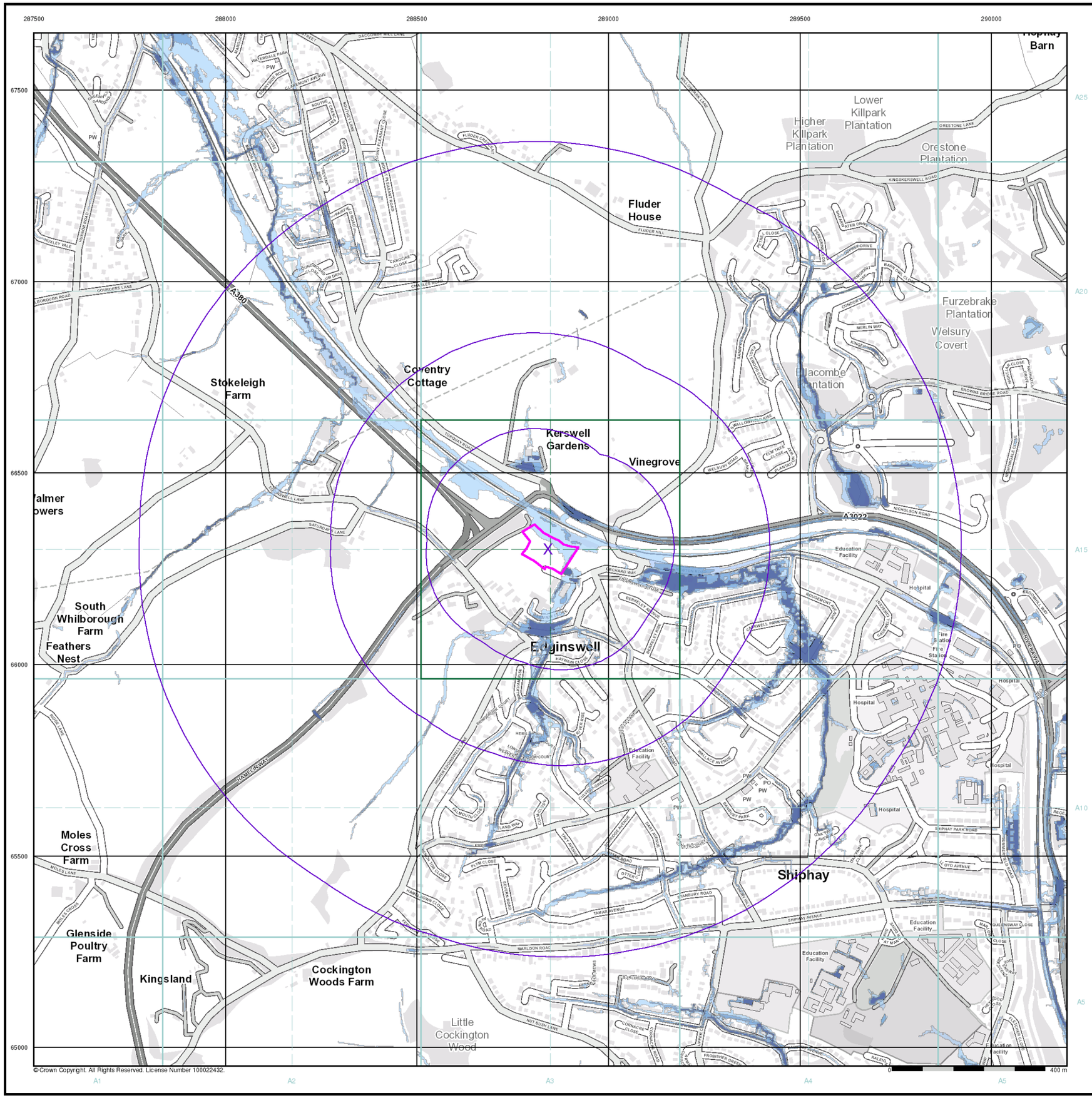

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General

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

Risk of Flooding from Surface Water

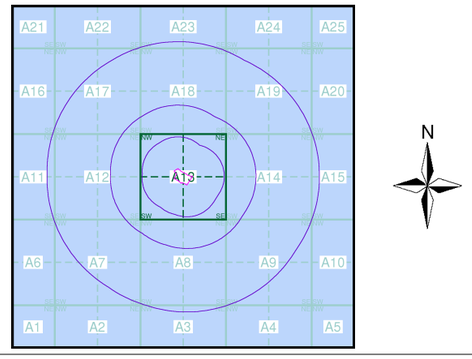
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



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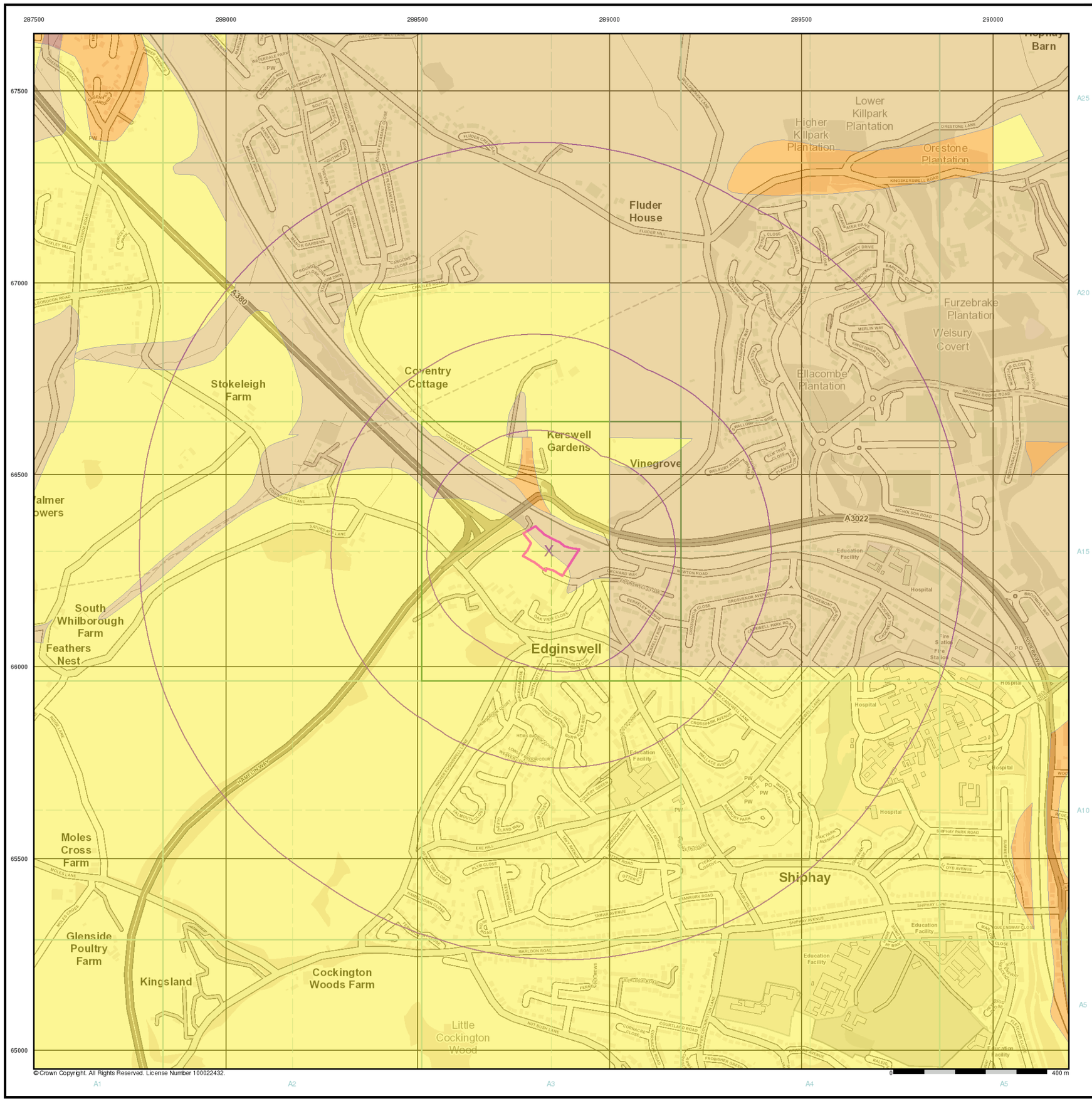

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General

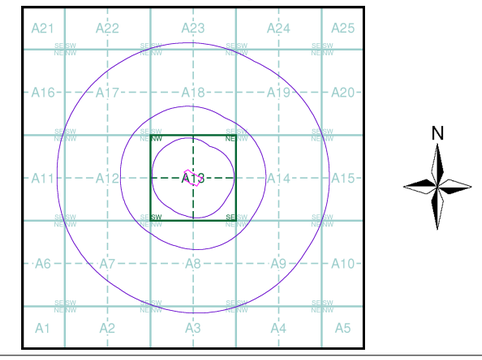
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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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General

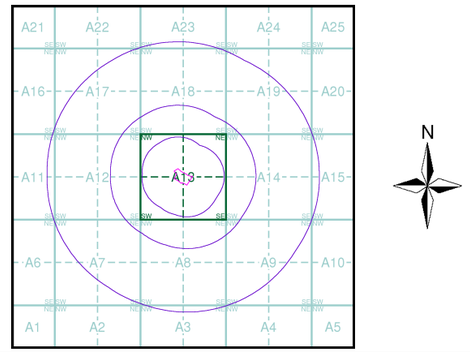
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



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General

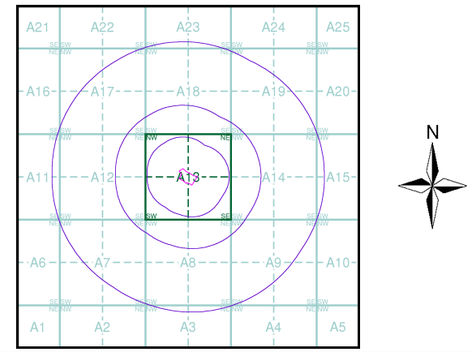
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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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General

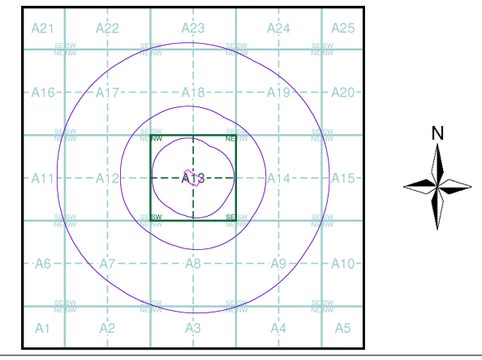
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- <100 mg/kg
- 100 - 200
- 200 - 300
- 300 - 600
- 600 - 1200
- >1200

Estimated Soil Chemistry Lead - Slice A



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General

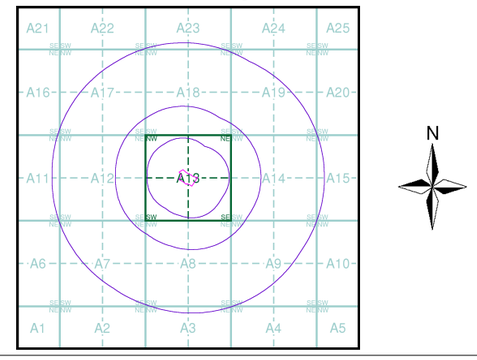
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



Order Details

Order Details:	148421159_1_1
Customer Ref:	STP4262
National Grid Reference:	288840, 66300
Slice:	A
Site Area (Ha):	0.97
Search Buffer (m):	1000

Site Details

Land at Edginswell, Torquay

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