Report Title:

Phase 1 Desk Study and Exploratory Investigation

Project Name:

Toseland Hall Farm, Toseland



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REPORT CONTROL SHEET

REPORT TITLE	**PHASE 1 DESK STUDY AND EXPLORATORY INVESTIGATION**
PROJECT	**TOSELAND HALL FARM, TOSELAND**
CLIENT	**TOSELAND HALL FARM**

REPORT REFERENCE	ISSUE DETAIL	DATE	PREPARED BY	CHECKED BY
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BRD Environmental Limited

Geotechnical and Environmental Services

- Ground Investigation
- Japanese Knotweed Removal
- Soil, Water and Gas Testing
- Contamination Assessment
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REPORT LAYOUT

This report is divided into the following four sections: Summary Report, Technical Report, Supporting Information and Appendices.

SUMMARY REPORT

This expanded executive summary provides the main findings of the work undertaken in brief non-technical language. This section provides an overview of the key outcomes for the benefit of non-specialists and concludes with the main recommendations. This section should only be relied upon in the context of the whole report and the Technical Report should be referred to with respect to any design decisions.

TECHNICAL REPORT

The main report section is intended to provide the technical detail of the investigation and is intended to provide the level of information required by current guidance documents and practice. The Technical Report is written in a language that, in part, assumes knowledge of subject matter so that it can be written in as concise a form as possible. Its intended audience is peers, regulators and other professionals in related disciplines.

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SUPPORTING INFORMATION

This section of the report provides background details of a generic nature together with specific technical approaches adopted by BRD and details of the guidance documents that are commonly referenced in the report. The section also includes explanations of technical terms to assist non-specialist readers in understanding the Technical Report. It should be noted that not all the information within this section is necessarily applicable to this specific report.

APPENDICES

The final section of the report presents the factual data collected and employed as part of the investigation.

APPENDIX 1	**SITE PLANS & PHOTOGRAPHS**	
	Site Location Plan	Ref. BRD4279-OP1-A
	Site Walkover Photographs	Ref. BRD4279-OP2-A
	Exploratory Point and Existing Site Layout Plan	Ref. BRD4279-OP4-A
	Initial Conceptual Site Model	Ref. BRD4279-OP5-A
APPENDIX 2	**HISTORICAL PLANS**	
	Order No. 313389616_1_1	15 x A3 pages
APPENDIX 3	**ENVIROCHECK REPORT**	
	Order No. 313389616_1_1	51 x A4 pages & 14 x A3 pages
APPENDIX 4	**EXPLORATORY HOLE RECORDS**	
	Logs of hand dug pits.	Ref. HD01 to HD06
	Photographic records of hand dug pits.	Ref. BRD4279-OP3-A
APPENDIX 5	**LABORATORY TEST RESULTS**	
	DETS report 23-08580	11 x A4 pages

SUMMARY REPORT

SUBJECT	COMMENTS
CURRENT SITE CONDITION	The site currently consists of a farmyard containing a workshop building and stables in the southern part, an open barn in the central section and another recently demolished open barn in the northern section. Concrete hardstanding is present across the entire site (including the recently demolished barn) except for a strip of vegetation along the northern boundary and an area of grass and trees in the south western section.
PROPOSED DEVELOPMENT	It is proposed that the existing workshop will be converted into a residential dwelling with a parking area to the north east, front garden to the north west and rear garden to the south. Across the remainder of the site, the stables are to be retained, but both of the existing barns will be demolished to make way for a new agricultural machinery barn in the north western corner. The existing hardstanding will be retained across the entire site with the exception of the small front garden area of the proposed dwelling where the existing concrete will be removed.
HISTORICAL SUMMARY	The site was originally part of an open field and gardens associated with Toseland Hall, located to the south of the site, which has been present since the Tudor period. Based on the historic mapping, the site was subsequently developed as a farmyard and stables in the 1960s or 1970s and has remained largely unchanged since. The existing workshop is understood to have previously been a piggery and the two barns to the north were used for bullocks and hay storage. More recently, the barns have been used for storing vehicles and agricultural plant, and the northernmost barn has been demolished down to floor slab level.
PUBLISHED GEOLOGY	The site is shown to be underlain by superficial deposits comprising the Oadby Member (glacial Till) consisting of gravelly clays. The shallowest bedrock unit is shown to be the Oxford Clay Formation comprising clays and mudstones.
RADON GAS	Radon gas protection measures are not required at the site.
HYDROGEOLOGY	The underlying superficial deposits are designated as a Secondary (Undifferentiated) Aquifer. The underlying bedrock geology is designated as Unproductive Strata. The site is not located within a groundwater Source Protection Zone.
HYDROLOGY	The closest surface water feature to the site is a drain located immediately to the west of the site and flowing north. This will eventually flow into the River Great Ouse located 3km to the west of the site. The site is not in an area indicated to be at risk of flooding.

EXPLORATORY INVESTIGATION	A limited ground investigation has been undertaken comprising the breaking out of two hand dug pits to the north of the workshop (proposed residential dwelling) with one to confirm if the adjacent above ground fuel tank had caused any contamination and the other to confirm if the area of proposed front garden was contaminated or not. Three further hand dug pits were completed in the proposed rear garden to the new dwelling and then one further pit was located just to the north of the farmyard to establish if there was any contamination off the concrete.

PRELIMINARY CONTAMINATION RISK ASSESSMENT

The exploratory investigation demonstrated that all of the proposed areas of soft cover in the front and rear gardens contain soils suitable for use in the context of the proposed residential development. Elsewhere across the farmyard area, the retained concrete hardstanding will mitigate any contamination risks, and a further hand dug pit to the north confirmed a lack of evidence of any significant contamination arising from the farmyard.

Consequently, there are no significant contamination risks to the future site users, whether they be the future residents in the new dwelling or the site workers/users in the yard area. Some occasional asbestos cement fragments were identified in the sub-base below proposed parking area, but as such, these do not present a risk to the future site users as they will remain beneath permanent hardstanding. To be certain that the garden areas of the site are free from asbestos cement fragments, it is proposed that a watching brief is undertaken during the excavation of the front garden section to ensure that there is no residual asbestos cement in this area.

RECOMMENDATIONS

It is considered that this report should be submitted to Huntingdonshire District Council to address the requirements of Condition 17, part A, of the planning permission ref. 22/00967/FUL. With the exception of the watching brief described above, there is no requirement for any further Remediation Scheme for the proposed development. Consequently, it is considered that this report also addresses the requirements of Condition 18, part B.

1. INTRODUCTION TO TECHNICAL REPORT

1.1. CONTRACT DETAILS

CLIENT	Toseland Hall Farm.
SITE	Land situated at Toseland Hall Farm at Toseland Hall, in the village of Toseland, Cambridgeshire.
CLIENT'S ADVISORS	BRD Environmental Limited (BRD) has been commissioned directly by the Client.
REPORT CONTEXT	It is understood that the Client intends to develop the site for mixed land use, comprising converting one of the existing farm buildings into a residential property, renovating the existing stable block, demolishing the two existing barns and constructing a new barn.
REPORT TYPE	Factual and interpretative geo-environmental desk study together with limited exploratory ground investigation.
REPORT OBJECTIVES	The purpose of the report is to undertake a contamination assessment to meet the requirements of Condition 17 of the Planning Permission issued by Huntingdonshire District Council referenced 22/00967/FUL.

1.2. SCOPE OF WORKS

The agreed scope of works was:

- Desk based research through the purchase of an Envirocheck report that covers the entire farm site, including:
    - Environmental database search.
    - Environment Agency data.
    - BGS radon maps.
    - Mining and natural cavities database search.
    - Available historical Ordnance Survey plans.
- Interpretation of the geological, hydrogeological and hydrology setting of the site from published sources.
- Mobilisation to site and production of health and safety documentation.
- Provision of a petrol hydraulic breaker to break out up to 2No. locations through the concrete hardstanding in the proposed garden area.
- A site walkover will be undertaken to identify any potential sources of contamination or indication of other ground related hazards at the site and its surroundings.
- Undertake up to 6No. hand dug trial pits to a nominal depth of up to 0.6m on the site, ground conditions permitting. All pits will be logged and sampled in general accordance with BS5930:2015 by Geo-Environmental Consultant.
- A photo-ionisation detector (PID) will be used during the site works to assist in identifying and delineating any volatile organic contamination.

- Chemical testing of soil samples with the budget based on the following testing schedule:

    - 5No. Metals Suite - As, Cd, Cr, CrVI, Hg, Pb, Se, Cu, Ni and Zn.
    - 5No. Inorganics Suite – water soluble sulphate, pH, organic matter.
    - 5No. Speciated Polycyclic Aromatic Hydrocarbons (PAH).
    - 2No. Banded aliphatic/aromatic Total Petroleum Hydrocarbons (TPH).
    - 2No. Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and Methyl Tertiary Butyl Ether (MTBE) compounds.
    - 2No. Organochlorine pesticides.
    - 1No. Semi-Volatile Organic Compounds (SVOC) suite.
    - 2No. Asbestos quantification.

- Prepare a Phase 1 desk study report including copies of the purchased information, interpretation of the collected data to identify and assess contamination hazards, hand dug pit logs, undertake a preliminary Phase 2 Generic Quantitative Contamination Risk Assessment (GQRA) on the test results, identify any other environmental issues and present a concluding statement to address the planning requirement.

1.3. REPORT LIMITATIONS

Any site boundary lines depicted on plans included within this report are approximate only and do not imply legal ownership of land. Any observations of tree species, asbestos containing materials within structures or invasive weeds, does not constitute a formal survey of such features. The identification of such features is therefore tentative only. In the case of Japanese Knotweed, BRD can undertake separate surveys for this plant undertaken by a Property Care Association qualified surveyor.

The report does not consider whether sensitive ecology or archaeology is present as these require consideration by professionals specialising in these matters. It should be recognised that the collection of desk study information may not be exhaustive and that other information pertinent to the site may be available.

It is emphasised that a desk study and walkover can only indicate the potential for contamination on the site. This study aims to highlight potential pollutant linkages in line with current guidance. The plausibility of these linkages can only be proved by an intrusive ground investigation.

It should be noted that a desk study and walkover can only reveal the potential for certain types of ground conditions and geotechnical hazards. For any form development an intrusive ground investigation is recommended. The scope of this investigation excludes a formal slope stability study and any observations made regarding slopes are for information only.

2. SITE CHARACTERISTICS

2.1. SITE SETTING

SITE ADDRESS AND POST CODE	Toseland Hall Farm, Toseland Hall, Toseland Road, Toseland, St. Neots, Cambridgeshire, PE19 6RU.
NATIONAL GRID REFERENCE	523510E, 262670N.

2.2. SITE DESCRIPTION

INSPECTION DATE	29/06/2023.
CURRENT USE	The site currently consists of a farmyard containing a workshop building and stables in the southern part, an open barn in the central section and another recently demolished open barn in the northern section. Concrete hardstanding is present across the entire site (including the recently demolished barn) except for a strip of vegetation along the northern boundary and an area of grass and trees in the south western section.
AREA	Approximately 0.28 hectares.
SHAPE	The main site area is rectangular, but with the stable block extending to the south east and part of the recently demolished barn extending to the north east.
ACCESS	Access is gained via a driveway entering the site from the southern boundary from Toseland Hall.
BOUNDARIES	The south eastern boundary is formed by a breeze block wall adjacent to the stables. The south western boundary is an arbitrary line across an area of trees and grass to the south of the workshop. The western boundary is formed entirely by an approximately 1.2m high breeze block wall beyond an alleyway to the west of the workshop and barns. The northern boundary is currently open to the field to the north, but with a strip of vegetation which was previously behind the barn wall. The eastern boundary is formed by the edge of the adjacent manège, with a wooden fence present along part of the boundary.
TOPOGRAPHY	The site is flat.
SURFACING	The vast majority of the site (including the position of the recently demolished barn) is covered by concrete hardstanding. The only exception is the 1m strip of landscaping along the northern boundary and a section of grass and trees to the south of the workshop in the south western section.

BUILDINGS	There are currently 3No. buildings present on site and an open barn has been recently demolished (but leaving the underlying concrete slab) in the northern part of the site. The workshop building in the south western section is proposed to be converted into a residential dwelling. This currently consists of single storey building constructed of breeze blocks and divided into several large rooms, used for storage of tools and various other items associated with the stables and residential land use. One of the rooms appears to have been previously used as a wood workshop with several large drills, saws and an extractor unit. The roof has a timber frame supporting corrugated asbestos cement sheeting. The adjacent barn to the north of the workshop is used for storing several vehicles, some small tractors, a small excavator, a pile of logs and several other wooden items. The barn is open with a low breeze block wall along the northern and southern edges, and a corrugated metal wall along the western edge. It is timber framed with a corrugated asbestos cement roof. The eastern edge consists of two large wooden swing gates. The stable block in the south eastern section is also of breeze block construction with a timber roof frame. The former asbestos cement roof sheets have been recently removed under the same demolition operation as the northerly barn, leaving an open roof at the current time. There are 6No. separate stables within this building. Based on some photographs within the planning application, the former building in the northern section was of similar construction to the existing barn, consisting of a timber frame, low breeze block walls an asbestos cement roof. At the time of the walkover, the demolition company were demobilising from site and all demolition arisings and materials (timber, metal, breezeblocks and asbestos cement sheets) were being removed from site in large roll on-off skips. The asbestos cement sheets had all been removed intact. The concrete floor slab remained intact and in good condition.
VEGETATION	The only vegetation at the site is an area of semi mature fruit trees and other deciduous trees in the south western corner and some overgrown shrubs along the northern western boundary, behind the slab to the demolished barn. Based on the existing layout drawings, the trees comprise Cherry, Hawthorn, Birch, Ash, Apple, Cherry, Oak and Apple.
NOTABLE FEATURES AND OBSERVATIONS	Immediately adjacent to the workshop building on the north easterly façade, is an above ground fuel tank and filling point that is used for refuelling the site agricultural plant. Discussions with the current owner confirmed that it had been present for around 5 years since they had it installed. The tank is of modern double skinned metal construction and is located directly on the concrete slab. Between the workshop building and the barn is a small section of yard used for storage of various reclaimed building materials. Another above ground metal fuel tank was being stored in this area. The tank was empty and was only being stored in this location. A telescopic handler vehicle was also present in this area. Across the wider farmyard, a tractor and various trailers and other tractor attachments were stored. During the walkover there was no evidence of any significant spills or leaks with no significant staining noted around either fuel tank or the plant.

	There is continuous concrete hardstanding across the entire farmyard area, including the buildings. This was all typically in good condition, except for a small section on the in the eastern section which is heavily trafficked and the concrete had broken. There is no drainage installed across the yard, but there are a few manholes north and south of the workshop which presumably relate to foul drainage. The workshop and adjacent barn both have asbestos cement roofs. Similar roofs have also been recently removed from the two other buildings (stables and barn). The remaining asbestos cement sheets are typically in good condition, with only occasional minor breakages observed around the edge. On the southern walls of workshop buildings are two exposed trial holes which had been previously excavated to expose the existing foundations. The easterly hole recorded Made Ground Topsoil to a depth of around 0.2m and this was noted to contain some brick and flint gravel. Beneath, brown clay soils were evident. The westerly hole had been broken through a 100m thick concrete slab with the same brown clay soils evident beneath.

SURROUNDING LAND USE	The site is set in a rural area to the west of the small village of Toseland.
TO THE NORTH	Open fields are present to the north of the site.
TO THE EAST	Immediately to the east of the site is a sand covered Manège. Beyond is open fields.
TO THE SOUTH	The house and gardens associated with Toseland Hall are present to the south of the site. Immediately to the south west is an area of trees and immediately to the south east is a small section of field.
TO THE WEST	Open fields are present to the west.

2.3. SITE HISTORY

MAPPED HISTORY		
DATE RANGE	**SITE**	**SURROUNDING AREA**
1887-1958	The site appears to be part of a larger open field. The south western and south eastern sections of the site are part of an orchard. By 1901, the southern part of the site is split between two separate fields.	Just to the south of the site are several buildings associated with Toseland Hall. More buildings are shown than are present at the current time and these appear to comprise a mixture of possible dwellings and outbuildings. Another large outbuilding with a central courtyard is present some 100m to the north west of the site. By 1952 the number of buildings at Toseland Hall has reduced to four, with the outbuilding to the north west having disappeared. Green Farm is present 200m to the east of the site and a smithy is present 120m to the south east.
1977-2023	The site has been developed to its present day layout (prior to recent demolition works) with 4No. agricultural buildings present.	A further reduction in the number of buildings at Toseland Hall is evident by 1977 and by 1999 the current configuration is shown with only the main house and a converted rectangular barn to the north west of the hall. Just off site to the east, in the current manège area, the north westerly barn is shown to extend southwards across the eastern half of the Manège, but this is no longer evident after the 2006 map. Wayside Farm is shown 150m to the south east of the site and the nearby smithy is no longer shown.

AERIAL IMAGERY	Google Earth imagery from 1999 to 2006 appears to show the site as an active farmyard with the concrete yard area extending across the area of the manège and an additional barn beyond. The current workshop building in the south western section has a separate walled area of garden or animal pen where the trees are currently present. Piles of manure or hay are present around the farmyard as well as various pieces of small plant. By 2006, the walled area is no longer evident in the south western section and trees are growing. The manège has now been constructed just to the east and the additional barn is no longer present.

INTERNET SEARCH	The website https://toselandhall.wordpress.com/ includes a history of Toseland Hall and several photographs from over the years. This confirms that the hall was constructed by 1600. There is photographic evidence of some thatched barns which were present to the south west of the hall, but it is reported that these burned down in the 1970s / 1980s. These barns are the likely additional buildings identified around the hall on the earlier historic maps.
ANECDOTAL	It is noted from the drawings within the planning application and discussions with the owner during the walkover that the barns were previous used as hay and bullock barns. The workshop was originally used as a piggery.

2.4. GEOLOGY

GEOLOGICAL CONTEXT	The site is in an area where the bedrock is dominated by Jurassic mudstones. Extensive superficial glacial Till deposits are also present in the area composed primarily of material originating from the underlying mudstone bedrock.
SUPERFICIAL DEPOSITS	Oadby Member – Glacial Till, typically composed of gravelly clays.
BEDROCK GEOLOGY	Oxford Clay Formation, comprising clays and mudstones.
BGS BOREHOLE RECORDS	There are no nearby publically available British Geological Survey (BGS) borehole records. However, there are two boreholes over 1km to the north with similar geology to the site. These demonstrate that the Oadby Member is relatively thick and extending to 50ft (15m) and the Oxford Clay was proven to a depth of 302ft (92m). No significant groundwater was encountered.
SOIL GEOCHEMISTRY	The site is not situated in an area where the natural background concentrations of metals is elevated.

2.5. RADON

The site is not situated within an area where radon gas protection measures are required in new buildings.

2.6. HYDROGEOLOGY

SUPERFICIAL AQUIFER	Secondary Undifferentiated aquifer.
BEDROCK AQUIFER	Unproductive Strata.
AQUIFER PROPERTIES	The Oadby Member is unlikely to yield significant amounts of groundwater and any groundwater will likely be trapped in discontinuous pockets of sand or gravel within the clay dominated soils.
LICENSED GROUNDWATER ABSTRACTIONS	None within 250m from the site.
GROUNDWATER SOURCE PROTECTION ZONE (SPZ)	The site is not located within a SPZ.

2.7. HYDROLOGY

SITE DRAINAGE CHARACTERISTICS	No significant drainage infrastructure is present at the site. The building roofs do not have guttering and rainwater flows onto the concrete. There are no gullies within the concrete and therefore surface water drainage will likely be just surface run off the edge of the hardstanding into areas of soft cover.
SURFACE WATER FEATURES	The closest surface water feature to the site is a drain located immediately to the west of the site and flowing north. This will eventually flow into the River Great Ouse located 3km to the west of the site. There are also several ponds in the surrounding area including one located just to the south of the site at Toseland Hall.
SURFACE WATER ABSTRACTIONS	None within 250m from the site.
DISCHARGE CONSENTS	None relevant to consideration of the site.
FLOODING	Zone 1 area and is highly unlikely to be affected by flooding.

2.8. ENVIRONMENTAL ASPECTS

LANDFILL	There are no recorded landfill sites within 250m of the site.
CONTEMPORARY TRADE DIRECTORY ENTRIES	There are no nearby contemporary trade entries of relevance to assessment of the site.
REGISTERED HAZARDOUS SITES	None within 250m of the site.
POLLUTION INCIDENTS TO CONTROLLED WATERS	There have been no recorded pollution incidents within 250m of the site.
ECOLOGICALLY SENSITIVE LAND USE	None identified within 250m.

2.9. PREVIOUS GROUND INVESTIGATIONS

BRD is not aware of any previous ground investigation at the site.

3. EXPLORATORY INVESTIGATION

3.1. INTRODUCTION

The site walkover survey allowed the opportunity to undertake some limited ground investigation in the form of some hand dug inspection pits to provide confirmation on the nature of the soils and the presence, if any, of any contamination.

A total of 6No. hand dug inspection pits (ref. HD01-HD06) were completed across the site to depths of up to 0.6m. The hand dug pits focussed primarily on the former piggery / workshop as this is proposed to be converted into residential land use. This also included the location of the above ground fuel tank. Two of the holes were progressed through the concrete hardstanding just to the north of the building, using a handheld hydraulic breaker to break out the concrete.

The potential contamination sources (see Section 4.1) and areas of higher risk (i.e. the proposed garden areas) were primarily targeted. HD01 was located in the concrete area adjacent to the tank, in an area which is proposed as parking spaces for the new dwelling. HD02 was located in the concrete area to the north west of the workshop which is proposed to be a small front garden area. HD03 to HD05 were located to the south of the existing workshop which is proposed to be an area of garden for the new dwelling. HD06 was located in the existing soft area to the north of the farmyard to confirm whether or not any contaminated run-off from the farmyard had impacted the soils.

In terms of the wider farmyard and the proposed/existing barns, this is covered by concrete hardstanding throughout, which is to remain in place for the new development. Therefore, it was not deemed necessary to have to break open more areas of the concrete slab at this stage. HD06 is located just off the hardstanding and this will give the best indication as to whether there is any contamination in this area.

The location of the inspection pits is shown on the Exploratory Point Plan included in Appendix 1. The description of the soils encountered is provided on the exploratory point records included in Appendix 4.

Based on the proposed residential end use and gardens proposed in part of the site, the sampling and analysis plan is more positively biased towards near surface samples from this area, as these represent the soils most likely to be available to future site users. The analysis is more biased towards the Made Ground samples as this stratum represents the soils most likely to be contaminated. Given the site history as a farm, BRD has scheduled a suite of typically occurring contaminants for agricultural land (including fuel tanks) as well as a suite of contaminants in order to specify the proposed water supply pipes for the site. The testing specified is summarised in the following table.

SOIL CHEMICAL TESTING	
The soil samples for contamination and/or chemical geotechnical testing were forwarded to the laboratory of DETS Ltd and the testing suite is detailed below. The UKAS or MCERTS accreditation of the individual test methods is shown on the laboratory test report included in the Appendices.	
SOIL TESTS	**NUMBER OF SAMPLES TESTED**
Arsenic, Cadmium, Chromium, Chromium VI, Copper, Lead, Mercury, Nickel, Selenium, Zinc	5
Speciated Polycyclic Aromatic Hydrocarbons (PAH)	5

Total Petroleum Hydrocarbons (TPH) with full carbon banding and aliphatic/aromatic split	2
Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) plus Methyl Tert Butyl Ether (MTBE)	2
Organic Matter	5
Asbestos Quantification	2
Semi-Volatile Organic Compounds (SVOCs)	1
Organochlorine Pesticides	2

The chemical test results are provided in Appendix 5.

3.2. GROUND CONDITIONS

The concrete hardstanding in the yard area to the north of the workshop was found to be 100mm to 120mm thick in HD01 and HD02. A Made Ground sub-base was then encountered extending to 0.45m in HD01 and 0.35m in HD02. In HD02, the sub-base consisted of a sand containing flint and concrete gravel, however, in HD01 it consisted of 'brown, sandy gravel and cobbles of angular concrete with some ceramic pipe, brick, flint, metal, wood, roof tiles and two fragments of asbestos cement encountered'.

Beneath, clay soils of the Oadby Member were encountered and in HD01 a very slight hydrocarbon odour was noted. In HD01, groundwater was noted to be perched in the Made Ground above the clay with a resting level of 0.30m below ground level (bgl). The groundwater was free from any signs of fuel contamination.

In the proposed garden area to the south of the building, reworked topsoil was encountered to depths of between 0.20m and 0.40m and was thicker to the east. The topsoil typically comprised 'dark brown slightly desiccated very sandy gravelly clay with some rootlets. Gravel of fine to medium angular flint, brick and chalk'. Beneath, soils of the natural Oadby Member were encountered comprising slightly gravelly clays.

Finally, HD06 located at the northern edge of the farmyard also encountered reworked topsoil and this extended to a depth of 0.25m bgl. The topsoil was described as 'dark brown, slightly sandy, slightly gravelly clay. Gravel of fine to coarse, sub-rounded to angular flint, occasional brick, charcoal and plastic'. The Oadby Member clays were present beneath.

3.3. CHEMICAL TESTING

The results of the chemical testing have been compared to Generic Assessment Criteria (GAC) for different receptor groups appropriate to the proposed development.

3.3.1. Human Health Assessment

The GAC employed below are for residential land use as this is the most sensitive land use to be adopted at the proposed development, and the testing focussed primarily on this area of the site. The following table summarises the chemical results in comparison to the GAC.

CONTAMINANT	UNITS	NUMBER OF TESTS	MAXIMUM CONCENTRATION	GAC	NUMBER EXCEEDING GAC
Arsenic	mg/kg	5	14	37	0
Cadmium	mg/kg	5	0.3	22	0
Chromium (total)	mg/kg	5	19	910	0
Chromium (hexavalent)	mg/kg	5	<2	21	0
Copper	mg/kg	5	21	2,400	0
Lead	mg/kg	5	33	200	0
Mercury	mg/kg	5	<1	11	0
Nickel	mg/kg	5	16	180	0
Selenium	mg/kg	5	<2	250	0
Zinc	mg/kg	5	123	3,700	0
pH	Units	5	7.7-9.7	<5-10>	0
Naphthalene	mg/kg	5	<0.1	2.3	0
Acenaphthylene	mg/kg	5	<0.1	170	0
Acenaphthene	mg/kg	5	<0.1	210	0
Fluorene	mg/kg	5	<0.1	170	0
Phenanthrene	mg/kg	5	<0.1	95	0
Anthracene	mg/kg	5	<0.1	2,400	0
Fluoranthene	mg/kg	5	0.27	280	0
Pyrene	mg/kg	5	0.29	620	0
Benzo(a)anthracene	mg/kg	5	0.18	7.2	0
Chrysene	mg/kg	5	0.13	15	0
Benzo(b)fluoranthene	mg/kg	5	0.18	2.6	0
Benzo(k)fluoranthene	mg/kg	5	<0.1	77	0
Benzo(a)pyrene	mg/kg	5	0.13	2.2	0
Indeno(1,2,3-cd)pyrene	mg/kg	5	<0.1	27	0
Dibenzo(a,h)anthracene	mg/kg	5	<0.1	0.24	0
Benzo(ghi)perylene	mg/kg	5	<0.1	320	0
TPH Aliphatic C5-C6	mg/kg	2	<0.01	42	0
TPH Aliphatic C6-C8	mg/kg	2	<0.05	100	0
TPH Aliphatic C8-C10	mg/kg	2	<2	27	0
TPH Aliphatic C10-C12	mg/kg	2	<2	130	0
TPH Aliphatic C12-C16	mg/kg	2	<3	1,100	0
TPH Aliphatic C16-C35	mg/kg	2	<10	65,000	0
TPH Aliphatic C35-C44	mg/kg	2	<10	65,000	0
TPH Aromatic C5-C7	mg/kg	2	<0.01	70	0
TPH Aromatic C7-C8	mg/kg	2	<0.05	130	0
TPH Aromatic C8-C10	mg/kg	2	<2	34	0
TPH Aromatic C10-C12	mg/kg	2	<2	74	0
TPH Aromatic C12-C16	mg/kg	2	<2	140	0

CONTAMINANT	UNITS	NUMBER OF TESTS	MAXIMUM CONCENTRATION	GAC	NUMBER EXCEEDING GAC
TPH Aromatic C16-C21	mg/kg	2	<3	260	0
TPH Aromatic C21-C35	mg/kg	2	<10	1,100	0
TPH Aromatic C35-C44	mg/kg	2	<10	1,100	0
Benzene	mg/kg	2	<0.002	0.87	0
Toluene	mg/kg	2	<0.005	130	0
Ethylbenzene	mg/kg	2	<0.002	47	0
Xylene (total of all types)	mg/kg	2	<0.002	56	0
Methyl Tert Butyl Ether (MTBE)	mg/kg	2	<0.005	49	0
Semi-Volatile Organic Compounds (SVOCs)	mg/kg	1	<0.15	LOD*	0
Organochlorine Pesticides	mg/kg	2	<0.02	LOD*	0
Asbestos Quantification	%	2	<0.001	LOD	0
Hydrocarbon Vapour (PID)	ppm	11	0.0	50	0
Notes: *Limit of detection: Given the large amount of compounds in this group, coupled with the lack of GAC for certain compounds, any concentrations above the limit of detection will be highlighted in the first instance.					

None of the samples recorded contaminant concentrations above their respective GAC. This would therefore demonstrate the following:

- that the reworked topsoil in the proposed garden area is suitable to remain in place,
- there is no evidence of any hydrocarbon vapour contamination with all samples recording PID readings of 0.0ppm.
- there is a lack of significant fuel contamination from the on site above ground fuel tank (despite the slight odour detected in the underlying soils), and
- although some asbestos cement fragments were recorded in the subbase in HD01, the soil matrix is free from any significant concentrations of asbestos fibres.

Therefore, the only human health contamination issue identified relates to the presence of some asbestos cement fragments identified within the granular sub-base material present beneath the hardstanding in HD01.

3.3.2. Water Environment

It is not appropriate to consider human health assessment criteria for human health in relation to the risk to the water environment, but currently there are no generic soil assessment criteria in respect of the water environment. In the absence of any groundwater sampling data, the soil results are assessed on the basis of professional judgement.

The contaminant concentrations recorded in the soils at the site are not considered to be at such levels that they would present any significant risk to the underlying water environment.

3.3.3. Building Materials

The GAC employed below relate to sulphate classification in respect of new below ground concrete and also threshold values that are protective of new water supply pipes.

CONTAMINANT	UNITS	NUMBER OF TESTS	MAXIMUM CONCENTRATION	GAC	NUMBER EXCEEDING GAC
pH	units	6	7.7-9.7	<5.5	0
Sulphate (w/s)	mg/l	6	102	500	0
Sum of SVOC + Aliphatic TPH >C5-C10 + Aromatic TPH >C5-C10 above detection limits	mg/kg	2	<2	2	0
Sum of Aliphatic TPH >C10-C21 + Aromatic TPH >C10-C21 above detection limits	mg/kg	2	<10	10	0
Sum of Aliphatic TPH >C21-C34 + Aromatic TPH >C10-C35 above detection limits	mg/kg	2	<10	500	0
Sum of BTEX + MTBE above detection limits	mg/kg	2	<0.005	0.1	0
Phenols	mg/kg	1	<0.1	2	0
Cresols and chlorinated phenols	mg/kg	1	<0.1	2	0
Naphthalene	mg/kg	6	<0.1	0.5	0
Benzo(a)pyrene	mg/kg	6	0.13	0.5	0

None of the samples record any contaminants at concentrations exceeding their respective assessment criteria in relation to buried building materials and services.

3.4. SUMMARY

The exploratory investigation has demonstrated that the soil present around the proposed residential part of the site development are generally suitable for use. This includes the topsoil to the south of the building (proposed rear garden) and the subsoils to the north west of the building (proposed front garden). The only exception is that in the area to the north east of the building, proposed to be used as parking and hardstanding, some occasional asbestos cement fragments were encountered in the underlying sub-base, albeit that the soil matrix contained no loose fibres.

Elsewhere, to the north of the farmyard, there was no evidence of any contamination in the soils just off the concrete hardstanding to the north of the farmyard. As discussed, the concrete hardstanding will remain in place for the construction of a new barn in the northern part of the site.

4. PRELIMINARY CONTAMINATION RISK ASSESSMENT

4.1. HAZARD IDENTIFICATION

POTENTIAL ON SITE SOURCES		
HISTORIC LAND USE	**DESCRIPTION OF POTENTIAL CONTAMINATION HAZARD**	**POTENTIAL CONTAMINANTS OF CONCERN**
Farmyard and workshop.	The site has been a farmyard since the 1970s originally consisting of two hay and livestock barns, a piggery and some stables. The piggery has since been used as a workshop and the other barns have been used for storing cars and tractors. There is potential that a variety of chemicals could have been used / stored at the site in support of agricultural operations. Fuels and oils from plant could have been spilled. In the workshop, paints, resins, glues and preservatives etc could have been used and stored, albeit in small quantities. Made Ground could also be present beneath the concrete hardstanding and this could contain hazardous materials, such as asbestos containing materials.	Metals Petroleum hydrocarbons (diesel, lubricating oils, greases and/or petrol). Asbestos containing materials (e.g. cement asbestos building products). Solvents. Metals. Herbicides. Pesticides.
Above ground fuel tank.	An above ground fuel tank is present adjacent to the existing workshop. There is potential that spills of fuel could have occurred either when refuelling plant or when filling the tank.	Petroleum hydrocarbons (diesel).
Asbestos cement fragments in Made Ground sub-base to the north east of the workshop.	The exploratory investigation has identified some occasional fragments of asbestos cement fragments in the sub-base beneath the concrete hardstanding next to the workshop.	Asbestos containing materials (e.g. cement asbestos building products).

POTENTIAL OFF SITE SOURCES		
HISTORIC LAND USE	**DESCRIPTION OF POTENTIAL CONTAMINATION HAZARD**	**POTENTIAL CONTAMINANTS OF CONCERN**
No significant potential off site contamination sources have been identified in the surrounding area.		

4.2. RECEPTOR ASSESSMENT

CONTEXT	
ASSESSMENT LAND USE CATEGORY	The south western section of the site will be converted to residential land use. The remainder of the site will be in agricultural (commercial) land use.
DESCRIPTION OF PROPOSED LAND USE	It is proposed that the existing workshop in the south west will be converted into a residential dwelling with a parking area to the north east, front garden to the north west and rear garden to the south. Across the remainder of the site, the stables are to be retained, but both of the existing barns will be demolished to make way for a new agricultural machinery barn in the north western corner. The existing hardstanding will be retained across the entire site with the exception of a small front garden area to the proposed dwelling where the existing concrete will be removed.

RECEPTORS	
RECEPTOR	**DISCUSSION**
HUMAN HEALTH	Primarily, residents with zero to 6 year old child being most sensitive receptor for the residential dwelling section. Adult workers / site users will be considered for the proposed farmyard section.
CONTROLLED WATERS GROUNDWATER	Not considered to be a significant receptor as site underlain by very low permeability soils.
CONTROLLED WATERS SURFACE WATER	Nearby drainage ditch.
BUILDING MATERIALS AND SERVICES	Water service pipes. Buried concrete.

4.3. INITIAL CONCEPTUAL MODEL

POLLUTANT LINKAGES	The pollutant linkages are best presented in a diagrammatic form and therefore the initial conceptual site model plan is presented in Appendix 1. The individual pollutant linkages as numbered on the plan are described further in Section 4.4.
INVALID POLLUTANT LINKAGES	Across the proposed farmyard area the existing concrete hardstanding is to be retained. The northern barn building has been demolished but the concrete slab beneath remains in good condition. As there will be concrete hardstanding across the entire farmyard section of the site, it is not considered that there will be any valid pollutant linkages in relation to future site users coming into direct contact with the underlying soils or accidental ingestion of soils in this section of the site. Coupled with this, due to the open-air nature of this section of the development, it is not considered that

	any risk from fuel spills or associated vapours would be significant. Therefore, it is not considered that there are any valid pollutant linkages to human health in the proposed farmyard section of the site.
LIMITATIONS AND UNCERTAINTIES	The preliminary conceptual model has been developed based on desk study research and preliminary soil investigation and testing used to aid the preliminary risk assessment. The only way to conclusively determine the presence or absence of contamination is with a full intrusive site investigation.

4.4. PRELIMINARY ASSESSMENT OF CONTAMINATION RISKS

The following table identifies the potential risks that exist to the receptors through each of the identified pollutant linkages in the conceptual site model. It should be noted that the numbers referred to for each of the pathways refers to the numbered pollutant linkages from the Initial Conceptual Site Model Plan, as presented in Appendix 1.

POTENTIAL SOURCES AND CONTAMINANTS	PATHWAYS (REFERENCE FROM MODEL)	RECEPTORS	HAZARD SEVERITY	PROBABILITY OF OCCURRENCE	POTENTIAL RISK
Farmyard and workshop resulting in soil contamination.	Direct Contact Ingestion of soils / dusts Inhalation of dusts / vapours Uptake via homegrown produce	Future residents (SW section of site)	Human health effects [medium]	The presence of the concrete floor slab across the site will have mitigated any pollutants entering the underlying soils. This is further confirmed by the exploratory investigation which has confirmed a lack of soil contamination in the areas of proposed soft cover. [unlikely]	Negligible
	Horizontal migration of contaminants	Surface Water Environment	Pollution of nearby ditch and waterways [medium]	Based on the nature of the former farmyard, coupled with the lack of any evidence of any significant spills or leaks during the walkover and exploratory investigation, it is considered very unlikely that the site would have an impact on the nearby ditch. [unlikely]	Negligible
	Direct contact	Building materials and services	Minor degradation of subsurface structures	The presence of the concrete floor slab across the site will have mitigated any pollutants entering the underlying soils. This is further confirmed by the exploratory investigation which has confirmed a lack of soil contamination. [unlikely]	Negligible

POTENTIAL SOURCES AND CONTAMINANTS	PATHWAYS (REFERENCE FROM MODEL)	RECEPTORS	HAZARD SEVERITY	PROBABILITY OF OCCURRENCE	POTENTIAL RISK
Above ground fuel tank.	Direct Contact Ingestion of soils / dusts Inhalation of dusts / vapours Uptake via homegrown produce	Future residents (SW section of site)	Human health effects [medium]	The exploratory investigation and sampling adjacent to the tank has confirmed a lack of any significant contamination from the above ground tank entering the soils. [unlikely]	Negligible
	Horizontal migration of contaminants	Surface Water Environment	Pollution of nearby ditch and waterways [medium]		Negligible
	Direct contact	Building materials and services	Minor degradation of subsurface structures		Negligible
Asbestos cement fragments in Made Ground sub-base to the north east of the workshop.	Ingestion of dusts	Future residents (SW section of site)	Human health effects [medium]	The exploratory investigation identified occasional fragments of asbestos cement in the sub-base in this location but no associated fibres in the soil. This area is proposed to comprise a hardstanding driveway to the dwelling and therefore future residents will not come into contact with these soils. [unlikely]	Negligible

4.5. CONCLUSIONS & RECOMMENDATIONS

4.5.1. Conclusions

The desk study and exploratory investigation have shown that there are no significant contamination risks to the future site users, whether they be the future residents in the new dwelling or the site workers/users in the yard area. The testing of the proposed garden areas around the residential dwelling has shown the underlying soils to be uncontaminated. Some occasional asbestos cement fragments were identified in the sub-base below proposed parking area, but as such, these do not present a risk to the future site users as they will remain beneath permanent hardstanding.

Given the lack of any plausible pollutant linkages following the preliminary risk assessment, no significant potential contamination risks have been identified. Accordingly, no further Phase 2 Contamination Assessment involving intrusive ground investigation is deemed necessary for the proposed development.

A confirmatory watching brief is proposed during the formation of the front garden area to provide assurance that there are no further asbestos fragments in this area, however, there is no

requirement for any further investigation in this regard. Likewise some construction controls are proposed to ensure that any construction works are appropriately managed. The details of the watching brief and the construction controls are presented below and make up the requirements of the Remediation Scheme required by Condition 18, part B, of the planning permission.

4.5.2. Proposed Remediation Scheme

4.5.2.1. Asbestos in sub-base

Whilst no valid pollutant linkages have been identified in the context of the proposed development layout, occasional fragments of asbestos cement have been identified in the sub-base beneath the concrete in one of the holes in the farmyard. It is therefore possible that other fragments could be present beneath the concrete hardstanding across the farmyard.

For typical and ongoing site operations, this should not be an issue as the concrete hardstanding will remain in-situ.

In the location of the proposed front garden to the workshop conversion where the existing concrete will need to be removed, a sandy sub-base was identified and no asbestos cement identified in this location. Elsewhere, the topsoil in the proposed rear garden of the dwelling did not contain any cement bonded asbestos. Therefore, as per the initial conceptual model, future residents or site users will not be exposed to the affected soils.

To be certain that the garden areas of the site are free from asbestos cement fragments, it is proposed that a watching brief is undertaken during the excavation of the front garden section to ensure that there is no residual asbestos cement in this area. As asbestos fragments could be identified and would need to be removed, the person undertaking the watching brief should be qualified in 'Working with non-licensed asbestos' and the protocols outlined in Section 4.6.2 should be followed.

4.5.2.2. Unidentified Contamination

Although no contamination risks have been identified, as with any construction site, if any anomalous material is encountered during the redevelopment then expert environmental advice should be sought. In accordance with Condition 18, part D, the Council should be informed of any such discovery.

4.5.3. Recommendations

It is considered that this report should be submitted to Huntingdonshire District Council to address the requirements of Condition 17, part A, of the planning permission ref. 22/00967/FUL. With the exception of the watching brief described above, there is no requirement for any further Remediation Scheme for the proposed development. Consequently, it is considered that this report also addresses the requirements of Condition 18, part B (Submission of Remediation Scheme).

Written confirmation of the watching brief during the excavation of the front garden section along with confirmation of any unexpected contamination, or lack of, will be submitted to the Council on completion of the groundworks in order to address the requirements of Condition 18, parts C and D.

4.6. CONSTRUCTION CONSIDERATIONS

4.6.1. Asbestos in buildings

In accordance with Health and Safety Executive (HSE) guidance, a 'Refurbishment Demolition Survey' (RDS) should be undertaken to identify whether or not asbestos containing materials are present in the existing structure(s) prior to any demolition or refurbishment. The results of the survey should then be used to plan for the safe management, removal and disposal of asbestos containing materials from the existing buildings and infrastructure should such materials be present.

4.6.2. Health and safety considerations

Based on one of the hand dug pits completed through concrete hardstanding, the sub-base material beneath the concrete across the site could contain occasional asbestos cement fragments. The concrete will largely remain in situ as part of the proposed development, but there will be certain instances where the underlying soils will need to be exposed, such as during any excavations for new foundations for the barn, or trenches for utility services and drainage, etc, at which point construction workers may be exposed to these soils. However, the potential for asbestos to be found in the soils on brownfield sites is standard occurrence and it can be managed through some simple procedures, as set out below.

All below ground operatives would be expected to have asbestos awareness training, so that they can identify any suspected asbestos containing material (ACM) and inform site management so it can be appropriately dealt with. Where extensive below ground work is envisaged, the appropriate contractor should employ at least one worker on site who is qualified in 'Working with non-licensed asbestos'. When suspected cement asbestos fragments are encountered, works in the area should cease and the qualified worker should remove the cement asbestos fragments by hand picking with appropriate controls in place. Bagged collected fragments should be stored securely and eventually disposed of from site as hazardous waste. The controlled hand picking of ACM fragments is consistent with current industry practice and, if done correctly, complies with obligations under The Control of Asbestos Regulations 2012.

Providing that any ACM found within the sub-base is just occasional cement fragments, then the procedures described above will suffice and no other treatment options need to be considered. Should any larger pockets of ACM, in particular materials with a greater risk of fibre release, be encountered then its removal may require more specialist licensed contractors and expert advice should be sought.

In addition to this, measures to protect the health and safety of site workers should be always be implemented including use of appropriate personal protective equipment, education and good hygiene procedures.

REPORT SPECIFIC REFERENCES

- British Geological Survey sheet 187 “Huntingdon” Solid and Drift edition (1:50,000) published 1975.

SUPPORTING INFORMATION

SITE CHARACTERISTICS

The site characteristics are collated from various information sources, including but not limited to Ordnance Survey, British Geological Survey (BGS), Environment Agency (EA) and local authorities.

BRD generally commission the Landmark Information Group to produce an Envirocheck Report for study sites and where employed this is included in the Appendices. It should be noted that some of the data provided in the Envirocheck report is not considered within BRD's interpretation for the site characteristics as it is not relevant. Examples of this are:

- *Nitrate Sensitive Zones and Nitrate Vulnerable Zones are ignored as these are only applicable to agricultural activities relating to the application of manure and fertilisers to land.*
- *River Quality is ignored as at this preliminary stage of risk assessment as all surface water bodies are considered equally sensitive to contamination risks.*

In assessing site characteristics, BRD also consider the area within a surrounding 250m buffer zone extending from the site boundary.

HISTORY

Mapped History

The site history summarises the changes in use or layout of the site over time and is largely developed from a study of available Ordnance Survey maps. It should be noted that changes to the site may have occurred between the editions of the maps employed to assess the history of the site. Historical information of relevance within the 250m surrounding the site is also discussed in a separate section. The historical plans referred to in the text are generally included in an Appendix.

Aerial photography

As a minimum, current and historical aerial images of the site and surrounding areas are studied from the Google Earth program. Where additional historic aerial photographs have been purchased then these are referenced within the technical report.

Internet Searches

A simple search of the internet for relevant material relating to the use or history of the site is made. Information obtained from internet searches has been accepted as fact without validation by BRD except for ensuring the source is reputable. It should be recognised that due to programme and budgetary constraints the search conducted may not have revealed all the information available.

GEOLOGY

The geology of the site is assessed by reference to the relevant British Geological Survey (BGS) 1:50,000 scale sheet in Bedrock and Superficial (historically Solid and Drift) edition. Many of these geological maps are relatively old with superseded terminology and descriptions. BRD therefore employ the BGS Open Geoscience website to determine current nomenclature of strata and to assist in determining geological boundaries against current topographic features. BRD also employ BGS Regional Geology Guides to assist in understanding the geological context of the site.

Ground Stability Hazards

Ground stability hazards caused by mining, ground dissolution, landslide potential, collapsible ground and natural cavities are identified by the Envirocheck database search of records held by The Coal Authority, British Geological Survey and studies completed by Ove Arup and Peter Brett Associates.

The Envirocheck database ground stability hazard entries for compressible ground, running sands and shrinking or swelling clays are not discussed directly. This is because these hazards are very common and are considered within the preliminary geotechnical assessment where necessary.

Radon

Radon is a naturally occurring colourless and odourless gas that is radioactive. It is formed by the radioactive decay of radium which in turn is derived from the radioactive decay of uranium, both of which are minerals that can be found in many soil types. Whilst it is recognised that the air inside every house contains radon, some houses built in certain defined areas of the country might have unacceptably high concentrations and require special precautions to be taken during construction to reduce this risk.

Radon can move through cracks and fissures in the soil into the atmosphere or into buildings via basements and/or underfloor voids. If radon enters the living space of buildings its concentration can potentially increase and provide a risk to human health as the inhalation of the radioactive decay products of radon gas can increase the risk of developing lung cancer.

The maps contained within 'Radon: Guidance on protective measures for new buildings' (2015) identify areas where no radon protection measures are necessary or where higher concentrations are present that either basic or full radon protection measures are required to be fitted to all new buildings together with supplementary advice concerning extensions, conversions and refurbishments. However, some local authorities have local bylaws, that BRD may not be aware of, that insist on radon protection to all new dwellings within their area regardless of the recommendations of the 'Radon: Guidance on protective measures for new buildings' (2015) report.

Basic radon protection measures comprise incorporation of a continuous gas resistant membrane sealed at joints and around service entries into the floor construction and extended across the cavity tray.

Full radon protection measures comprise incorporating a continuous gas resistant membrane into the floor construction together with a ventilated sub-floor void through either the use of suspended floor construction or a 'radon sump'. The membrane is sealed at joints and around service entries into the floor and extended across the cavity tray.

'Radon: Guidance on protective measures for new buildings' (2015) should be referred to for detail on the construction of the protective measures.

HYDROGEOLOGY

Aquifer Designations

The Environment Agency's Groundwater Protection Policy uses designations that reflect the importance of aquifers in terms of groundwater as a drinking water resource, but also their role in supporting surface water flows and wetland ecosystems.

In defining groundwater vulnerability, both the superficial (drift) deposits and bedrock (solid) geology are considered separately with the following aquifer designations:

- *Principal Aquifers: These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.*
- *Secondary Aquifers: These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:*
    - *Secondary A - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.*
    - *Secondary B - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.*
- *Secondary Undifferentiated - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type.*
- *Unproductive Strata: These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.*

Source Protection Zones

The Environment Agency (EA) has defined Source Protection Zones for groundwater sources, such as boreholes and springs, that are used for public water supply. The EA uses the zones to target pollution prevention measures and monitor the activities of potential polluters within the affected area. There are three types Source Protection Zone:

- *Zone 1(Inner Protection Zone) is the most sensitive area within which pollution could reach the borehole within 50 days. Alternatively it is defined by a minimum 50m radius around the borehole.*
- *Zone 2 (Outer Protection Zone) are defined by the area within which pollution could reach the borehole within 400 days or 25% of the total catchment area.*
- *Zone 3 (Total Catchment) are defined by the total area required to support the removal of water from the borehole.*

HYDROLOGY

Flooding

The Environment Agency has zoned England and Wales in respect of the risk from flooding from 'highly unlikely' in Zone 1 to 'likely' in Zone 3. The zones ignore the presence of flood defences or certain other manmade structures and channel improvements.

National Planning Policy Framework, Department for Communities and Local Government, dated March 2012 states "A site-specific flood risk assessment is required for proposals of 1 hectare or greater in Flood Zone 1; all proposals for new development (including minor development and change of use) in Flood Zones 2 and 3, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the Environment Agency); and where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding".

ENVIRONMENTAL ASPECTS

Landfill

The database of the Environment Agency of active and historic landfills is searched for all sites. Sometimes additional historic landfill data is available from the British Geological Society and local authorities to identify nearby landfill sites. It should be noted that landfill sites that closed prior to 1974 and unlicensed disposal activities will not necessarily be revealed by this search.

Pollution Incidents

The Environment Agency ceased recording 'Pollution Incidents to Controlled Waters' in 2000, when they commenced the replacement 'Substantiated Pollution Incident Register'. BRD do not consider any 'Category 3 – Minor Incident' on the 'Pollution Incidents to Controlled Waters' database as relevant to assessing the site due to the time elapsed and the low level of impact that occurred. Again due to the time elapsed and the fact that remedial measures would have been undertaken at the time, 'Category 1 – Major Incident' and 'Category 2 – Significant Incident' are only considered relevant if the impacted controlled water was on or immediately adjacent to the site.

On the 'Substantiated Pollution Incident Register', BRD approach to this information in the following manner:

- *Pollution incidents impacting 'air' only are not considered relevant.*
- *Pollution incidents to 'water' are only considered where the surface water impacted is either on, flows through or is immediately adjacent to the site.*
- *Pollution incidents to 'land' are only considered where these are on or immediately adjacent to the site unless there are grounds to consider that the incident had the potential to impact groundwater that may have migrated beneath the site.*
- *Category 4 potential pollutant incidents are recorded, but upon investigation were found to have had no impact and accordingly are not considered relevant.*

Ecologically Sensitive Land Use

The land uses that are identified as ecologically sensitive are those identified as Sites of Special Scientific Interest (SSSI), Special Areas of Conservation, Special Protection Areas, Ramsar sites, Natural Parks, Natural Nature Reserves, Marine Nature Reserves, Local Nature Reserves, Green Belt, Forest Parks, Environmentally Sensitive Areas, or Areas of Outstanding Natural Beauty.

GROUND INVESTIGATION

Exploratory holes are logged by an experienced Geo-Environmental Consultant in general accordance with 'Code of practice for site investigations' BS5930:2015, British Standards Institution, 2015. Soil samples for chemical and geotechnical analysis are taken from the exploratory holes at intervals dictated by the nature of the soils and the objectives of the investigation.

Where stated on the logs of inspection pits, trial pits or boreholes (where insitu testing has not been undertaken), the relative density of coarse (sand and gravel) soils is tentative only. Such assessments of density are on the basis of visual inspection only taking into consideration such factors as drilling rates, stability of pit side walls, appearance and behaviour under excavation.

Where Chalk strata is encountered it is logged and graded in general accordance with CIRIA guidance 'C574 - Engineering in Chalk'. It should be recognised that where percussive drilling methods are employed, the structure of the Chalk is destroyed and therefore the grading stated on such logs is either tentative or absent where it is not possible to assess the grade.

Hand Dug Inspection Pits

Hand tools are used to forward shallow inspection pits as a cost effective method of describing and sampling near surface soils. The technique is also used where exposure of existing footings is required. The depth reached by such techniques is a function of the nature of the ground and generally does not exceed 1.5m

Trial Pits

Mechanically excavated trial pits allow detailed inspection of near surface ground due to the large volume of soil exposed. A wheeled backhoe loader is the usual machine for digging trial pits that are typically 3 to 4.5m deep, 0.5m wide and 3m long.

Vapour Monitoring

Headspace tests and monitoring for Volatile Organic Compounds (VOC) or Semi Volatile Organic Compounds (SVOC) is undertaken using a Photo Ionisation Detector (PID). The MiniRAE models used have a 10.6 eV lamp calibrated for isobutylene. The PID is useful tool to indicate the presence of a wide range of volatile compounds, but only provides semi-quantitative data as different compounds provide a different response and thus the reading is not a true reflection of the actual concentration present.

Low PID readings can be recorded in natural uncontaminated organic soils or even as a result of atmospheric pollution. It is generally accepted by consultants and regulators that recorded values in excess 50 parts per million (ppm) represents the presence of organic compound pollutants and in excess of 100 ppm such contamination may be significant.

The headspace test procedure involves the collection of a sample of suspected contaminated soils and placing within a sample bag. A tight seal to the bag is formed with a similar volume of air trapped to that of the soil and the sample is left for fifteen minutes to allow volatilisation of any contaminants. The bag is then pierced by, and sealed around, the sample probe of the PID and a reading taken.

Borehole well monitoring is undertaken by connecting the PID directly to the gas tap on the monitoring well installation.

Contamination Sampling

BRD schedule contamination testing as appropriate to the ground conditions, available budget, potential contaminants and the proposed development. Samples are collected in single use laboratory supplied containers.

Soil samples are retrieved in plastic containers and/or amber glass jars with a lined plastic cap. Contamination samples are indicated by a 'J' on exploratory hole logs.

Water samples are collected in plastic bottles and/or amber glass jars with a lined plastic cap then placed in cool boxes together with freezer packs. Water samples are indicated by a 'W' on exploratory hole records, but generally such samples are not tested as testing from dedicated monitoring wells is preferred for sample quality reasons.

Samples retrieved from the exploratory holes are dispatched to the laboratory by overnight courier. Where samples cannot be transported directly from site they are temporarily stored in the BRD dedicated sample storage facility which includes refrigeration where necessary. The individual accreditation of the test methods is detailed in the laboratory test report.

CONTAMINATION ASSESSMENT METHODOLOGY

UK Policy

The UK Government's policy in relation to land affected by historic contamination is based on a 'suitable for use' approach. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Contamination risks therefore need to be assessed on a site-by-site basis. The 'suitable for use' approach limits requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to either the current use or future use of the land.

The three main drivers for contamination assessment and remediation are:

- *Voluntary action.*
- *Development as part of the planning regime.*
- *Regulatory action to mitigate unacceptable risks e.g. Part 2A of the Environmental Protection Act 1990.*

Pollutant Linkages

For a contamination risk to exist there must be a 'pollutant linkage' from the contaminant (source) via a pathway (the route from contaminant to receptor) to a receptor (the entity that could be harmed). The absence of a contaminant, pathway or receptor breaks the pollutant linkage and therefore no contamination risk exists.

Contamination is typically present at a site (in the ground and/or in the underlying groundwater) as a result of a historic or current industrial use, usually as a result of leaks, spills or disposal of residues, wastes and excess raw materials from the industrial processes. Contamination may also be present due to:

- *The deliberate application of chemicals e.g. the spraying of herbicide/pesticide.*
- *Migration of pollutants from adjacent land.*
- *Naturally occurring processes e.g. elevated concentrations of particular heavy metals associated with specific geological strata.*

Conceptual Site Model

The conceptual site model can be defined as a textual or graphical representation of the identified pollutant linkages for a given site. The model forms the basis for designing the investigation as the aim will be to target all of the potential pollutant linkages to determine, through the subsequent phases of risk assessment, whether or not they pose an actual risk.

It is important that the conceptual site model is updated with new information as the various investigation, risk assessment and remediation works are completed.

Technical Guidance

The technical and legal framework for contamination assessment is complex. The process adopted through this report for assessing contamination risks is in general accordance with the following guidance, as listed below:

- *'Investigation of Potentially Contaminated Sites - Code of Practice - BS 10175: 2011', BSi, 2011.*
- *Land Contamination Risk Management, Environment Agency, 2021.*
- *'Guidance for the safe development of housing on land affected by contamination - R&D66: 2008', NHBC/Environment Agency, 2008.*

Risk Assessment Methodology

In line with the technical guidance, the contamination risk assessment follows a series of phased stages for each particular site:

PHASE	DESCRIPTION	RISK ASSESSMENT STAGE
PHASE1	Generally limited to desk based research and a site walkover survey to develop an initial conceptual site model and identify what risks, if any, are likely to be presented by the site.	Hazard Identification and Assessment A preliminary stage of risk assessment concerned with identifying and characterising the hazards that may be associated with a particular site and identifying potential pollutant linkages.
PHASE 2	This phase is concerned with establishing whether contamination is present, usually through intrusive ground investigation, and then evaluating the degree and magnitude of the associated risks.	Risk Estimation A stage concerned with estimating the likelihood that receptors will suffer adverse effects if they come into contact with, or are otherwise affected by, a hazardous substance or agent under defined conditions. Risk Evaluation A stage of risk assessment concerned with evaluating the acceptability of estimated risks, taking into account the nature and scale of the risk estimates, any uncertainties associated with the assessment and the broad costs and benefits of taking action to mitigate risks.
PHASE 3	The appraisal and selection of remediation techniques, their implementation and verification.	Risk Management The process whereby decisions are made to accept a known or assessed risk and/or the implementation of action to reduce the consequences or probabilities of occurrence.

Risk Classification

The objective of risk assessment is to identify the nature and magnitude of the potential risks and should be based on a consideration of both:

- *The likelihood/probability of an event [taking into account both the presence of the hazard and receptor and the integrity of the pathway].*
- *The severity of the potential consequence [taking into account both the potential severity of the hazard and the sensitivity of the receptor].*

There is a need for a logical, transparent and repeatable system in defining the categories of severity of consequence and likelihood as well as for the risk itself and therefore the following risk rating matrix is employed:

		SEVERITY OF CONSEQUENCE			
		SEVERE	***MEDIUM***	***MILD***	***MINOR***
PROBABILITY	***HIGH LIKELIHOOD***	*Very High Risk*	*High Risk*	*Moderate Risk*	*Moderate/Low Risk*
	LIKELY	*High Risk*	*Moderate Risk*	*Moderate/Low Risk*	*Low Risk*
	LOW LIKELIHOOD	*Moderate Risk*	*Moderate/Low Risk*	*Low Risk*	*Negligible Risk*
	UNLIKELY	*Moderate/Low Risk*	*Low Risk*	*Negligible Risk*	*Negligible Risk*

These risk classifications are defined as follows:

- *Very High Risk - There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without appropriate remediation action.*
- *High Risk - Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remediation action.*
- *Moderate Risk - It is possible that without appropriate remediation action harm could arise to a designated receptor. It is relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that such harm would be relatively mild.*
- *Low Risk - It is possible that harm could arise to a designated receptor from an identified hazard. It is likely that, at worst if any harm was realised any effects would be mild.*
- *Negligible Risk - The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.*

This preliminary risk assessment matrix and classification system is based on guidance produced by Department for Environment, Food and Rural Affairs (Defra) and the Environment Agency in connection with contaminated land assessment.

RISK ESTIMATION – SOILS

Introduction to Soil Human Health Generic Assessment Criteria (GAC)

The Environment Agency (EA) and Department of Environment Food and Rural Affairs (DEFRA) had previously issued revised guidance following the consultation about the DEFRA publication "Assessing risks from land contamination – a proportionate approach. Soil Guideline Values: the Way Forward". This resulted in a revised version of the Contaminated Land Exposure Model (CLEA) model (version 1.06) and a few of the previously published Soil Guideline Values (SGVs) were revised.

The main legislative driver for dealing with historical land affected by contamination is Part 2A of the Environmental Protection Act 1990. Revised Statutory Guidance to support Part 2A was published in April 2012. This Guidance introduced a new four-category system for classifying land under Part 2A for cases of a Significant Possibility of Significant Harm to human health,1 where Category 1 includes land where the level of risk is clearly unacceptable and Category 4 includes land where the level of risk posed is acceptably low. The impact assessment for the new Statutory Guidance stated "The new statutory guidance will bring about a situation where the current SGVs/GACs are replaced with more pragmatic (but still strongly precautionary) Category 4 screening levels (C4SLs) which will provide a higher simple test for deciding that land is suitable for use and definitely not contaminated land". The C4SLs are still derived using the CLEA model, but adopt a slightly different approach to toxicological assessment and exposure modelling.

In March 2014, the outcome of "SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination - Final Project Report" (CL:AIRE) was published. Due to slightly ambiguous wording within this report, Lord de Mauley, Parliamentary Under Secretary, DEFRA wrote to all local authorities on 3 September 2014 to confirm that the published C4SLs were final and that they can be used in risk assessment undertaken under the planning regime.

Whilst there are proposals for the industry to develop C4SLs for other contaminants, these have yet to produce any new values. BRD do not believe that C4SLs could be developed by a single organisation with sufficient confidence. BRD has therefore employed other, more conservative guidance based on the CLEA model (detailed below) within this assessment for compounds where C4SLs are not available. However, it should be noted that the results of this investigation may need to be reinterpreted as new C4SLs become available.

Due to the limited number of published C4SL values at this time, the Chartered Institute of Environmental health (CIEH) and Land Quality Management Ltd (LQM) have produced Generic Assessment Criteria (GAC) known as Suitable for Use Levels (S4ULs), for use in contaminated land human health risk assessment. These S4ULs (2014) have been derived for a large number of substances using the current CLEA model and are therefore consistent with current guidance. They also incorporate the revised exposure parameters as adopted by the C4SL programme, but have not adopted the revised toxicological approach adopted by the C4SLs and so remain a more conservative assessment criteria. The substances for which SGVs were previously published have also been revised as new S4ULs in light of the new exposure parameters proposed by the C4SL programme, and therefore effectively replace the existing SGVs.

In addition, in December 2009, other GAC for less common substances were produced by the Environmental Industries Commission (EIC), The Association of Geotechnical and Geoenvironmental Specialists (AGS) and Contaminated Land: Applications in Real Environments (CL:AIRE) using the CLEA model. These are referred to as the EIC/AGS/CLAIRE GAC.

In summary, C4SLs have been used where these are available. For those substances where C4SLs have yet to be issued, then the S4ULs have been adopted or in some cases, the EIC/AGS/CLAIRE GAC. All of the previously produced SGVs have now either been withdrawn, or superseded by the respective C4SLs or S4ULs.

The only exception to this approach is the PAH compound benzo(a)pyrene (BaP) where a C4SL guideline value has been produced, whereas BRD has adopted the S4UL value. The C4SL for BaP relates to its use as a surrogate marker compound representing all of the genotoxic PAH compounds as a mixture, rather than this individual compound. BRD has therefore adopted the compound specific S4UL value as the initial screening value, for consistency with the other PAH compounds before then employing the C4SL is necessary.

It should be noted that unless otherwise stated, all the assessment criteria adopted within this report have been derived based on a sandy loam soil at pH 7 and the values quoted are for a conservative soil organic matter content of 1% where applicable (i.e. organic contaminants).

Human Health - Soil Generic Assessment Criteria

The results of the soils analysis have been compared to generic assessment criteria for the default exposure scenarios comprising either residential land with plant uptake, residential land without plant uptake, or commercial/industrial land use. The criteria values selected are listed in the table below and full details on the source are referred to above. Where applicable, the results have also been assessed with reference to the required statistical tests presented within CLAIRE document "Guidance on comparing soil contamination data with a critical concentration".

ANALYSIS	GENERIC ASSESSMENT CRITERIA (mg/kg unless stated)			SOURCE
	RESIDENTIAL WITH PLANT UPTAKE	RESIDENTIAL WITHOUT PLANT UPTAKE	COMMERCIAL / INDUSTRIAL	
Arsenic	37	40	640	C4SL
Cadmium	22	150	410	
Chromium (total)$	910	910	8,600	S4UL
Chromium VI	21	21	49	C4SL
Lead	200	310	2,330	
Mercury*	11	15	320	S4UL
Selenium	250	430	12,000	
Nickel	180	180	980	
Copper	2400	7,100	68,000	
Zinc	3,700	40,000	730,000	
pH	<5 - 10> units			Professional judgement
Naphthalene	2.3	2.3	190	S4UL
Acenaphthylene	170	2,900	83,000	
Acenaphthene	210	3,000	84,000	
Fluorene	170	2,800	63,000	
Phenanthrene	95	1,300	22,000	
Anthracene	2,400	31,000	520,000	
Fluoranthene	280	1,500	23,000	
Pyrene	620	3,700	54,000	
Benzo(a)anthracene	7.2	11	170	
Chrysene	15	30	350	
Benzo(b)fluoranthene	2.6	3.9	44	
Benzo(k)fluoranthene	77	110	1,200	
Benzo(a)pyrene	2.2	3.2	35	
Indeno(1,2,3-cd)pyrene	27	45	500	
Dibenzo(a,h)anthracene	0.24	0.31	3.5	S4UL
Benzo(ghi)perylene	320	360	3,900	
TPH Aliphatic C5-C6	42	42	3,200	
TPH Aliphatic C6-C8	100	100	7,800	
TPH Aliphatic C8-C10	27	27	2,000	
TPH Aliphatic C10-C12	130	130	9,700	
TPH Aliphatic C12-C16	1,100	1,100	59,000	
TPH Aliphatic C16-C35	65,000	65,000	1,600,000	
TPH Aliphatic C35-C44	65,000	65,000	1,600,000	

ANALYSIS	GENERIC ASSESSMENT CRITERIA (mg/kg unless stated)			SOURCE
	RESIDENTIAL WITH PLANT UPTAKE	RESIDENTIAL WITHOUT PLANT UPTAKE	COMMERCIAL / INDUSTRIAL	
TPH Aromatic C5-C7	70	370	26,000	
TPH Aromatic C7-C8	130	860	56,000	
TPH Aromatic C8-C10	34	47	3,500	
TPH Aromatic C10-C12	74	250	16,000	
TPH Aromatic C12-C16	140	1,800	36,000	
TPH Aromatic C16-C21	260	1,900	28,000	
TPH Aromatic C21-C35	1,100	1,900	28,000	
TPH Aromatic C35-C44	1,100	1,900	28,000	
Benzene	0.87	3.3	98	C4SL
Toluene	130	880	56,000	S4UL
Ethylbenzene	47	83	5,700	
Xylene^	56	79	5,900	
MTBE	49	73	7,900	EIC/AGS/CL:AIRE GAC

Notes:
** The S4UL for methyl mercury has been adopted as the worst case mercury compound as generally there is no desk study evidence to suggest the potential for elemental mercury on the majority of sites.*
^ The lowest S4UL of either p-xylene, o-xylene or m-xylene has been adopted for each land use as a conservative measure.
$ S4UL for Chromium III adopted, as in the absence of Chromium VI it is likely that all of the chromium will be in this form as these are the two most common and stable forms of chromium in the soil environment.

Where no GAC is available, any concentrations exceeding the laboratory limit of detection are identified and discussed in more detail.

Water Environment - Soil Generic Assessment Criteria

There are no UK published Generic Assessment Criteria for soil test results in respect of the risk to the water environment and therefore risk estimation is on the basis of the professional judgement and experience of BRD to employ values that are a reasonable concentration above which concern for water resources is valid.

The Total PAH GAC employed is the sum of the 16No. priority PAH compounds regularly tested for in contaminated land analysis (i.e. US EPA 16PAHs). BRD employ a soil screening based upon the total PAH limit for 'inert waste' of 100mg/kg. The rationale is based on PAHs are recognised to be generally of low solubility and the risk to the water environment is correspondingly low.

In respect of Total Petroleum Hydrocarbons, BRD employ a value of 500 mg/kg as a screening value in comparison to the sum of the component aliphatic and aromatic TPH carbon bands. The employed soil screening value is based upon:

- *In common with some other consultants, the professional judgement and experience of BRD suggests that this value is a reasonable concentration above which concern for water resources is valid. The rationale is based on the fact that lower concentrations of fuel based contaminants are more likely to naturally degrade than migrate any great distance.*

- *BRD is aware of regional Environment Agency groundwater and contaminated land teams historically employing 500 mg/kg as a screening value for considering whether or not TPH could represent a risk to water resources.*

- *The value mirrors the mineral oil Waste Acceptance Criteria limits for what is considered 'inert waste'.*

Should elevated contaminants that pose a potential risk to the water environment be identified then site specific assessment criteria should be developed.

Building Materials and Services – Soil Generic Assessment Criteria

Some hydrocarbon compounds are known to both attack and permeate through certain plastic pipe materials, with the primary concern being the degradation and tainting of water supplies. The UK Water Industry Research (UKWIR) has therefore produced a document 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites' (ref. 10/WM/03/21) that specifies threshold criteria for the adoption of 'standard' polythene (PE) or PVC pipes, protective barrier pipe and ductile iron/steel/copper pipes.

The UKWIR threshold assessment criteria from Table 3.1 of this document for standard PE pipes have been employed. It should be noted that the approach taken by UKWIR is very conservative, and both the document and research are flawed. However, it is these values that are being using to specify water pipe materials and therefore it is appropriate to consider them.

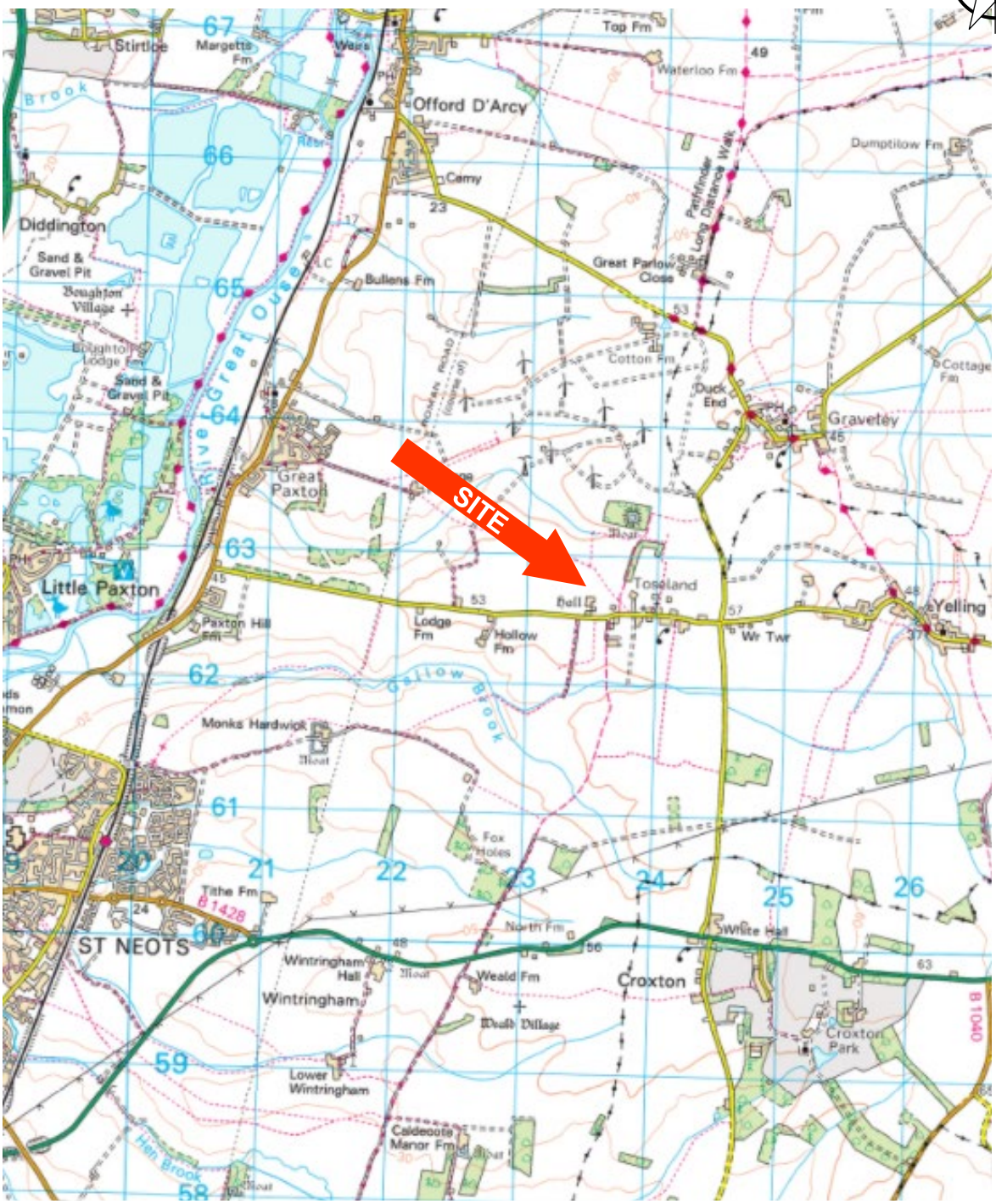
The UKWIR guidance is particularly flawed in respect of the chemical analysis it expects as it seeks a limit of detection that is generally below limits that are reasonable or commonly employed in contaminated land assessment. The UKWIR seeks that where a substance is below the limit of detection it should be taken as being present at half this concentration. For the larger suite of chemicals where the limit is against a sum of compounds, this approach would mean that a sample of virgin sub-soil from a greenfield site with absolutely no contamination would actually fail the criteria for using standard PE pipes. To avoid this situation, BRD have adopted the approach of summing only those compounds detected above their respective limits of detection.

In terms of building materials, the primary concern is in respect of concrete as certain commonly occurring natural ground conditions can adversely impact on buried concrete as discussed in 'Special digest 1:2005 Concrete in aggressive ground', BRE, 2005.

ANALYSIS	***GENERIC ASSESSMENT CRITERIA***	***SOURCE***
pH	*<5.5*	*BRE Special Digest 1:2005*
Sulphate (w/s)	*500 mg/l*	*BRE Special Digest 1:2005*
Sum of any VOC above detection limits	*0.5 mg/kg*	*Relevant compounds adapted from UKWIR Table 3.1*
Sum of SVOC + Aliphatic TPH >C5-C10 + Aromatic TPH >C5-C10 above detection limits	*2 mg/kg*	
Sum of Aliphatic TPH >C10-C21 + Aromatic TPH >C10-C21 above detection limits	*10 mg/kg*	
Sum of Aliphatic TPH >C21-C34 + Aromatic TPH >C10-C35 above detection limits	*500 mg/kg*	
Sum of BTEX + MTBE above detection limits	*0.1 mg/kg*	
Phenols	*2 mg/kg*	
Cresols and chlorinated phenols	*2 mg/kg*	
Naphthalene	*0.5 mg/kg*	
Benzo(a)pyrene	*0.5 mg/kg*	

APPENDIX 1

Site Location Plan



Not to scale.

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Project Title:	Toseland Hall Farm, Toseland
Client:	Toseland Hall Farm
BRD Reference:	BRD4279-OP1-A
Date Issued:	July 2023

BRD
01295 272244
info@brduk.com

Site Walkover Photographs



Plate 1: The access point into the farmyard from Toseland Hall.



Plate 2: The eastern façade of the former workshop / piggery building to be converted to a new residential dwelling.

Project Title:	Toseland Hall Farm, Toseland
Client:	Toseland Hall Farm
BRD Reference:	BRD4279-OP2-A
Date Issued:	July 2023

BRD
01295 272244
info@brduk.com

Site Walkover Photographs



Plate 3: The concrete hardstanding storage area to the north of the workshop with an above ground fuel tank adjacent to the building.



Plate 4: Above ground fuel tank adjacent to the workshop building (as seen in Plate 3).

BRD
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info@brduk.com

Site Walkover Photographs



Plate 5: The western end of the yard area to the north of the workshop.



Plate 6: Inside the eastern half of the workshop.

BRD
01295 272244
info@brduk.com

Site Walkover Photographs



Plate 7: Inside the western half of the workshop.



Plate 8: The existing garden area to the south of the workshop.

BRD
01295 272244
info@brduk.com

Site Walkover Photographs



Plate 9: The stable block in the south eastern section of the site. The asbestos cement roof has been recently removed by the demolition contractor and removed from site.



Plate 10: The existing barn in the central western part of the site.

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01295 272244
info@brduk.com

Site Walkover Photographs



Plate 11: Inside the northern half of the barn.



Plate 12: Inside the southern half of the barn.

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Site Walkover Photographs



Plate 13: View looking south across the northern part of the site following the demolition of the former barn in this location.



Plate 14: View looking north across the location of the recently demolished barn.

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info@brduk.com

Site Walkover Photographs



Plate 15: The north eastern section of the site (where the barn previously extended).



Plate 16: The manege area just to the east of the site.

BRD
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Site Walkover Photographs



Plate 17: The strip of vegetated land part of which forms the northern edge of the site.



Plate 18: Looking south towards the existing barn across the concrete hardstanding to be retained.

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Exploratory Point and Existing Site Layout Plan



Key:

HD Hand Dug Pit

Site Boundary

Reproduced from 'Block Plan, Existing and Proposed Site Plans Including Topographical Survey' Drawing ref. 520 / 01B, Dated April 2022.

Not to scale.

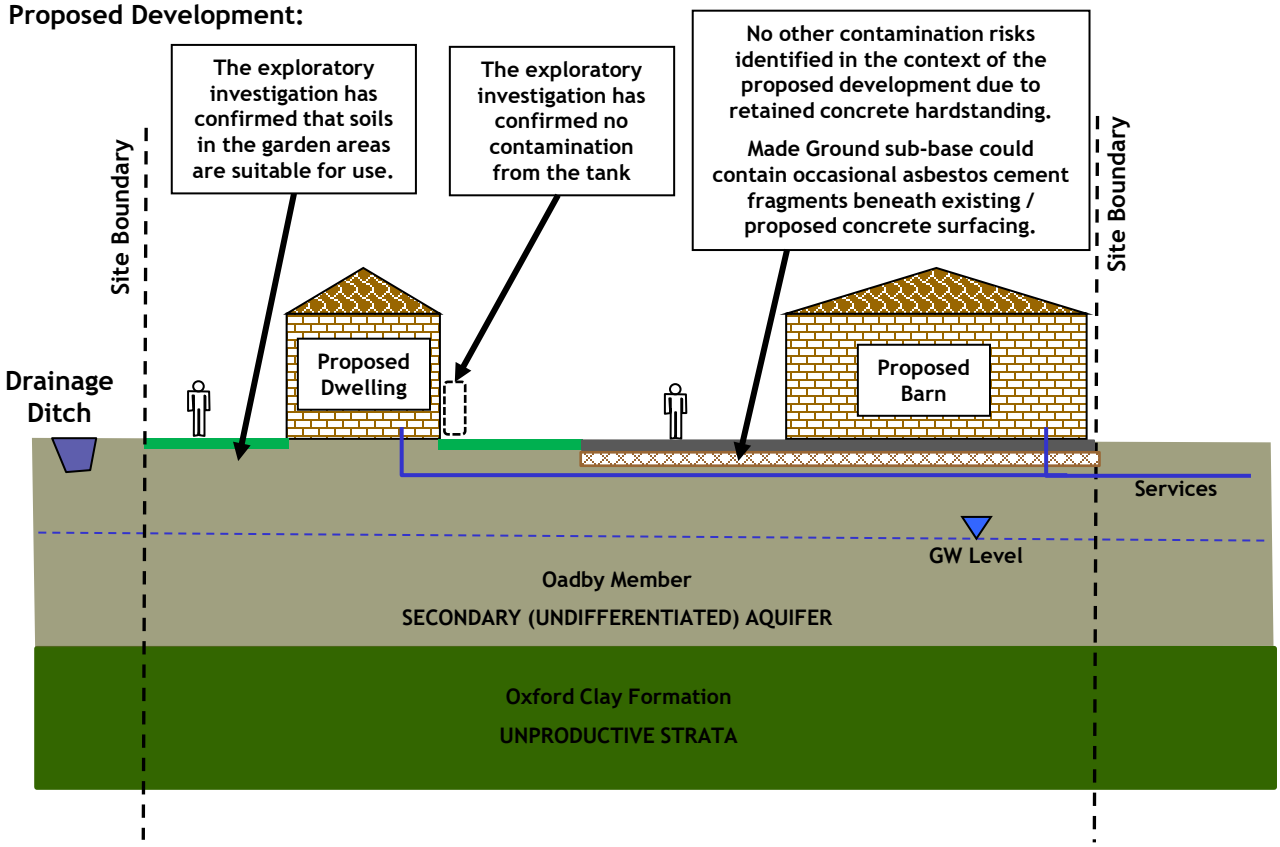
All positions illustrative only.

Project Title:	Toseland Hall Farm, Toseland
Client:	Toseland Hall Farm
BRD Reference:	BRD4279-OP4-A
Date Issued:	July 2023

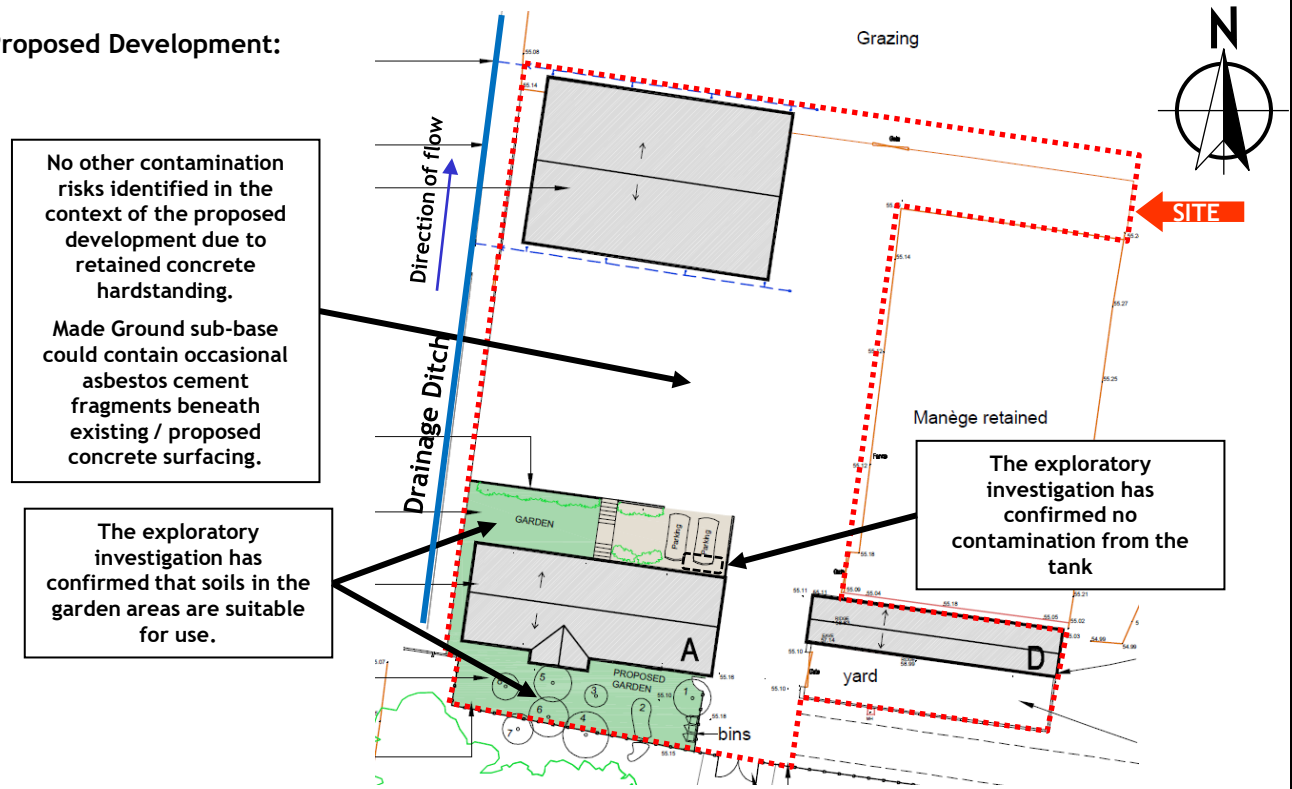
BRD
01295 272244
info@brduk.com

Initial Conceptual Model

Proposed Development:



Proposed Development:



Project Title:	Toseland Hall Farm, Toseland
Client:	Toseland Hall
BRD Reference:	BRD4279-OP5-A
Date Issued:	July 2023

BRD
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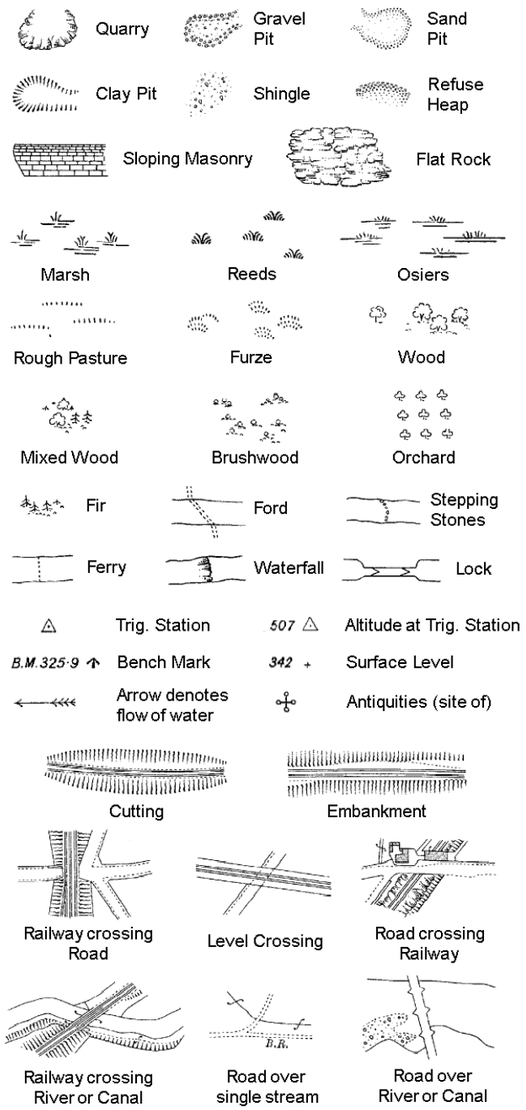
APPENDIX 2

Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

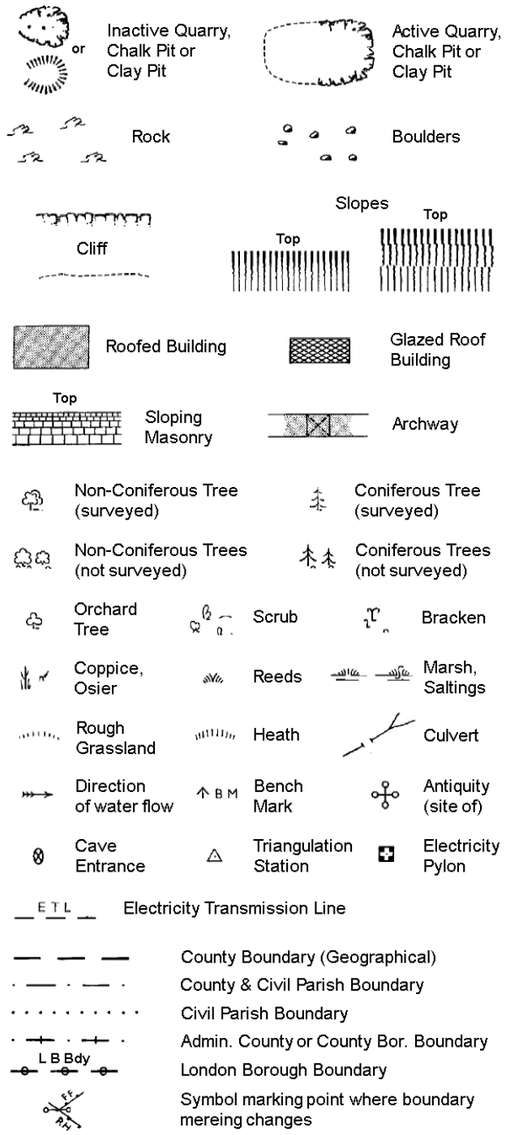
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

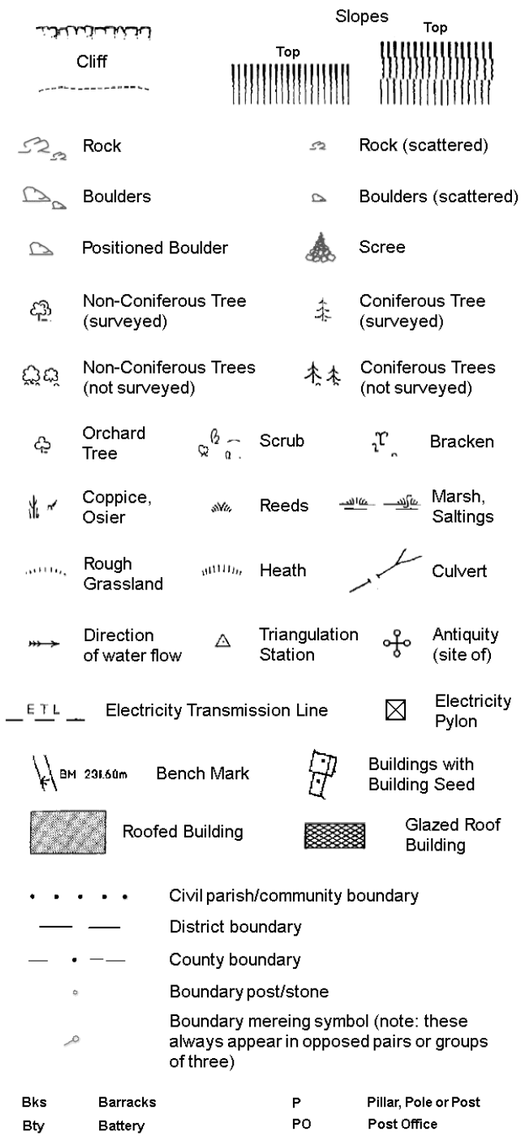
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

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



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

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

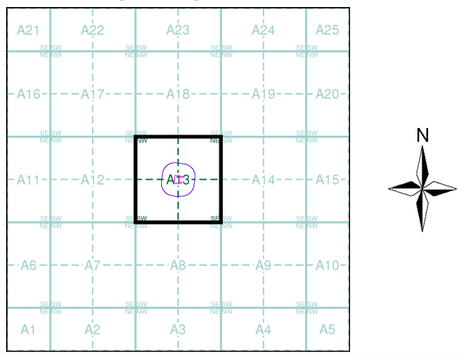
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity 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

BRD

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Huntingdonshire	1:2,500	1887	2
Huntingdonshire	1:2,500	1901	3
Ordnance Survey Plan	1:2,500	1977	4
Large-Scale National Grid Data	1:2,500	1994	5
Historical Aerial Photography	1:2,500	1999	6

Historical Map - Segment A13



Order Details

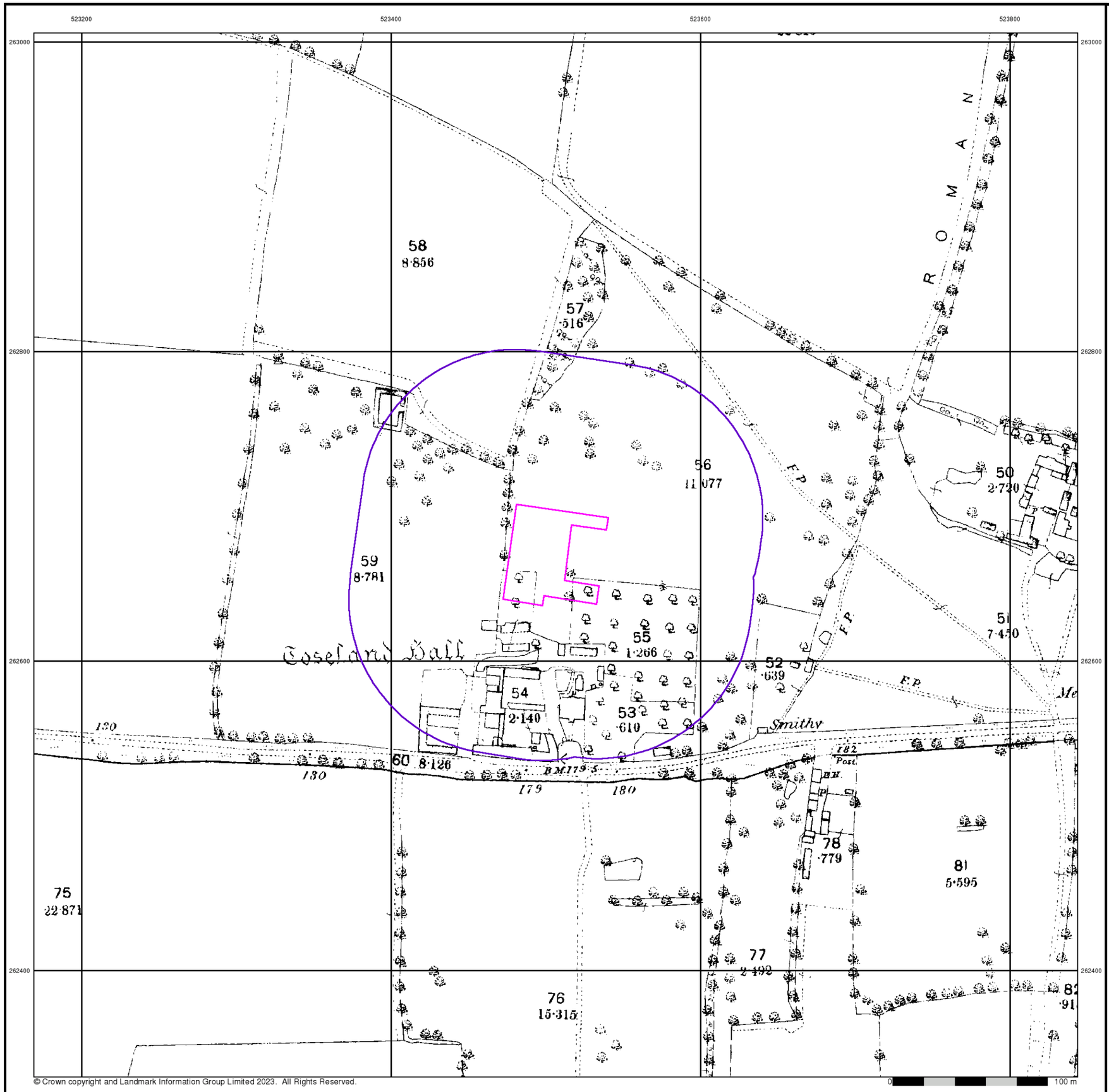
Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	100

Site Details

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

Landmark INFORMATION GROUP

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



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BRD

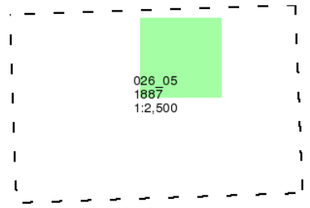
Huntingdonshire

Published 1887

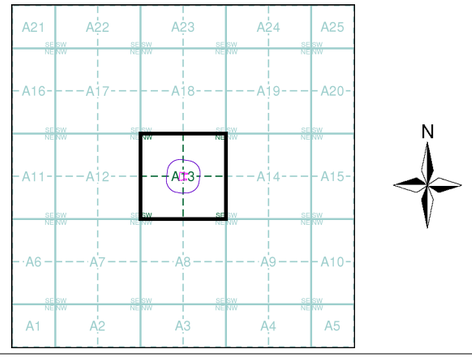
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

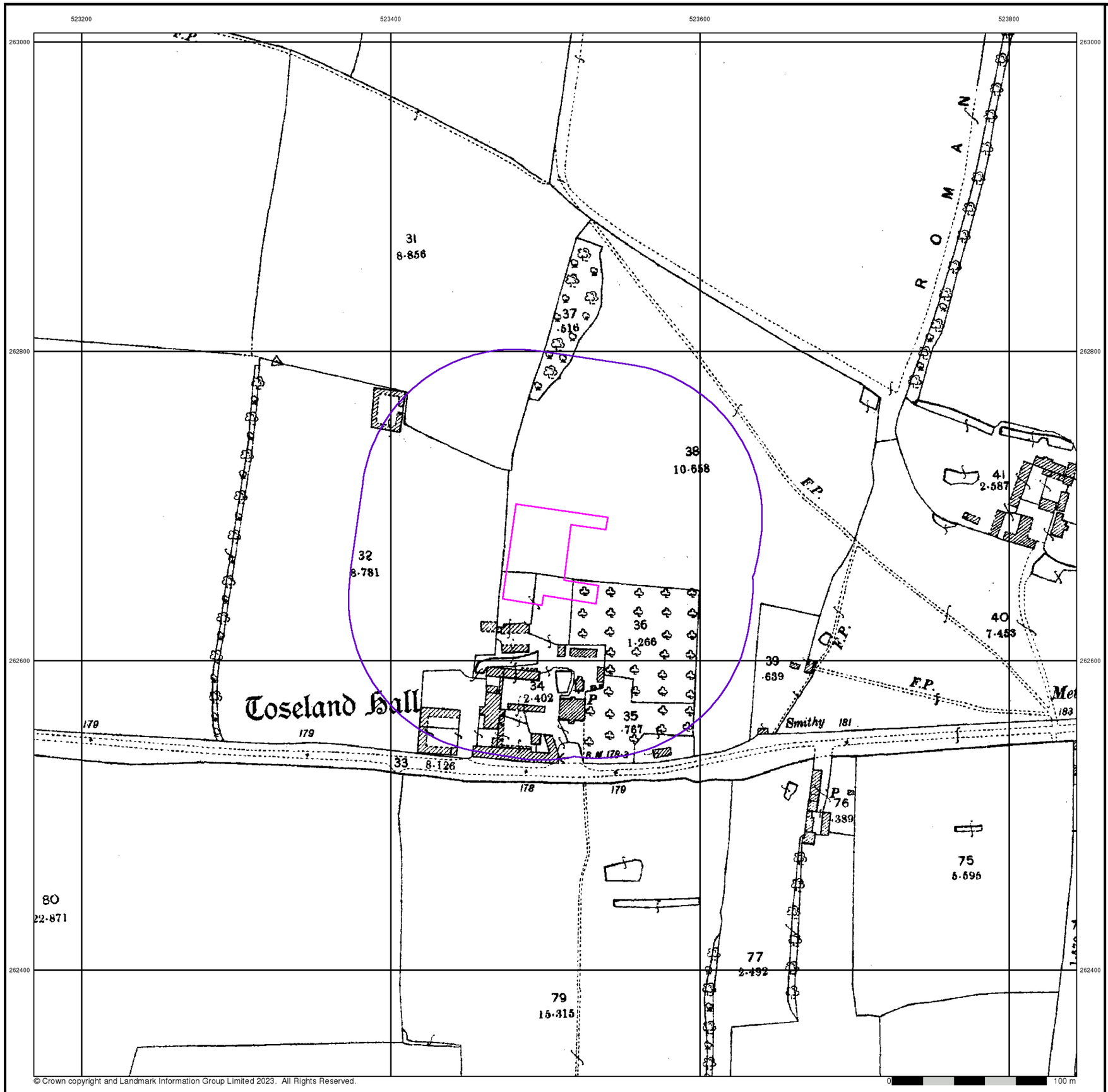


Order Details

Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	100

Site Details

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU



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BRD

Huntingdonshire

Published 1901

Source map scale - 1:2,500

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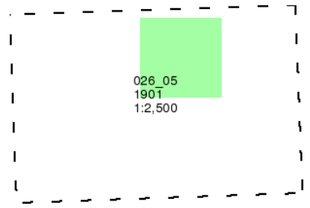
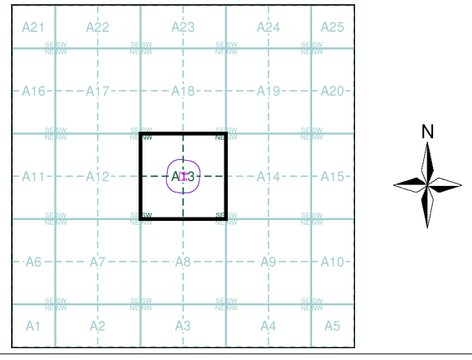


Historical Map - Segment A13



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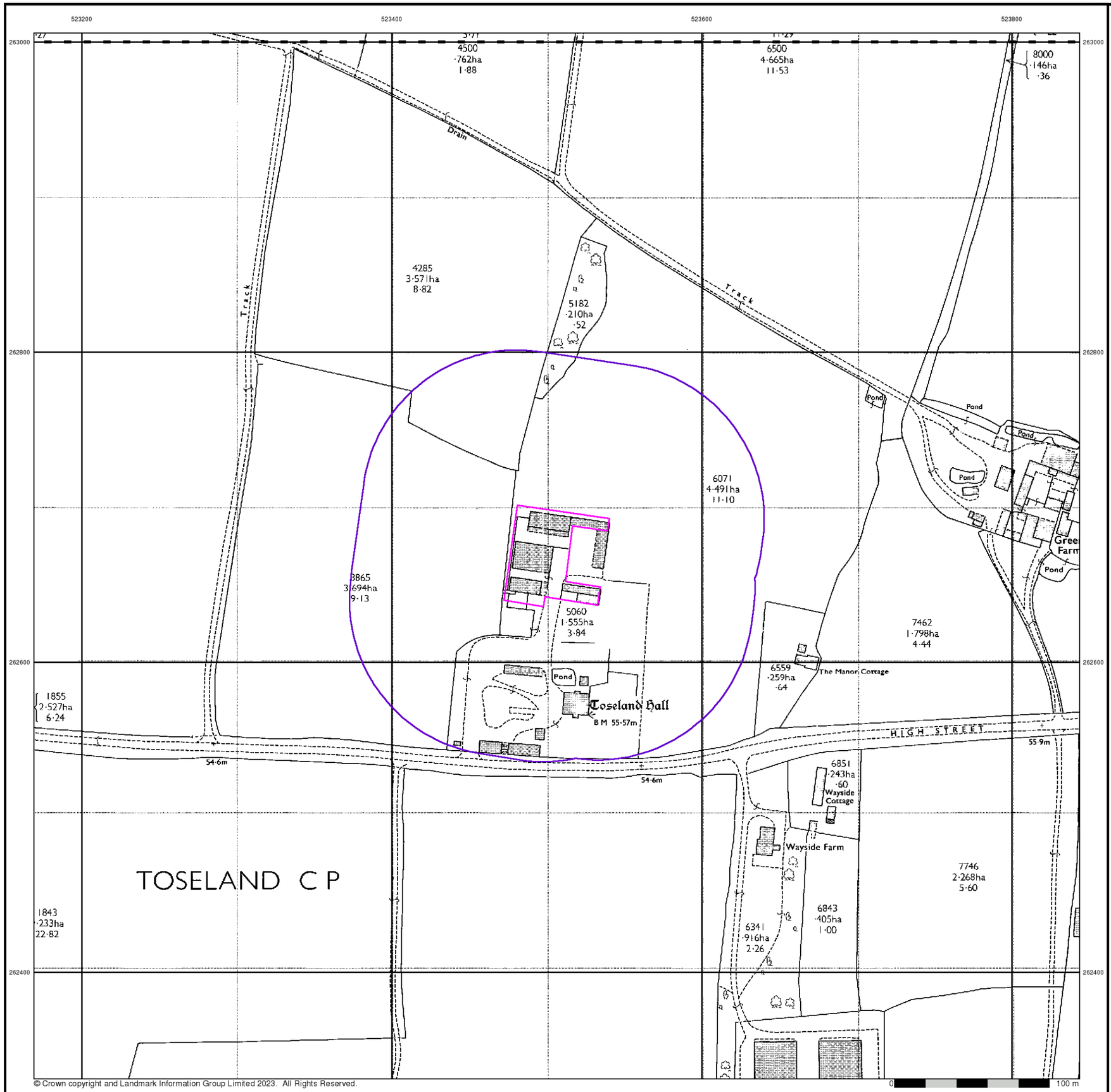

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BRD

Ordnance Survey Plan

Published 1977

Source map scale - 1:2,500

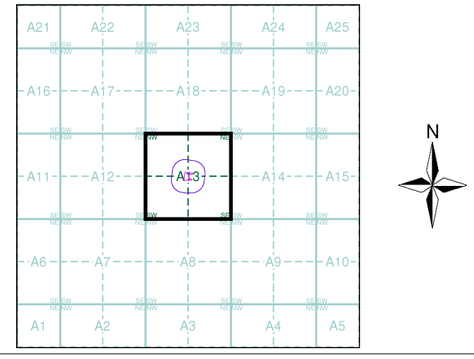
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. 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)

TL2363
1977
1:2,500

TL2362
1977
1:2,500

Historical Map - Segment A13



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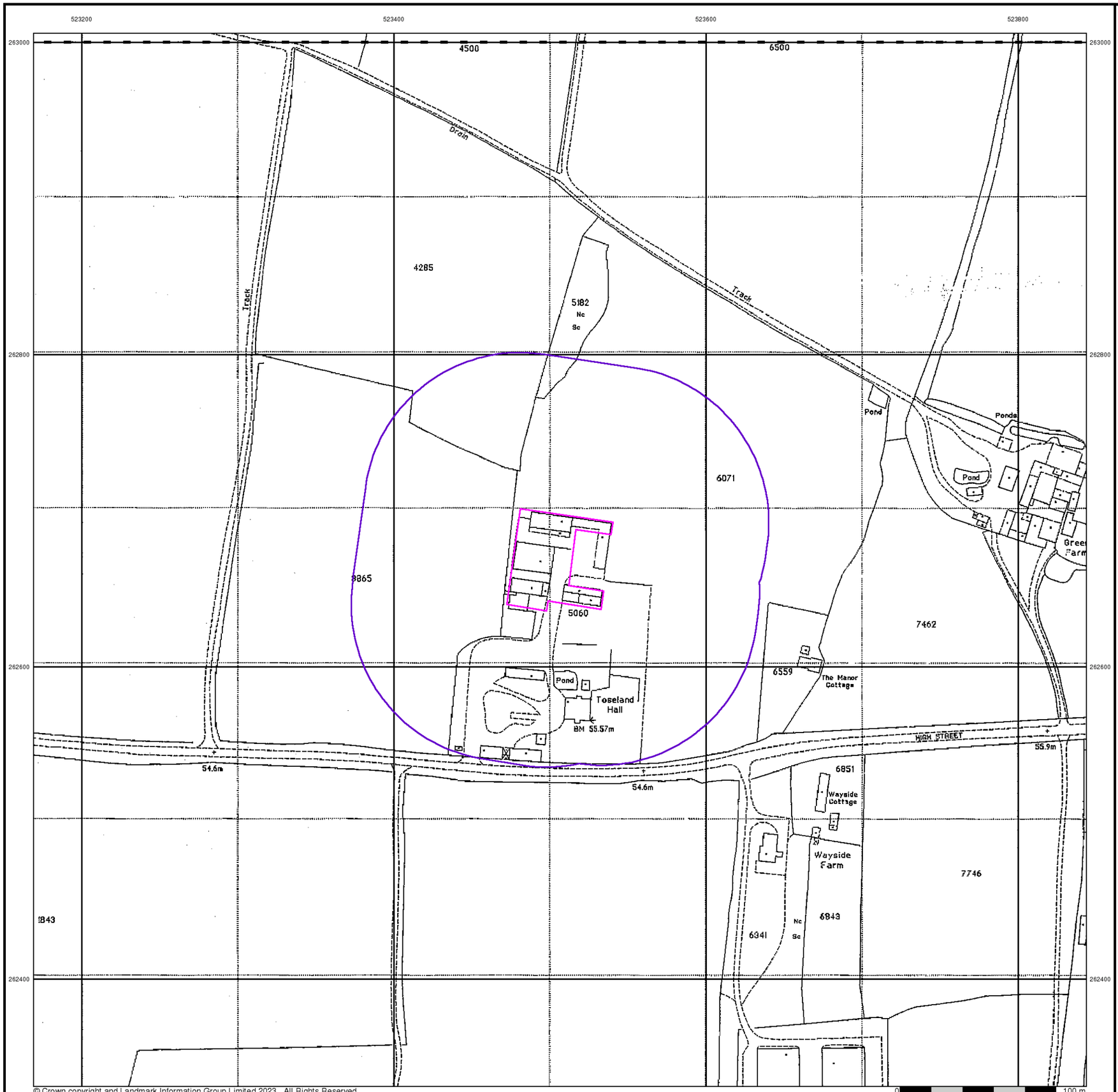

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BRD

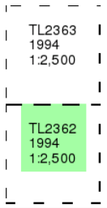
Large-Scale National Grid Data

Published 1994

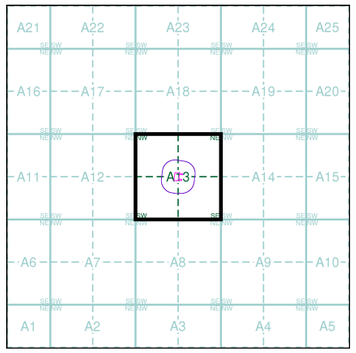
Source map scale - 1:2,500

'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.

Map Name(s) and Date(s)



Historical Map - Segment A13



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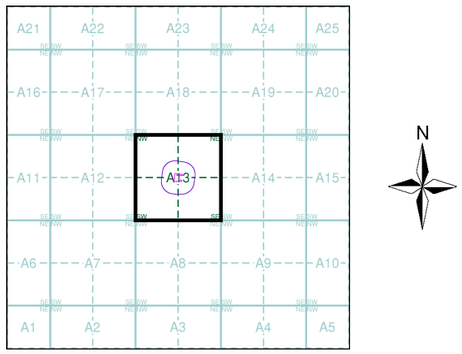
Historical Aerial Photography

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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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

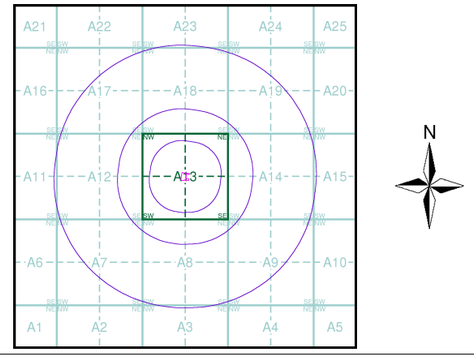
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community 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

BRD

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Cambridgeshire & Isle Of Ely	1:10,560	1887	2
Huntingdonshire	1:10,560	1902	3
Cambridgeshire & Isle Of Ely	1:10,560	1952	4
Ordnance Survey Plan	1:10,000	1958	5
Ordnance Survey Plan	1:10,000	1982	6
10K Raster Mapping	1:10,000	2000	7
10K Raster Mapping	1:10,000	2006	8
VectorMap Local	1:10,000	2023	9

Historical Map - Slice A



Order Details

Order Number: 313389616_1_1
Customer Ref: BRD4279
National Grid Reference: 523510, 262670
Slice: A
Site Area (Ha): 0.28
Search Buffer (m): 1000

Site Details

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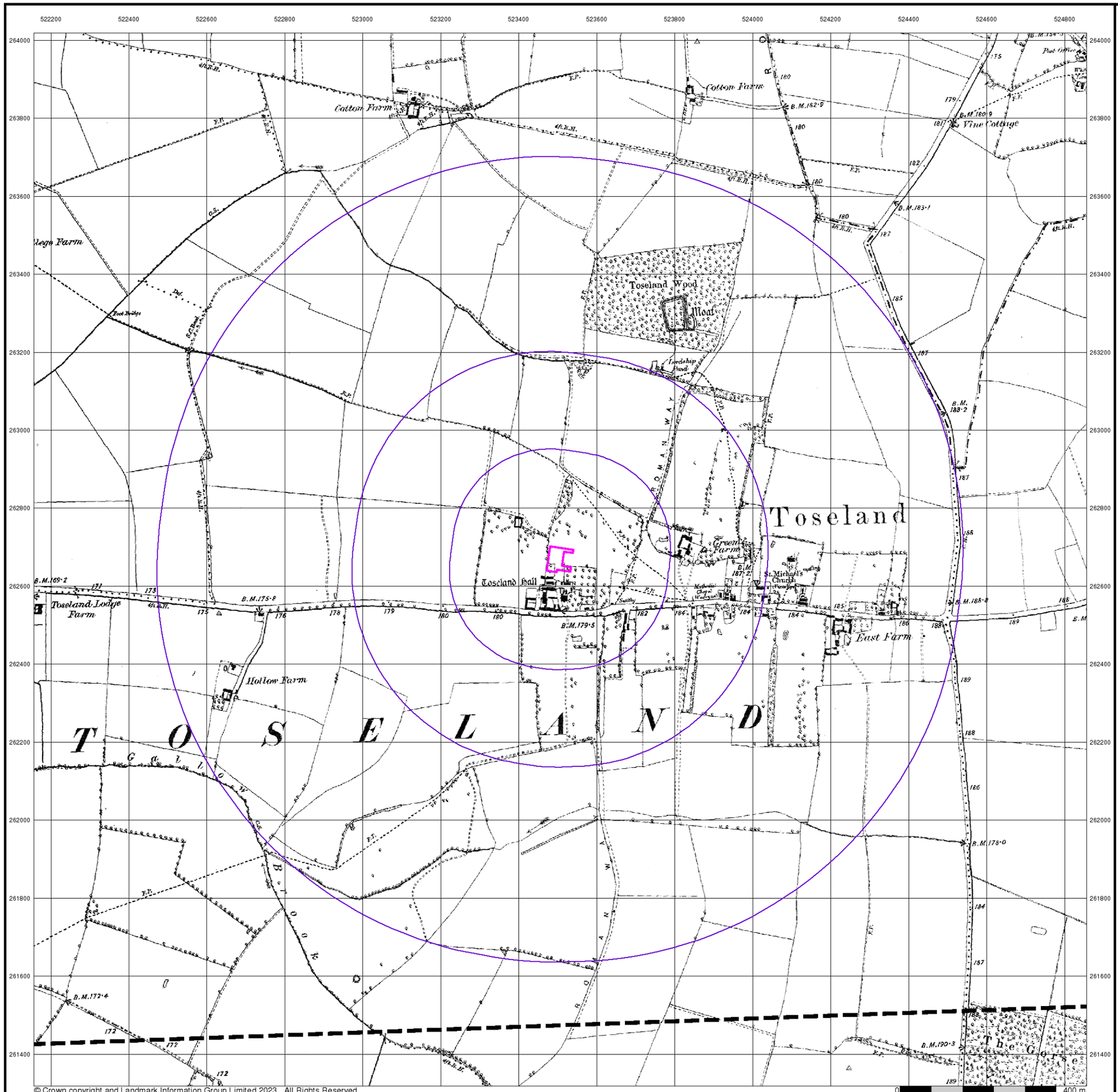

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BRD

Cambridgeshire & Isle Of Ely

Published 1887

Source map scale - 1:10,560

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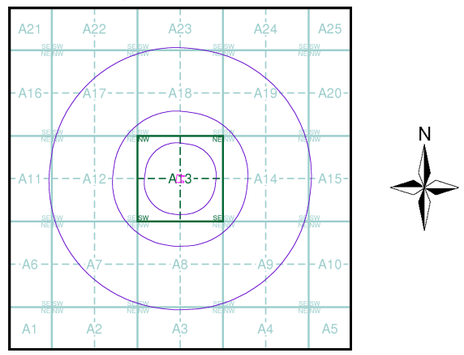
Map Name(s) and Date(s)

038NW
1887
1:10,560

038SW
1887
1:10,560

Historical Map - Slice A



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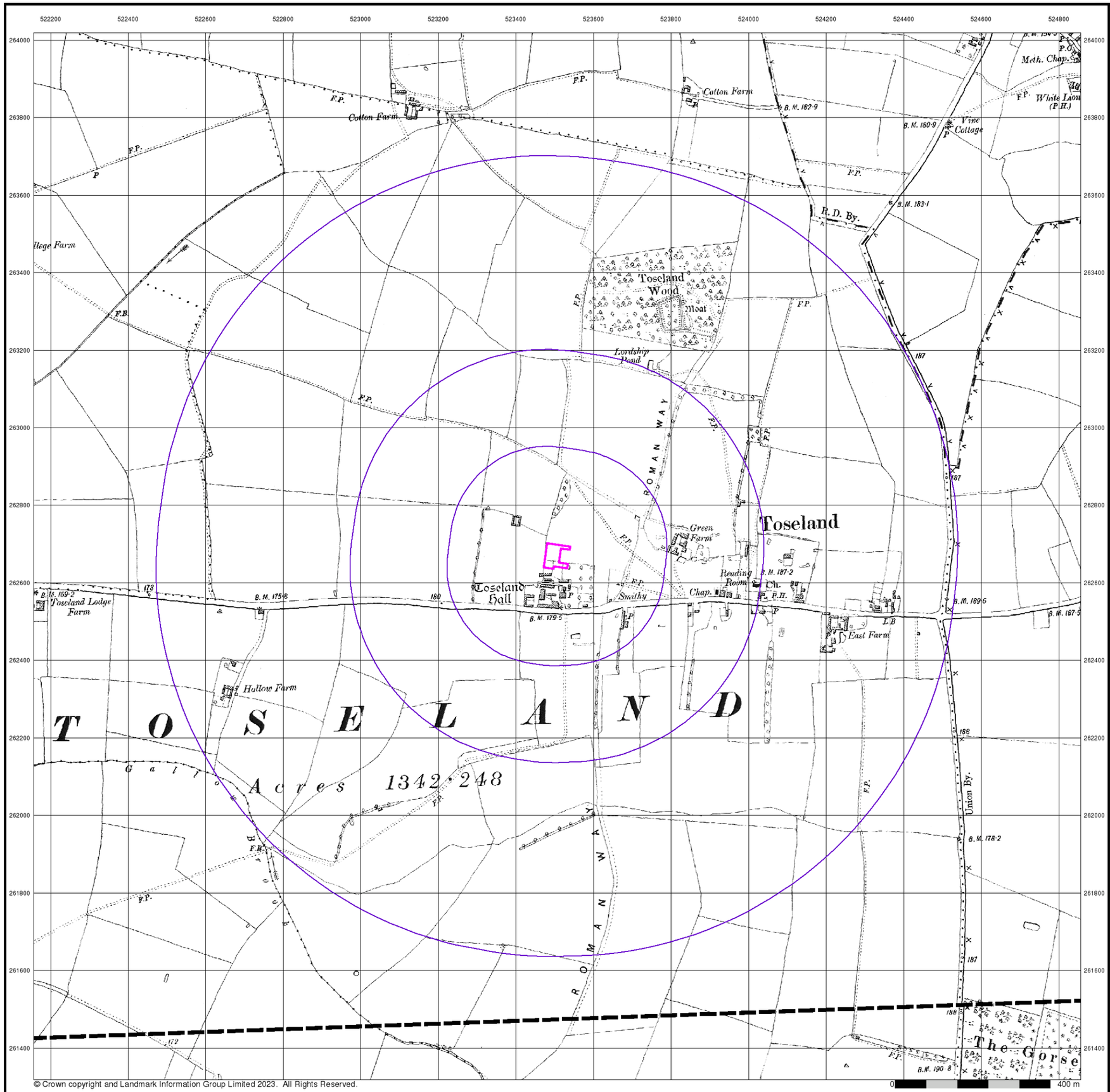

BRD

Huntingdonshire

Published 1902

Source map scale - 1:10,560

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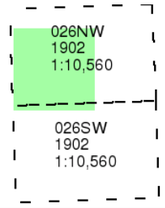
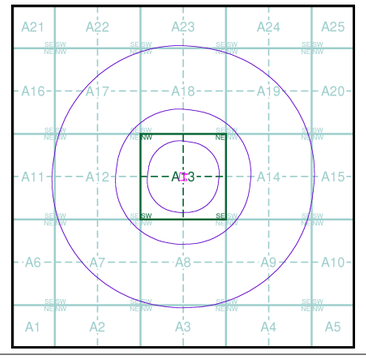


Historical Map - Slice A



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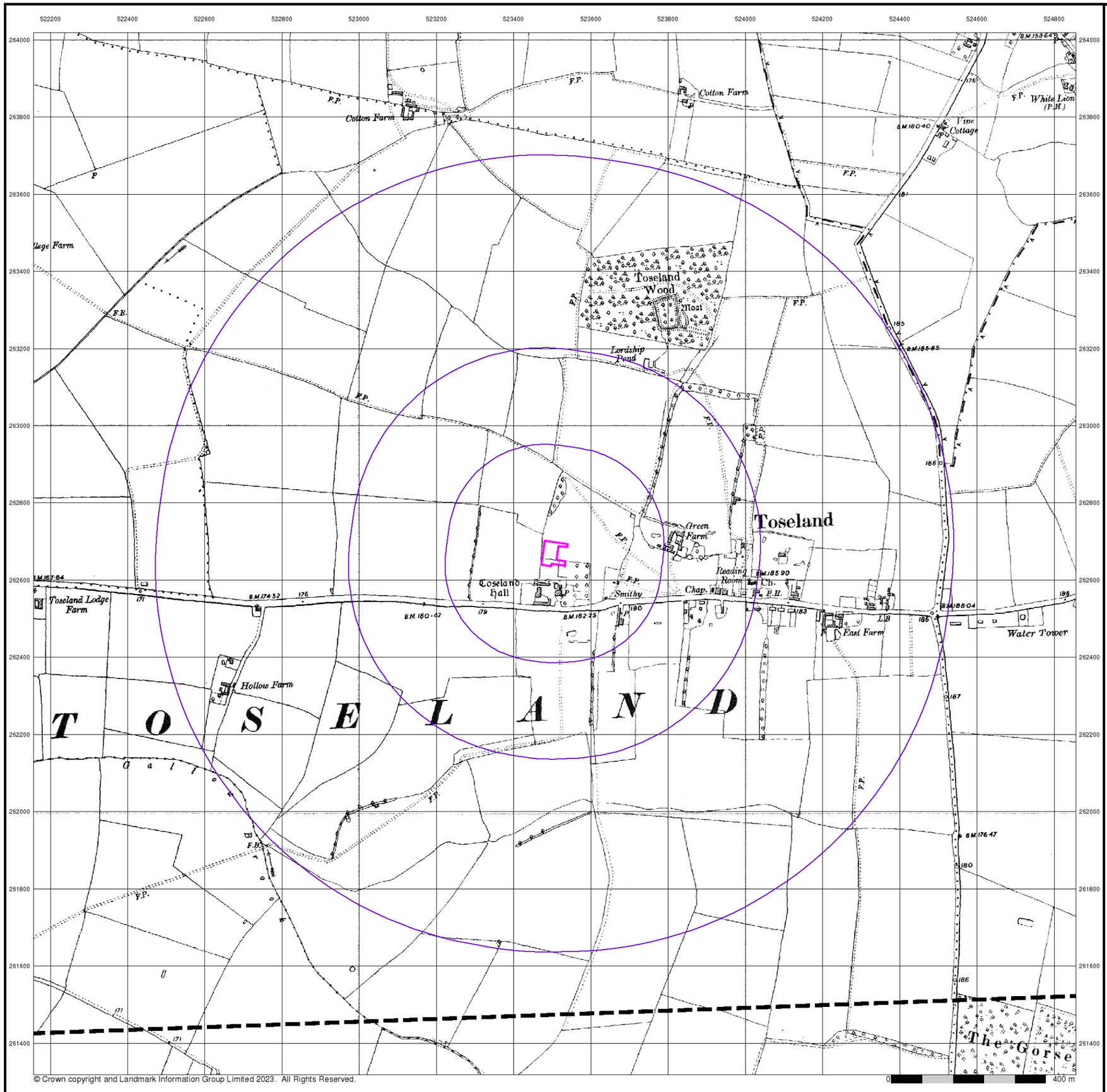

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BRD

Cambridgeshire & Isle Of Ely

Published 1952

Source map scale - 1:10,560

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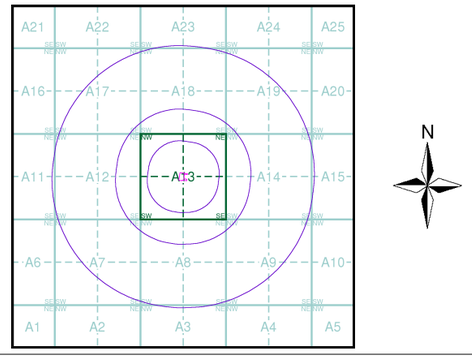
Map Name(s) and Date(s)

038NW
1952
1:10,560

038SW
1952
1:10,560

Historical Map - Slice A



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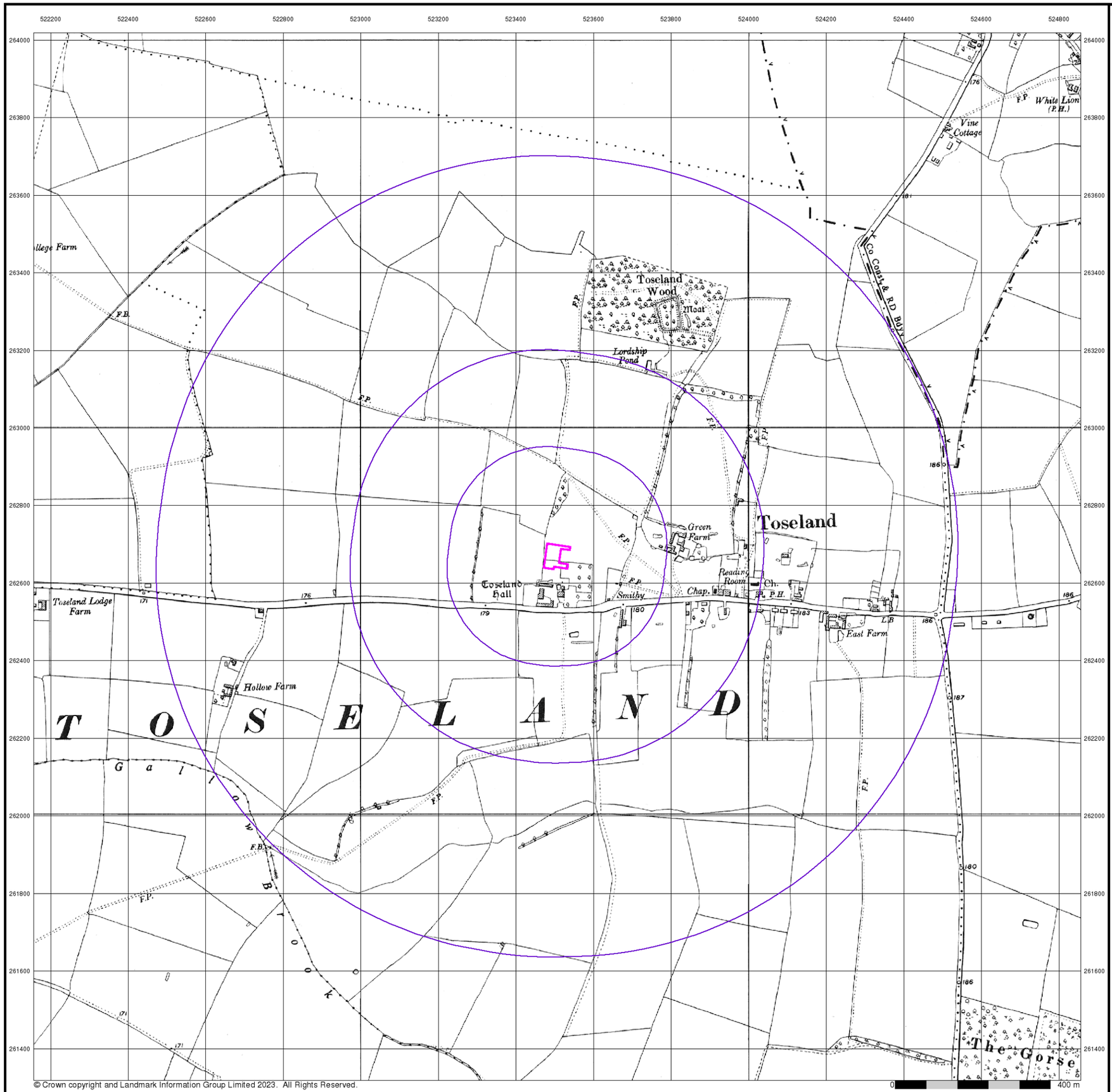

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BRD

Ordnance Survey Plan

Published 1958

Source map scale - 1:10,000

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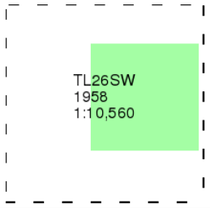
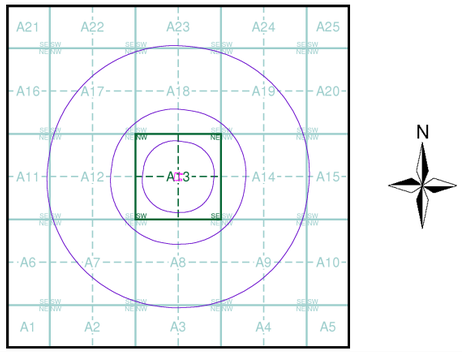


Historical Map - Slice A



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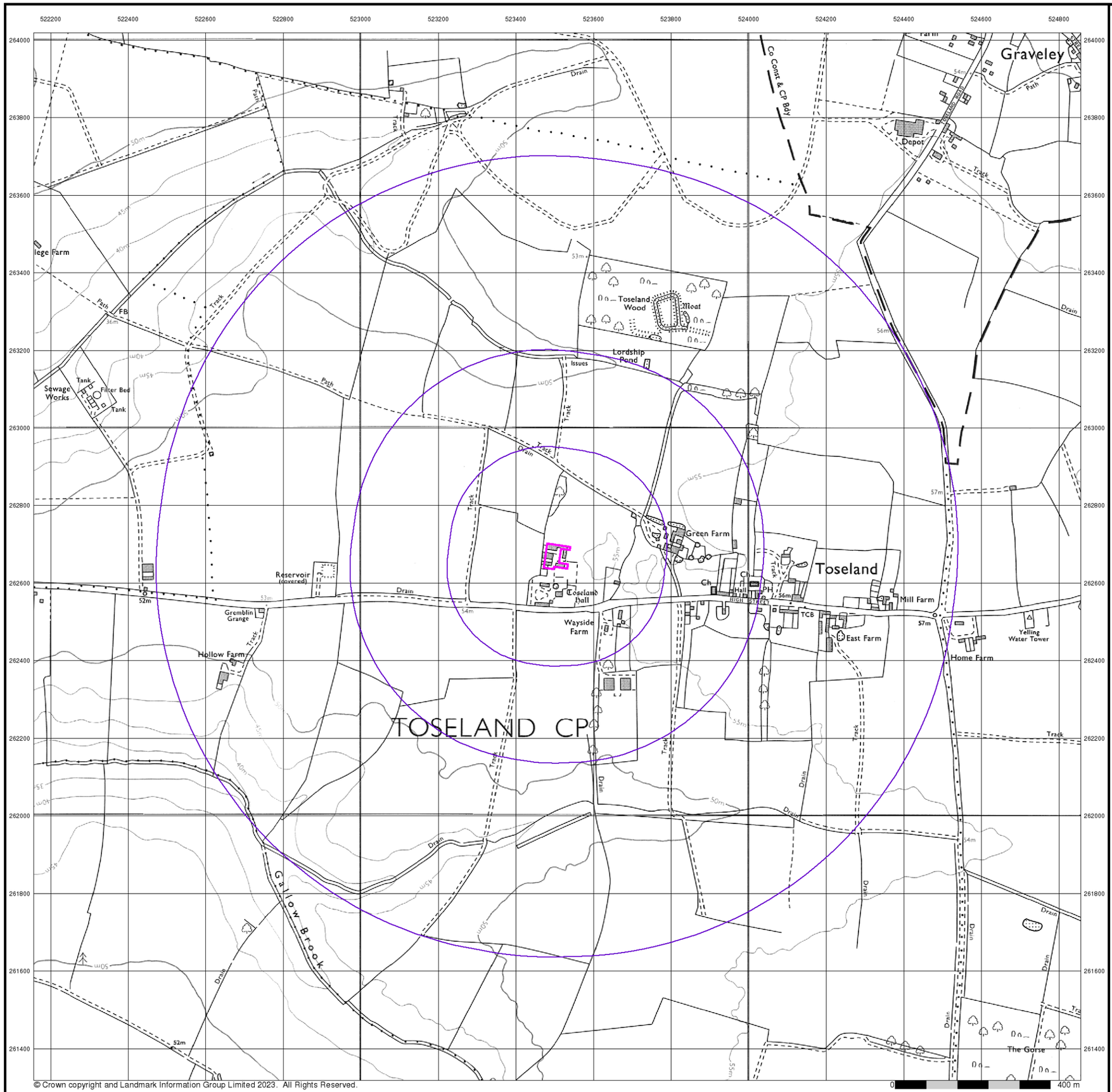

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BRD

Ordnance Survey Plan

Published 1982

Source map scale - 1:10,000

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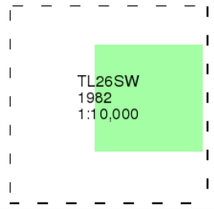
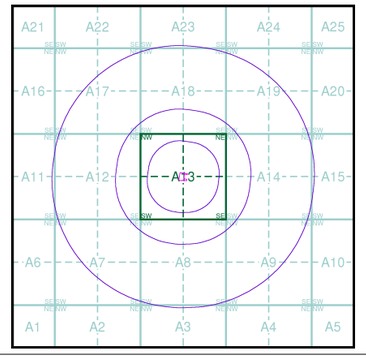
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

Landmark INFORMATION GROUP
Tel: 0844 844 9952
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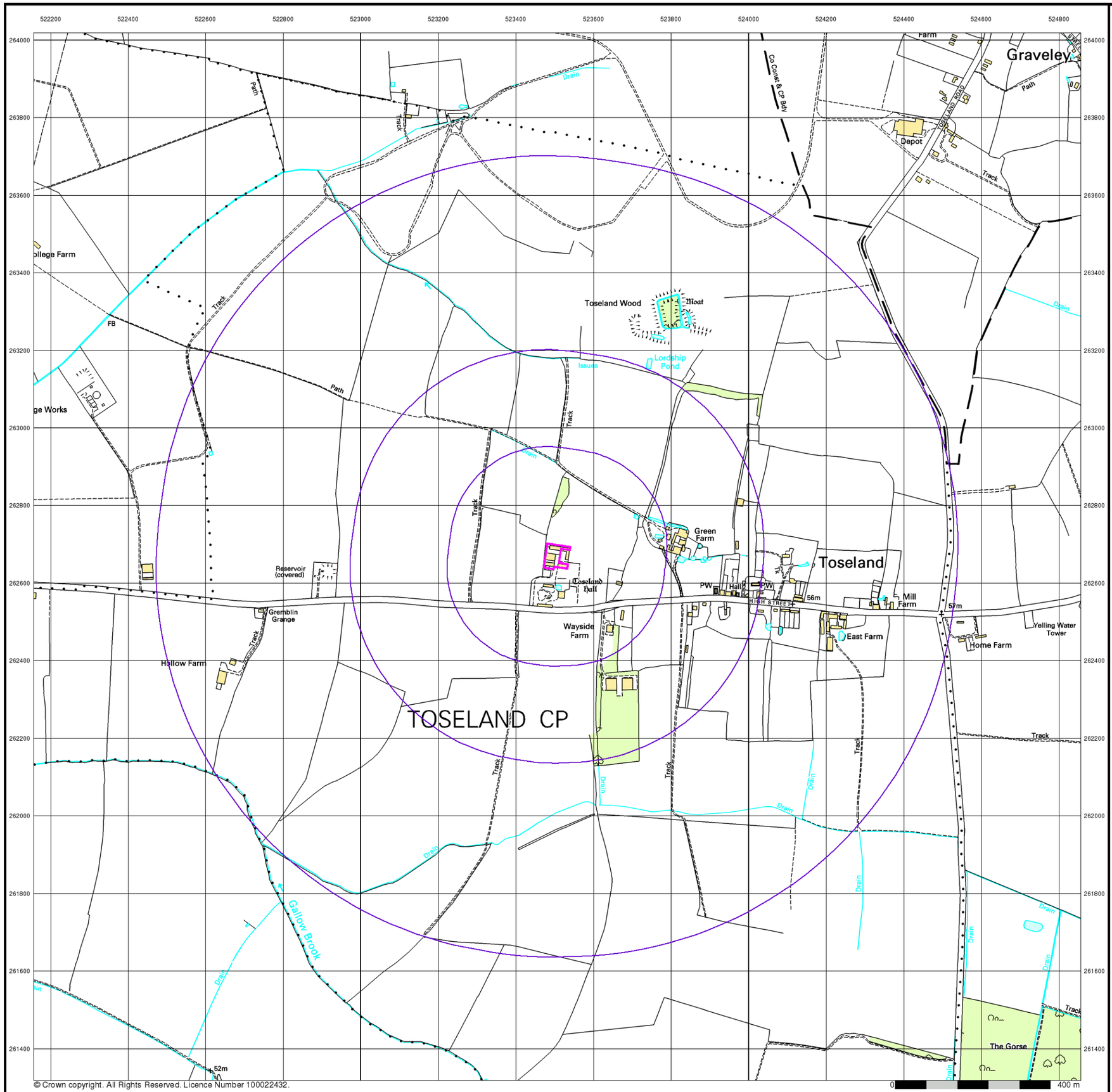
Web: www.envirocheck.co.uk



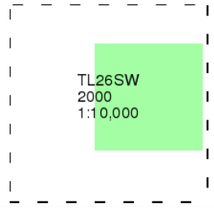
10k Raster Mapping

Published 2000

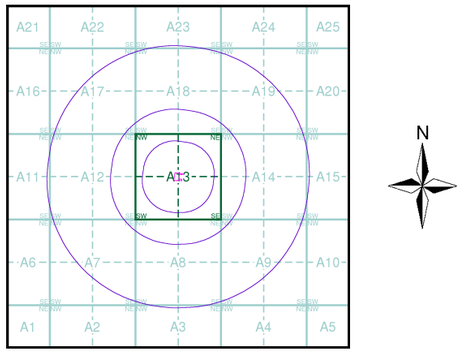
Source map scale - 1:10,000

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)



Historical Map - Slice A



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National Grid Reference:	523510, 262670
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Site Area (Ha):	0.28
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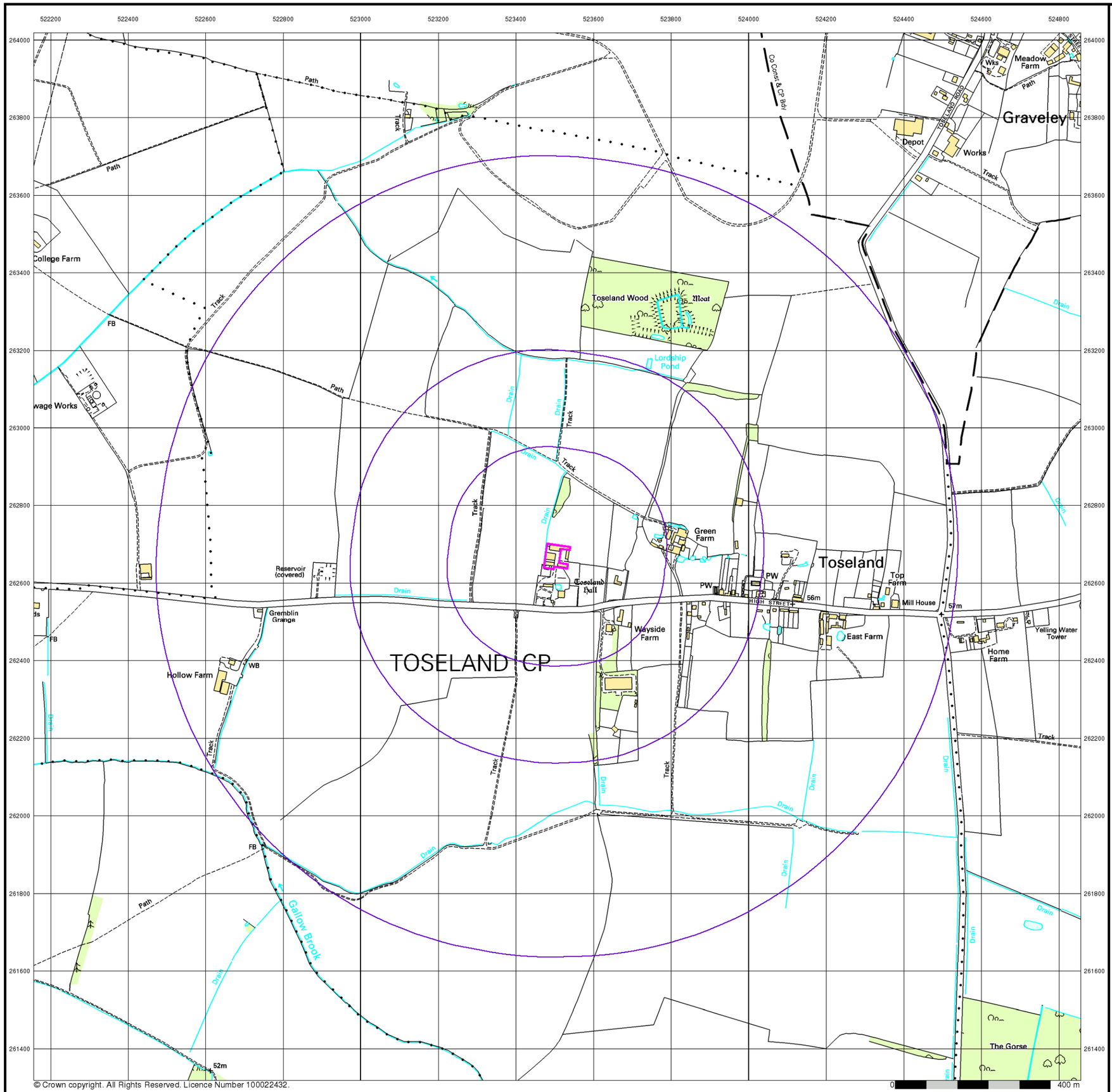

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BRD

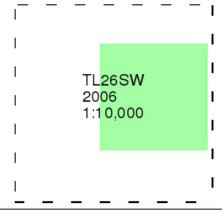
10k Raster Mapping

Published 2006

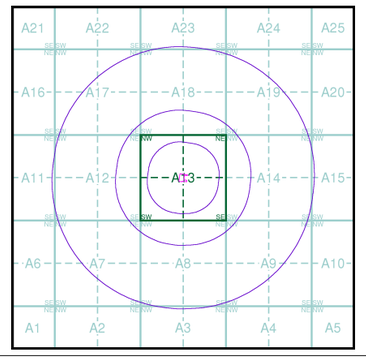
Source map scale - 1:10,000

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)



Historical Map - Slice A



Order Details

Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details

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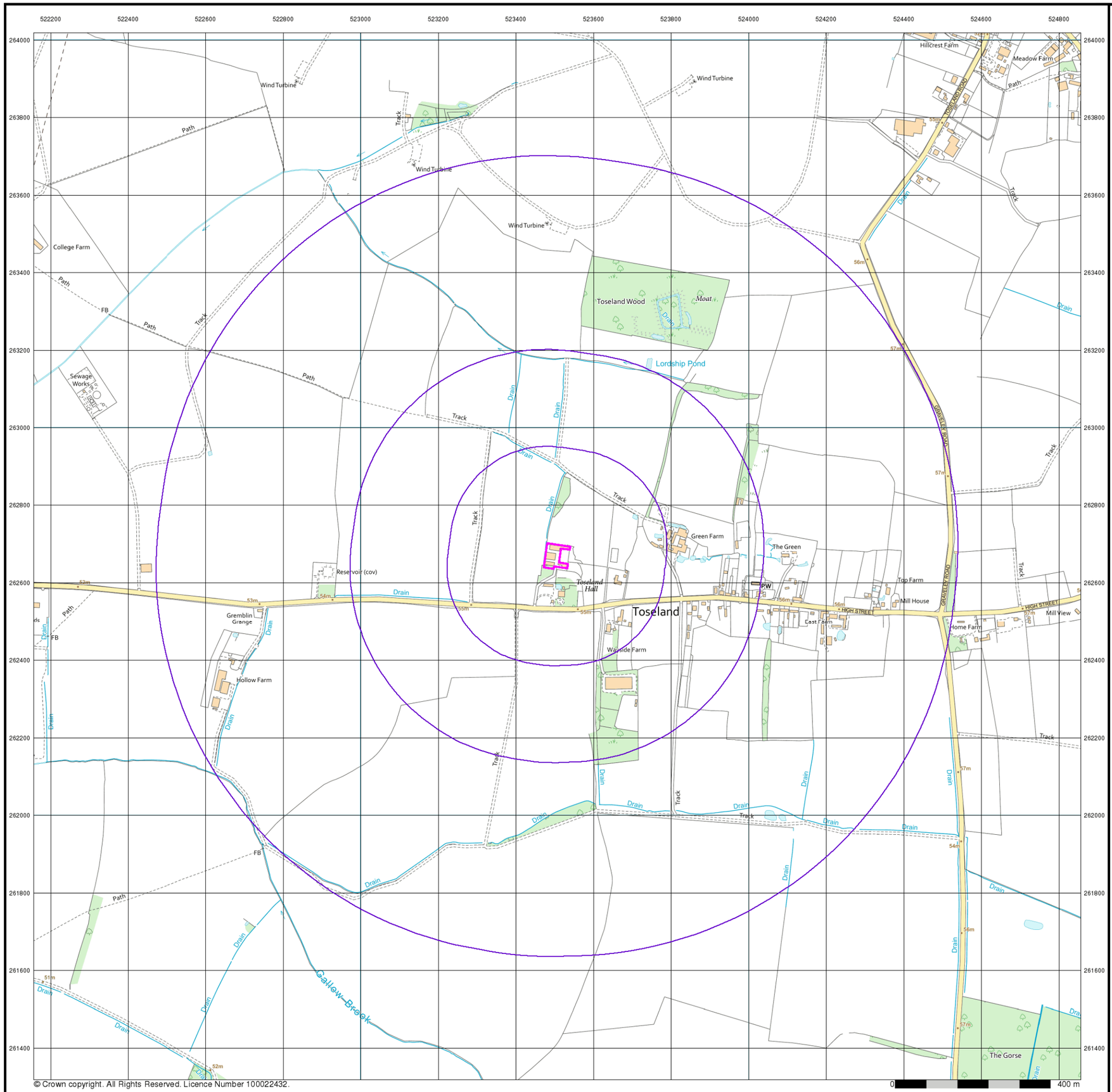


BRD

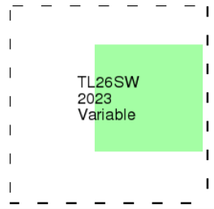
VectorMap Local

Published 2023

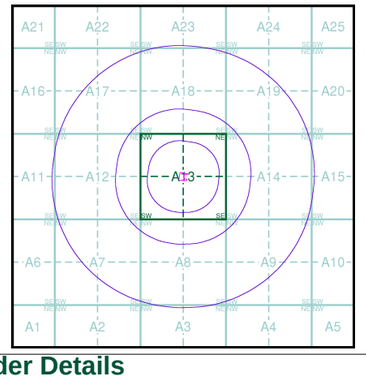
Source map scale - 1:10,000

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)



Historical Map - Slice A



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Order Number:	313389616_1_1
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National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
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Site Details

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

Landmark INFORMATION GROUP

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APPENDIX 3

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
313389616_1_1

Customer Reference:
BRD4279

National Grid Reference:
523510, 262670

Slice:
A

Site Area (Ha):
0.28

Search Buffer (m):
1000

Site Details:

, Toseland Hall, Toseland Road
Toseland
St. Neots
PE19 6RU

Client Details:

Ms A Stratford
BRD Environmental Ltd
Hawthorne Villa
1 Old Parr Road
Banbury
Oxfordshire
OX16 5HT

Prepared For:

Toseland Hall Farm

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	10
Hazardous Substances	-
Geological	11
Industrial Land Use	12
Sensitive Land Use	13
Data Currency	14
Data Suppliers	20
Useful Contacts	21

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

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Report Version v53.0

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					
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					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 1		Yes		
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions					
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 1	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 1	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 1	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 1		13	13	40

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					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage		2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
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					

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 11	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 11	Yes		Yes	
BGS Recorded Mineral Sites					
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				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 11	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 11	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 11	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 11	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 12		1		2
Fuel Station Entries					
Points of Interest - Commercial Services					
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 12				2
Points of Interest - Public Infrastructure					
Points of Interest - Recreational and Environmental					
Gas Pipelines					
Underground Electrical Cables					

Summary

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	pg 13	2			
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	A13SW (SW)	0	1	523506 262668
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	73	1	523400 262668
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	108	1	523550 262800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SW (N)	349	1	523506 263050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	423	1	523050 262668
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (S)	492	1	523600 262150
	Nearest Surface Water Feature	A13NW (NW)	3	-	523476 262685
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: >90% Superficial Thickness: >10m Superficial Recharge: Low	A13SW (SW)	0	2	523506 262668
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13SW (SW)	0	2	523506 262668
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13SW (SW)	0	2	523506 262668
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
1	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 22.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (NW)	3	4	523476 262685

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (NW)	3	4	523475 262682
3	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (W)	3	4	523474 262672
4	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (NW)	7	4	523478 262707
5	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (NW)	14	4	523479 262715
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NE (N)	189	4	523532 262885
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NE (N)	191	4	523529 262887
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (N)	209	4	523502 262909
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (N)	209	4	523502 262909
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (N)	210	4	523500 262910

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 135.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (N)	213	4	523492 262914
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 347.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13SW (SW)	214	4	523279 262548
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 251.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (N)	215	4	523503 262915
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (NW)	297	4	523375 262978
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 39.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (NW)	297	4	523373 262978
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 209.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A13NW (N)	300	4	523380 262983
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14SW (E)	324	4	523862 262661
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14SW (E)	354	4	523892 262663
19	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 2.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14NW (E)	440	4	523979 262671

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14NW (E)	442	4	523981 262673
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A18SE (N)	466	4	523527 263165
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 115.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A18SW (N)	475	4	523504 263175
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 304.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A18SE (N)	479	4	523573 263171
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A18SE (N)	479	4	523528 263177
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 20.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14NW (E)	483	4	524022 262672
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 219.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A18SW (N)	493	4	523414 263189
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SW (E)	503	4	524042 262668
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SW (E)	507	4	524046 262667

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 5.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14NW (E)	509	4	524048 262704
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14NW (E)	512	4	524052 262701
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 103.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8NE (S)	513	4	523612 262130
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14NW (E)	518	4	524057 262677
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14NW (E)	518	4	524057 262677
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SW (E)	518	4	524057 262666
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14NW (E)	518	4	524058 262683
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A14NW (E)	527	4	524067 262691
37	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 6.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A14SW (E)	532	4	524071 262662

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 174.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SE (W)	545	4	522933 262562
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 308.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8NE (S)	602	4	523581 262037
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8NE (S)	614	4	523605 262028
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8NE (S)	616	4	523615 262027
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 187.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8NE (S)	616	4	523616 262027
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A18SW (N)	662	4	523243 263319
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 404.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A18SW (N)	665	4	523241 263321
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8NE (SE)	680	4	523802 262013
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 310.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8NE (SE)	685	4	523811 262012

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 100.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (W)	720	4	522761 262536
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8SW (S)	726	4	523329 261929
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 627.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A8SW (S)	731	4	523316 261927
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (W)	763	4	522737 262439
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (W)	772	4	522731 262429
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 207.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9NW (SE)	775	4	524168 262194
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (W)	803	4	522708 262395
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (W)	806	4	522706 262392
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (W)	826	4	522695 262362

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 243.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12SW (W)	831	4	522693 262355
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 33.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9NW (SE)	863	4	524115 262001
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 26.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9NW (SE)	863	4	524115 262001
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9SW (SE)	888	4	524139 261989
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9SW (SE)	888	4	524116 261967
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9SW (SE)	894	4	524145 261987
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9SW (SE)	894	4	524116 261960
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 124.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9SW (SE)	899	4	524151 261985
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 178.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9SW (SE)	910	4	524116 261939

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 239.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Gallow Brook Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A7NW (SW)	972	4	522699 262052
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A7NW (SW)	994	4	522624 262123

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Huntingdonshire District Council - Has no landfill data to supply		0	6	523506 262668
	Local Authority Landfill Coverage Name: Cambridgeshire County Council - Has not been able to supply Landfill data		0	5	523506 262668
	Local Authority Landfill Coverage Name: South Cambridgeshire District Council - Has supplied landfill data		995	7	524511 262908

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Kellaways Formation And Oxford Clay Formation (Undifferentiated)	A13SW (SW)	0	1	523506 262668
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil 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: 30 - 45 mg/kg	A13SW (SW)	0	1	523506 262668
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NW (N)	299	1	523506 263000
	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 No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	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	A13SW (SW)	0	1	523506 262668

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
67	**Contemporary Trade Directory Entries** Name: R F C Howard'S Way Ltd Location: Wayside Farm, High Street, Toseland, St. Neots, Cambridgeshire, PE19 6RX Classification: Boxes & Cartons **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	192	-	523639 262478
68	**Contemporary Trade Directory Entries** Name: Clarratts Ltd Location: Hollow Farm, Toseland Road, Toseland, St. Neots, Cambridgeshire, PE19 6RU Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	839	-	522672 262390
68	**Contemporary Trade Directory Entries** Name: Clarratts Ltd Location: Hollow Farm, Toseland Road, Toseland, St. Neots, Cambridgeshire, PE19 6RU Classification: Agricultural Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	839	-	522672 262390
69	**Points of Interest - Manufacturing and Production** Name: Cotton Farm Turbine Location: PE19 Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to address or location	A18NW (N)	824	8	523478 263525
70	**Points of Interest - Manufacturing and Production** Name: Tank Location: PE19 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A12SW (W)	863	8	522662 262346

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
71	**Nitrate Vulnerable Zones** Name: Huntingdon River Gravels Description: Groundwater Source: Environment Agency, Head Office	A13SW (SW)	0	2	523506 262668
72	**Nitrate Vulnerable Zones** Name: Great Ouse Nvz Description: Surface Water Source: Environment Agency, Head Office	A13SW (SW)	0	2	523506 262668

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Bedford Borough Council - Environmental Health Department	December 2014	Annual Rolling Update
Environment Agency - Head Office	June 2020	Annually
Huntingdonshire District Council - Environmental Health Services	October 2017	Annual Rolling Update
South Cambridgeshire District Council	October 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Anglian Region	April 2023	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Anglian Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Anglian Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - Anglian Region	January 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Huntingdonshire District Council - Environmental Health Services	December 2014	Variable
Bedford Borough Council - Environmental Health Department	March 2015	Variable
South Cambridgeshire District Council - Environmental Health Department	October 2014	Variable
Local Authority Pollution Prevention and Controls		
Huntingdonshire District Council - Environmental Health Services	December 2014	Annual Rolling Update
Bedford Borough Council - Environmental Health Department	March 2015	Annual Rolling Update
South Cambridgeshire District Council - Environmental Health Department	October 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Huntingdonshire District Council - Environmental Health Services	December 2014	Variable
Bedford Borough Council - Environmental Health Department	March 2015	Variable
South Cambridgeshire District Council - Environmental Health Department	October 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	April 2023	
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Anglian Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Anglian Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Anglian Region	June 2016	As notified
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - Anglian Region - Central Area	April 2023	Quarterly
Water Abstractions		
Environment Agency - Anglian Region	April 2023	Quarterly
Water Industry Act Referrals		
Environment Agency - Anglian Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations		
Environment Agency - Head Office	January 2018	Annually

Agency & Hydrological	Version	Update Cycle
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	February 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	February 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	February 2023	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	April 2023	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	March 2023	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Anglian Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Anglian Region - Central Area	January 2023	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Central Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Bedford Borough Council - Environmental Health Department	February 2003	Not Applicable
Bedfordshire County Council (now part of Central Bedfordshire Council)	February 2003	Not Applicable
Cambridgeshire County Council	February 2003	Not Applicable
Huntingdonshire District Council - Environmental Health Services	February 2003	Not Applicable
South Cambridgeshire District Council	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Bedford Borough Council - Environmental Health Department	October 2018	
Bedfordshire County Council (now part of Central Bedfordshire Council)	October 2018	
Cambridgeshire County Council	October 2018	
Huntingdonshire District Council - Environmental Health Services	October 2018	
South Cambridgeshire District Council	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Anglian Region - Central Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Central Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Central Area	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	March 2023	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Huntingdonshire District Council	April 2023	Variable
South Cambridgeshire District Council	February 2016	Variable
Bedfordshire County Council (now part of Central Bedfordshire Council)	July 2008	Annual Rolling Update
Bedford Borough Council	March 2023	Variable
Cambridgeshire County Council	March 2023	Variable
Planning Hazardous Substance Consents		
Bedford Borough Council	February 2016	Variable
Cambridgeshire County Council	February 2016	Variable
Huntingdonshire District Council	February 2016	Variable
South Cambridgeshire District Council	February 2016	Variable
Bedfordshire County Council (now part of Central Bedfordshire Council)	July 2008	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	June 2023	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	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	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	September 2022	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	September 2022	Annually

Data Currency

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	April 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	June 2023	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	June 2023	Quarterly
Points of Interest - Education and Health PointX	June 2023	Quarterly
Points of Interest - Manufacturing and Production PointX	June 2023	Quarterly
Points of Interest - Public Infrastructure PointX	June 2023	Quarterly
Points of Interest - Recreational and Environmental PointX	June 2023	Quarterly
Underground Electrical Cables National Grid	February 2023	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	April 2023	Bi-Annually
Areas of Adopted Green Belt		
Bedford Borough Council	July 2022	Quarterly
Huntingdonshire District Council	July 2022	Quarterly
South Cambridgeshire District Council	July 2022	Quarterly
Areas of Unadopted Green Belt		
Bedford Borough Council	July 2022	Quarterly
Huntingdonshire District Council	July 2022	Quarterly
South Cambridgeshire District Council	July 2022	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	April 2023	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	
Forest Parks		
Forestry Commission	May 2023	Not Applicable
Local Nature Reserves		
Natural England	March 2023	Bi-Annually
Marine Nature Reserves		
Natural England	April 2023	Bi-Annually
National Nature Reserves		
Natural England	February 2023	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	March 2023	Bi-Annually
Ramsar Sites		
Natural England	March 2023	Bi-Annually
Sites of Special Scientific Interest		
Natural England	March 2023	Bi-Annually
Special Areas of Conservation		
Natural England	April 2023	Bi-Annually
Special Protection Areas		
Natural England	April 2023	Bi-Annually

Data Suppliers

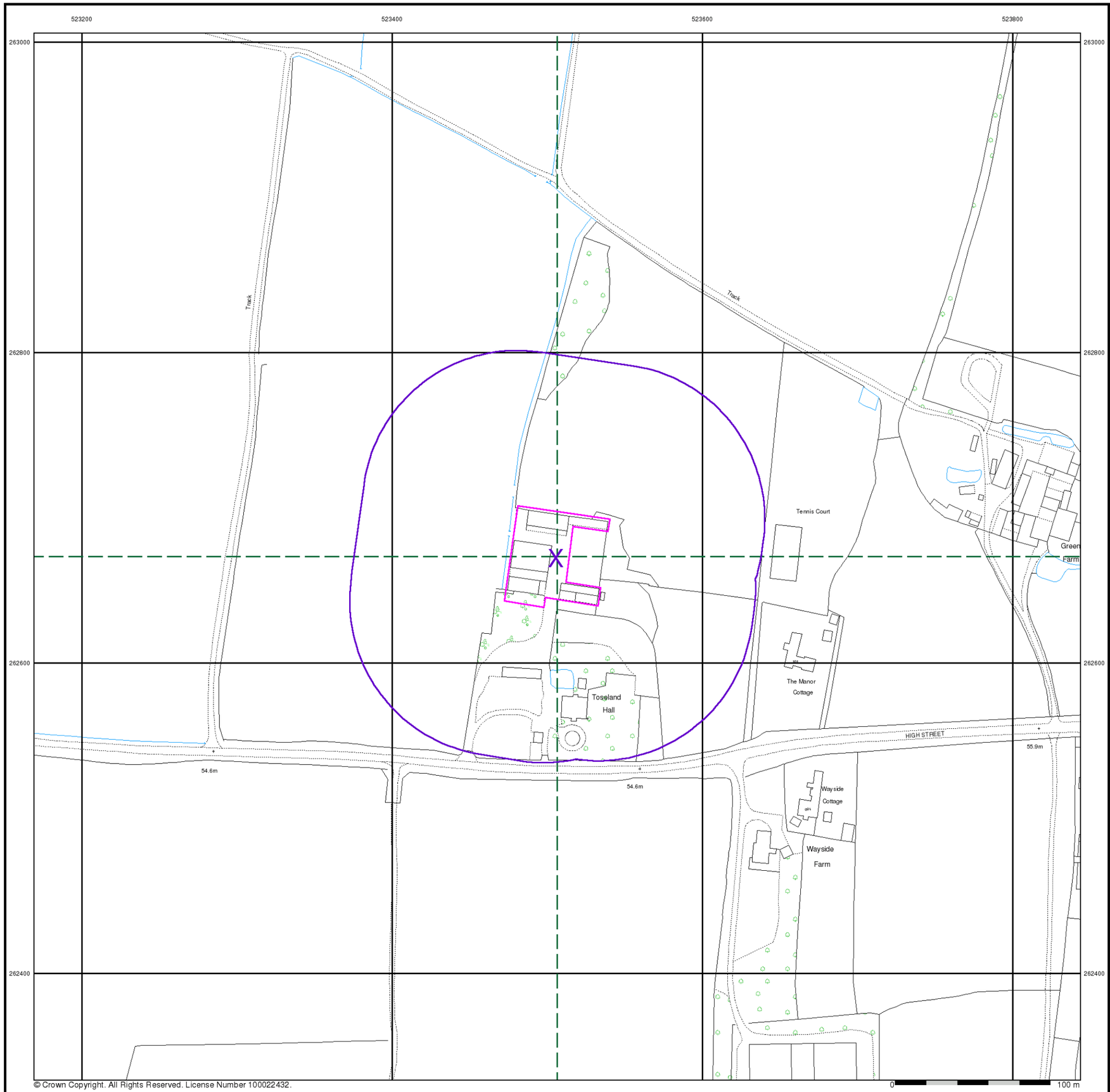
A selection of organisations who provide data within this report

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	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science 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 - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
3	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Cambridgeshire County Council** Shire Hall, Castle Hill, Cambridge, Cambridgeshire, CB3 OAP	Telephone: 01223 717111 Fax: 01223 717201 Website: www.camcnty.gov.uk
6	**Huntingdonshire District Council - Environmental Health Services** Pathfinder House, St Mary's Street, Huntingdon, Cambridgeshire, PE29 3TN	Telephone: 01480 388312 Fax: 01480 388099 Website: www.huntsdc.gov.uk
7	**South Cambridgeshire District Council** South Cambridgeshire Hall, Cambourne Business Park, Cambourne, Cambridgeshire, CB23 6EA	Telephone: 08450 450 500 Website: www.scambs.gov.uk
8	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



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BRD

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

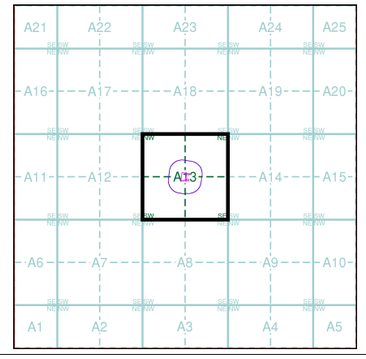
Geological

- 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



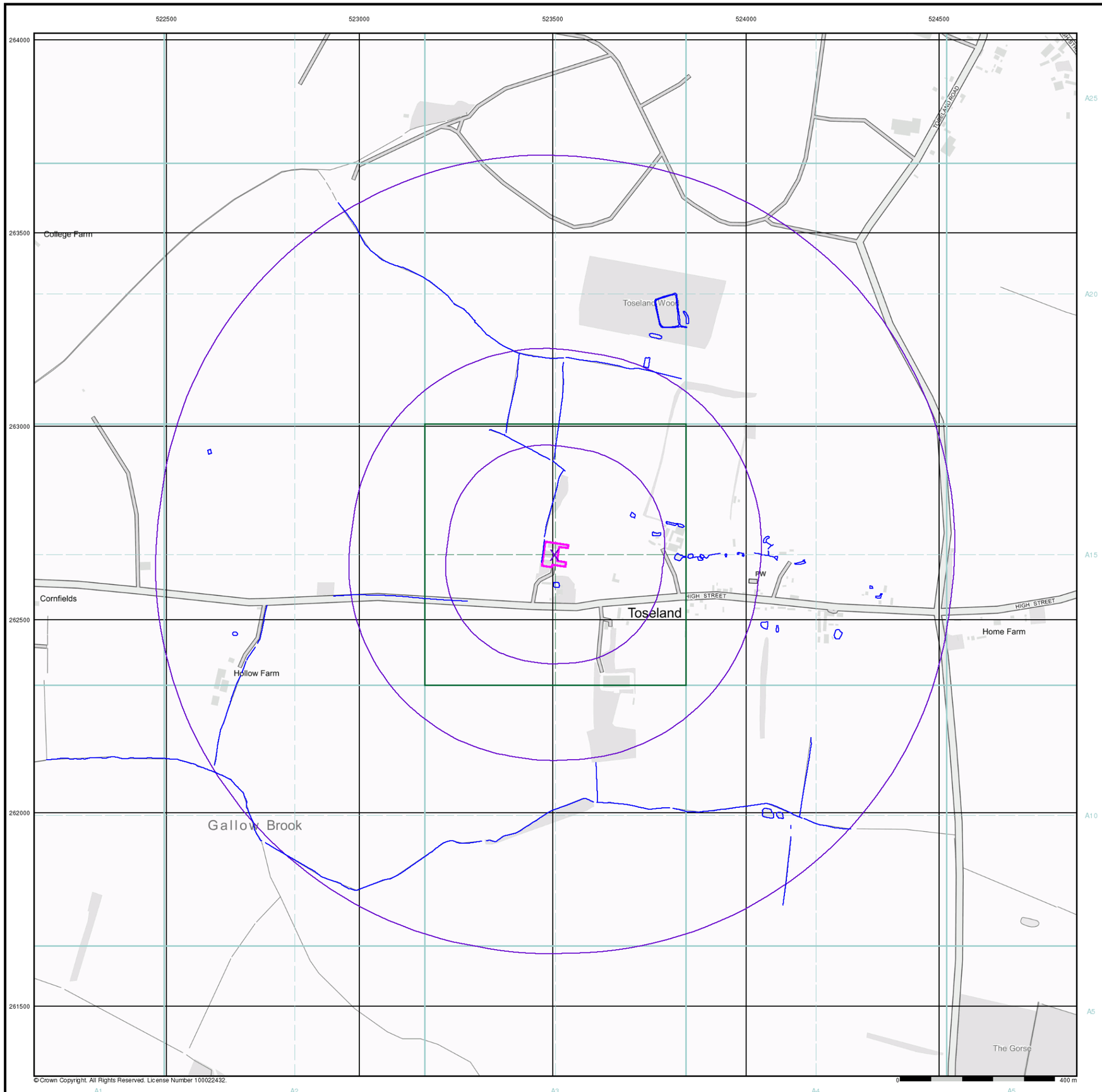
Order Details

Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Plot Buffer (m):	100

Site Details

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

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



BRD

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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- NIHHS Site
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- Planning Hazardous Substance Enforcement

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Waste

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- Potentially Infilled Land (Water)
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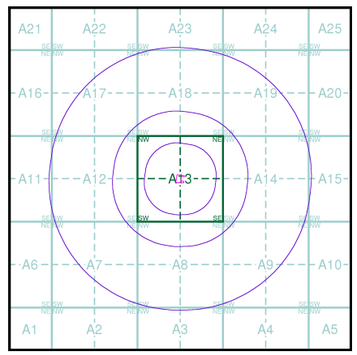
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details

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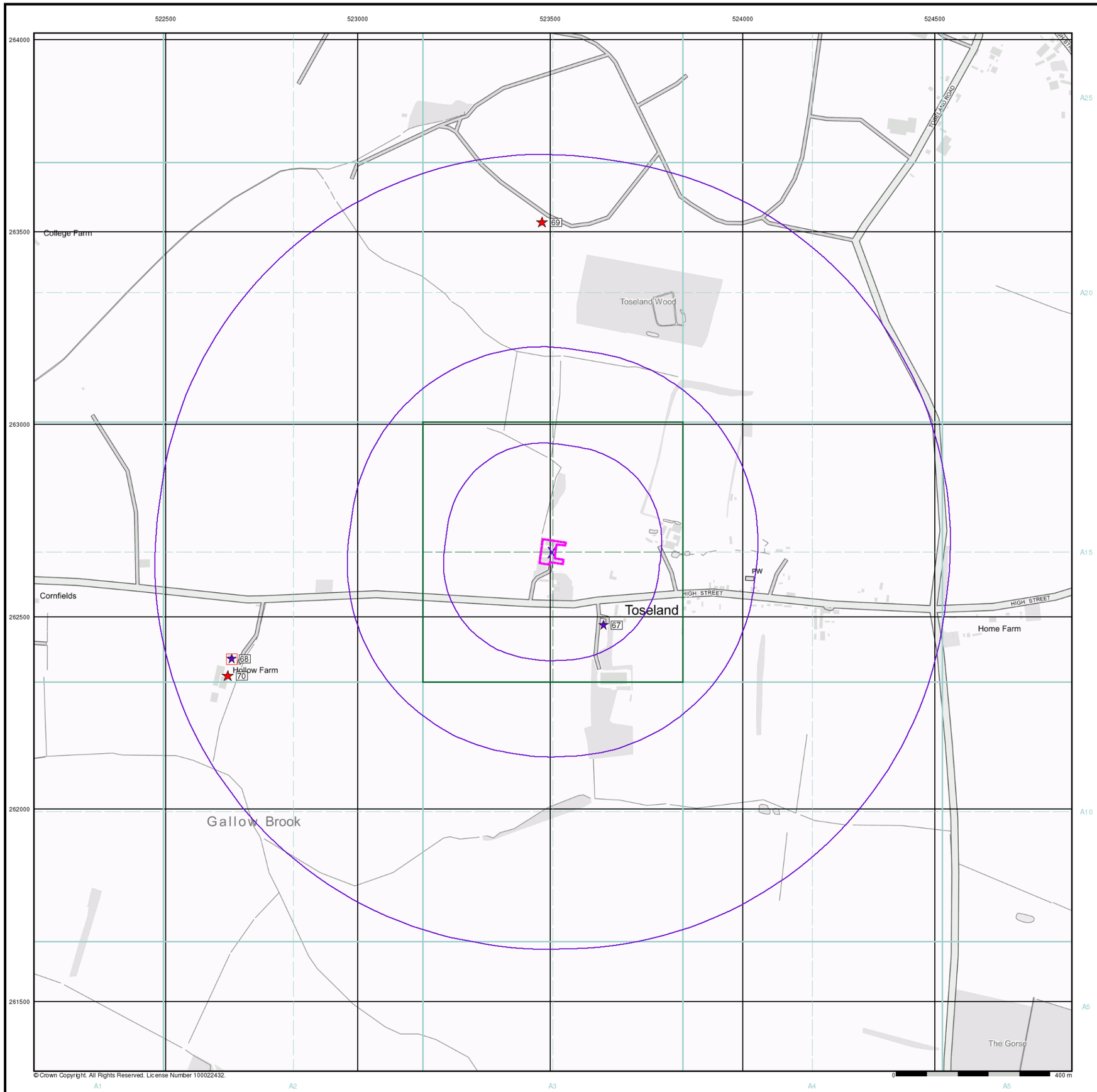

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BRD

Industrial Land Use Map

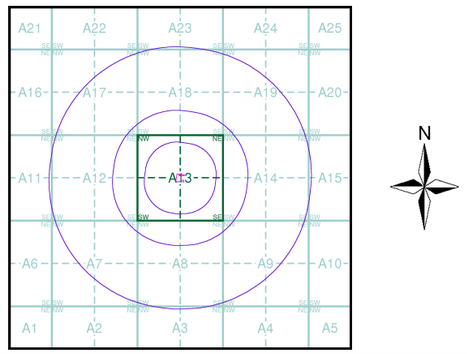
General

- 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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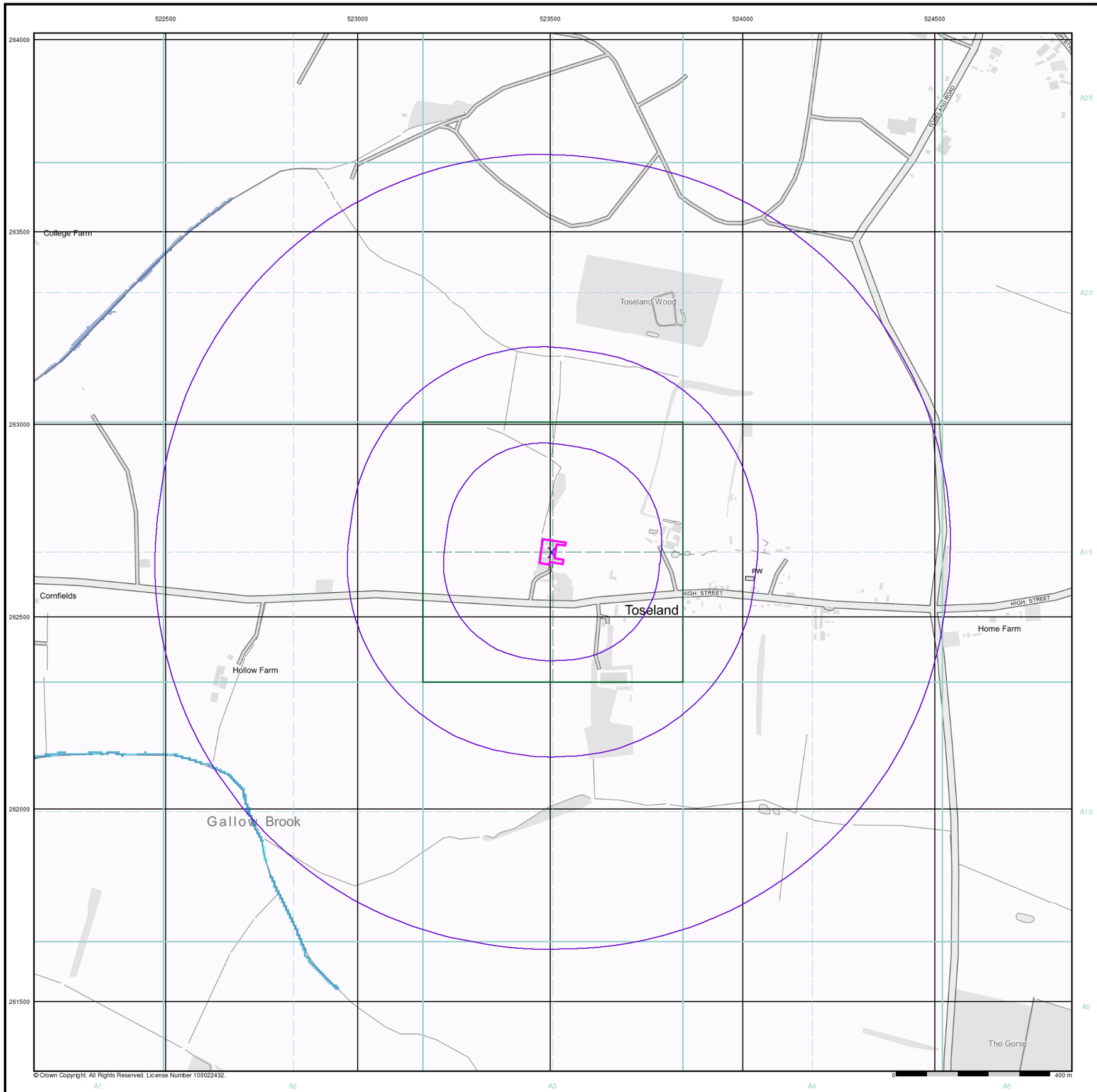

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BRD

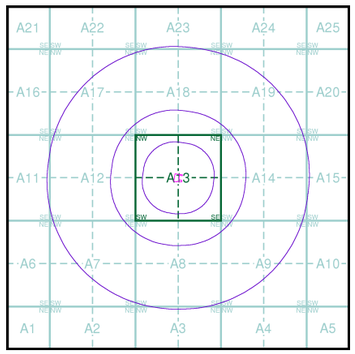
General

- Specified Site
- Specified Buffer(s)
- X 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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Site Area (Ha):	0.28
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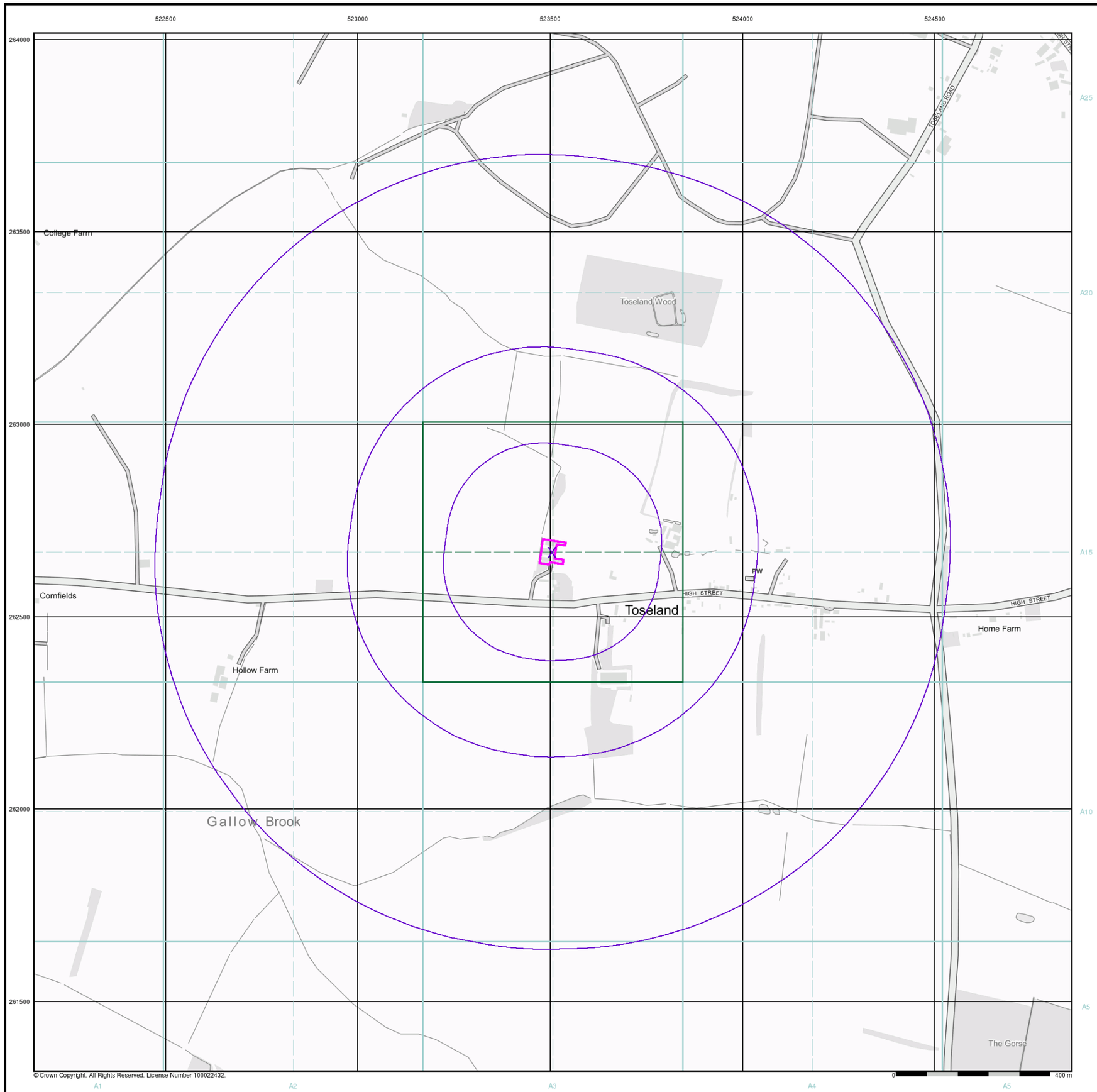


BRD

General

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

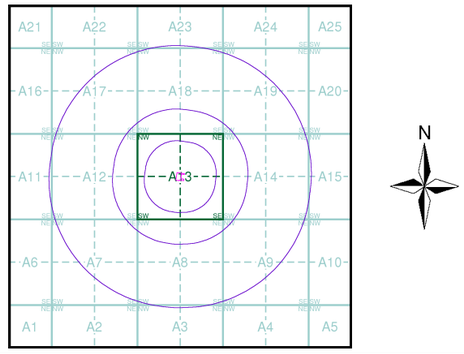
Agency and Hydrological (Boreholes)

- 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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BRD

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)

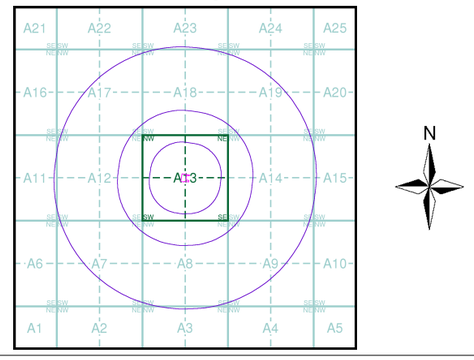
Standard Contour 105 100 95

Master Contour

Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



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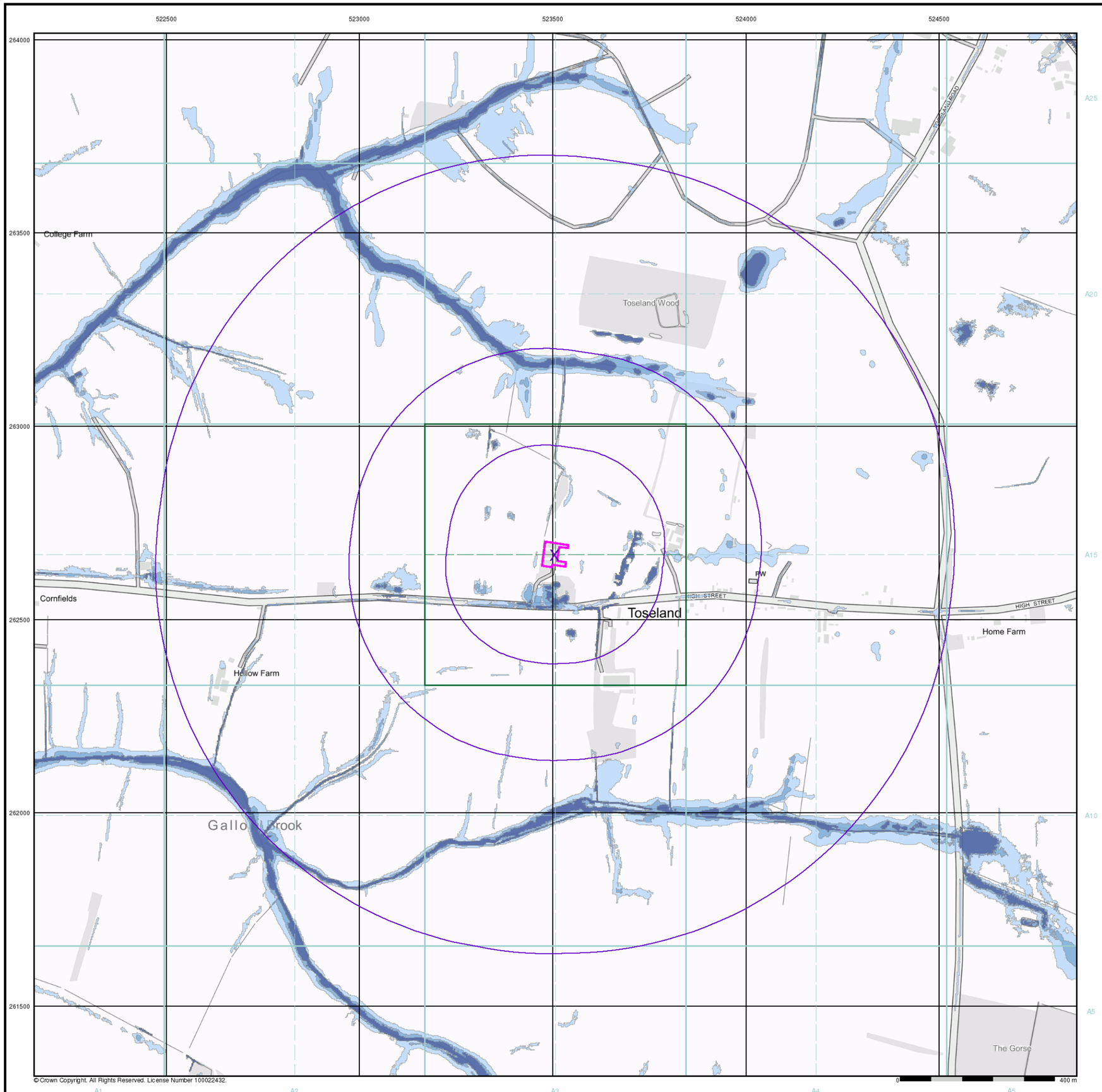

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General

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

Risk of Flooding from Surface Water

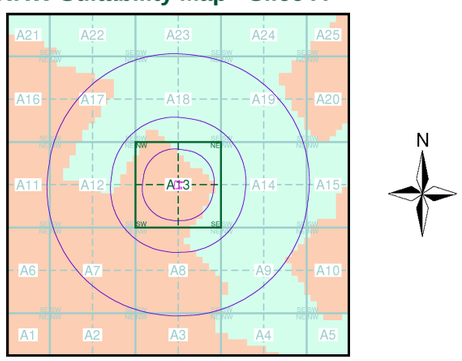
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

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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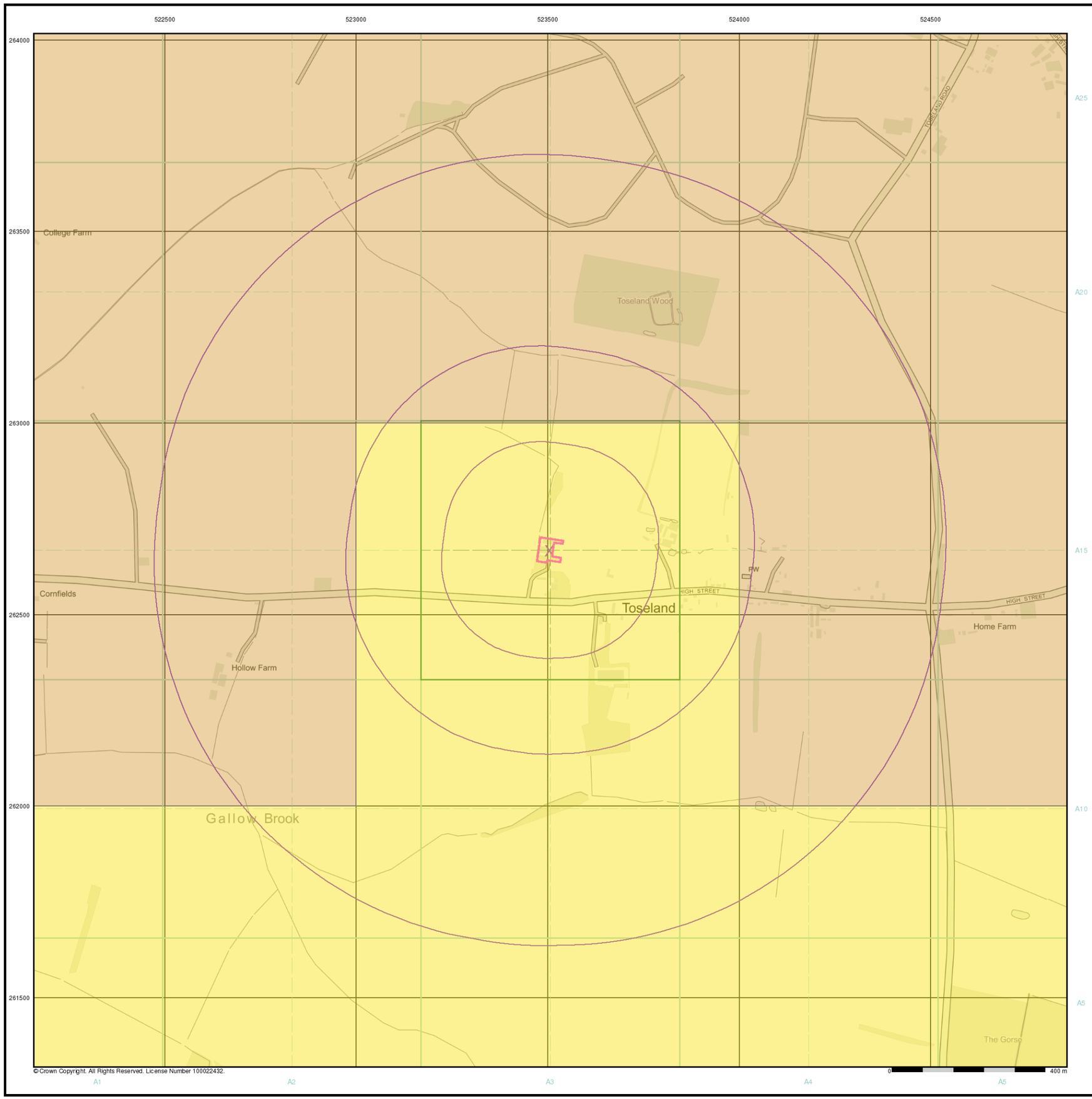


BRD

General

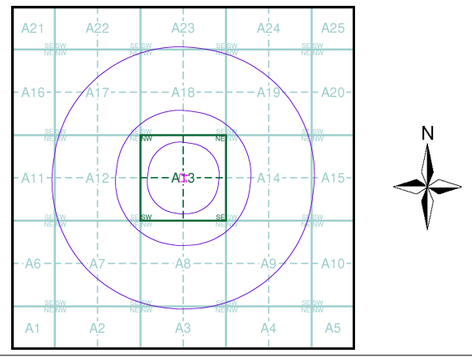
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



Order Details

Order Details:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
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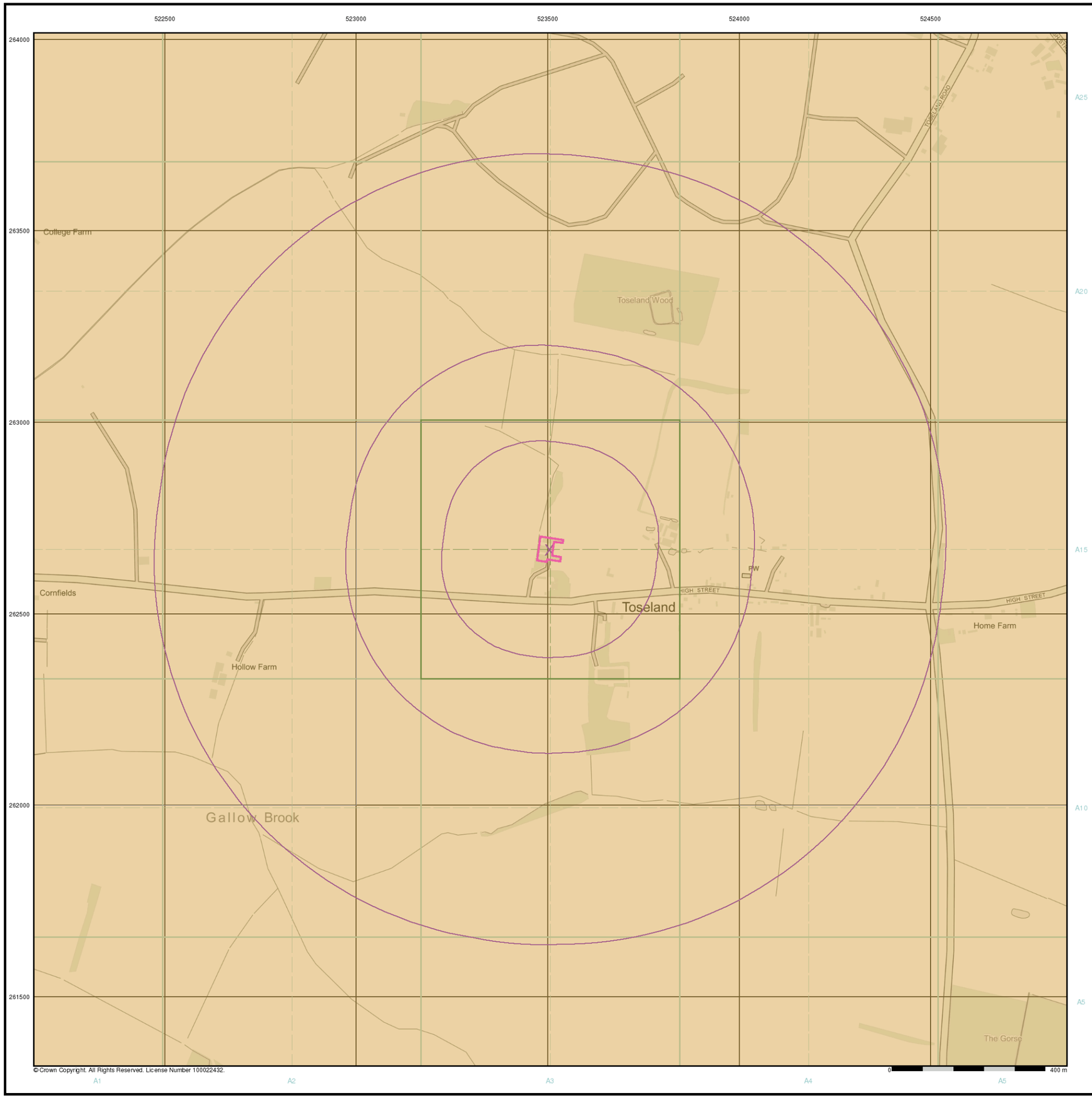


BRD

General

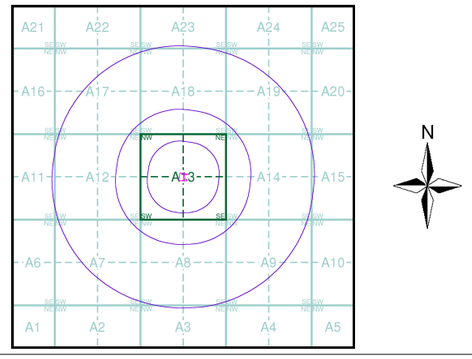
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg

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

Estimated Soil Chemistry Cadmium - Slice A



Order Details

Order Details:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details

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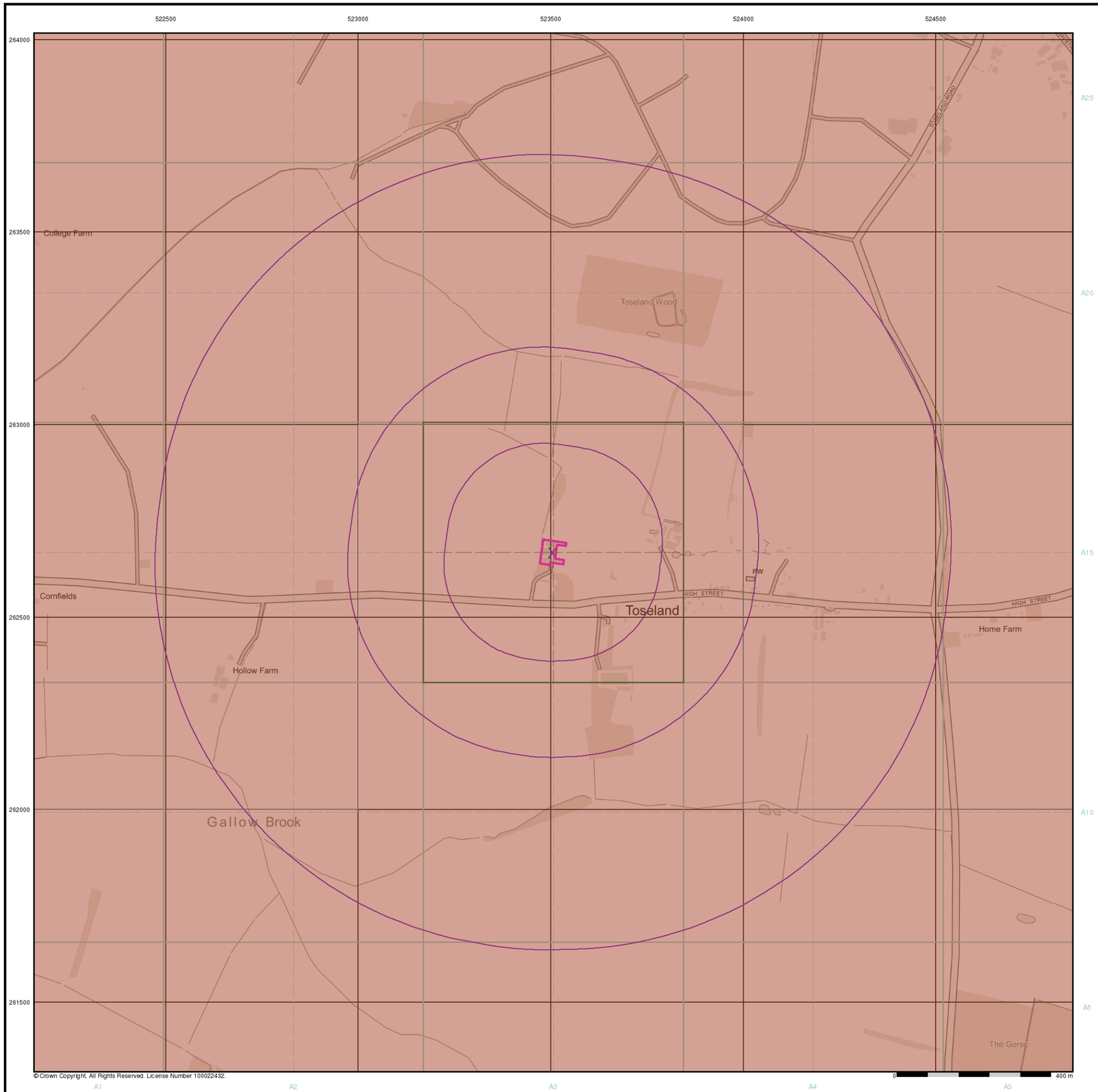


BRD

General

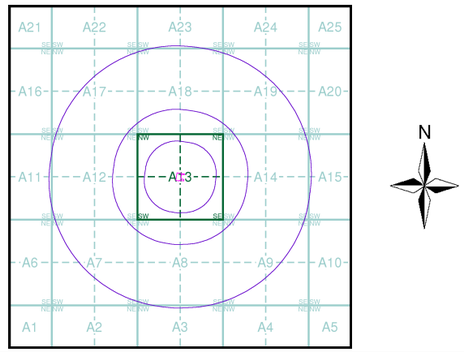
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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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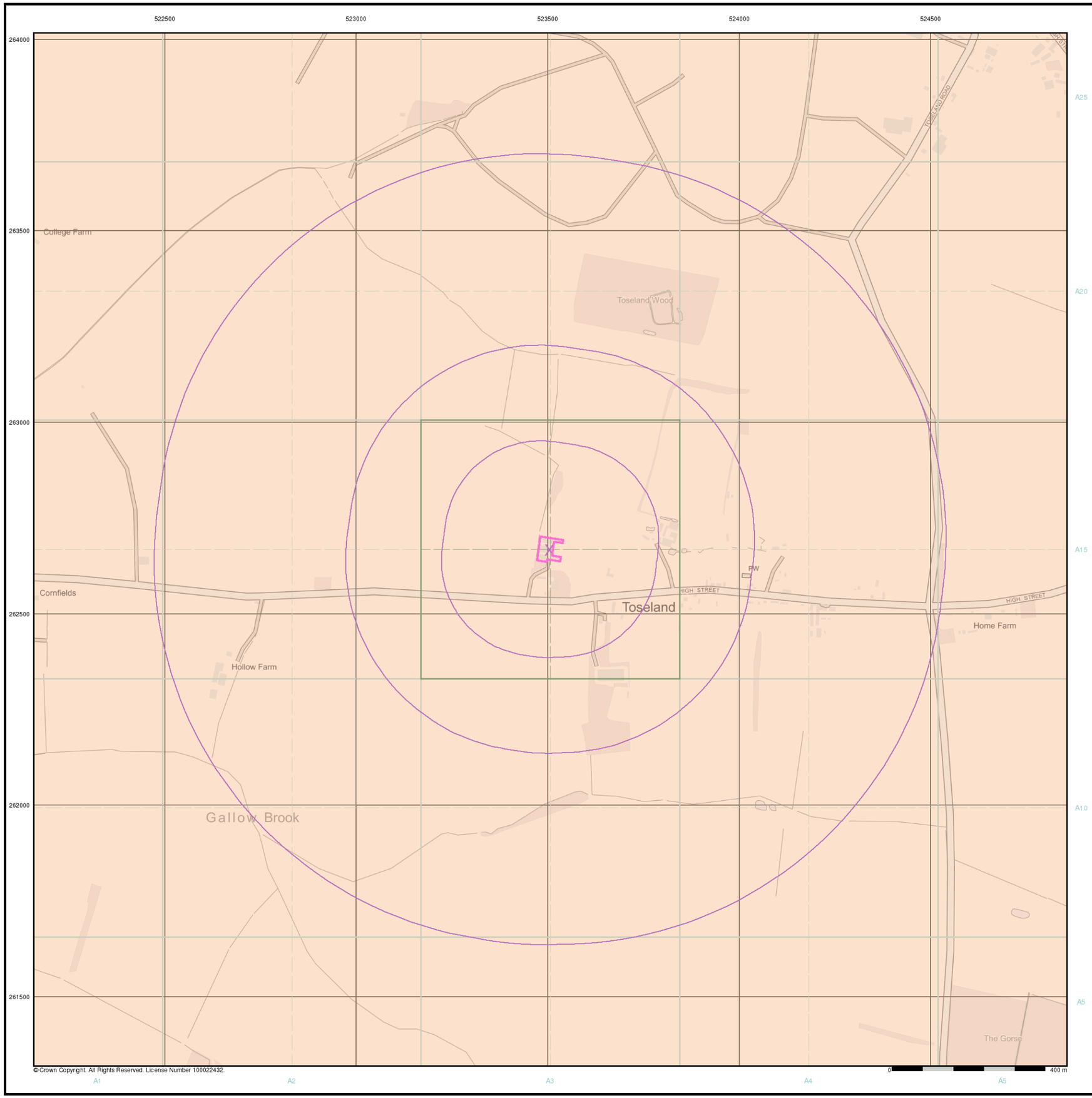

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BRD

General

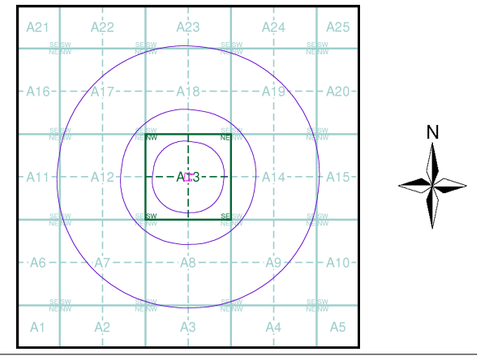
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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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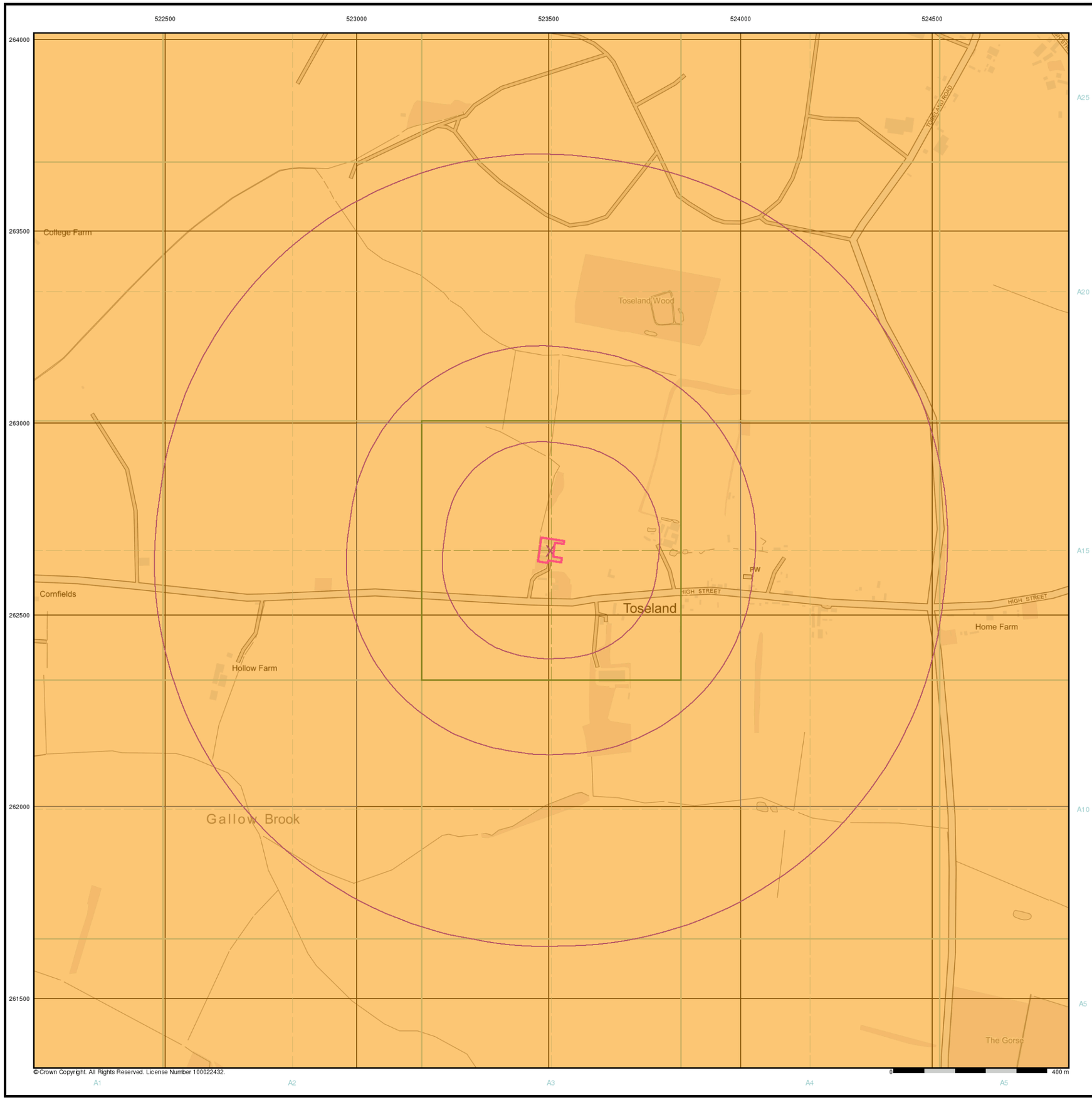

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BRD

General

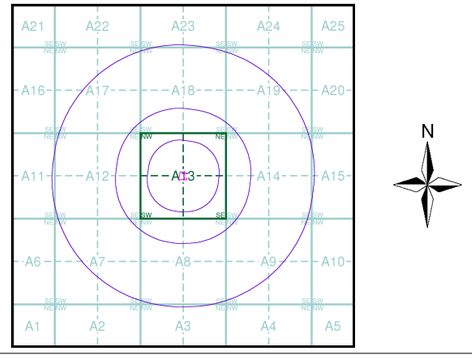
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg

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

Estimated Soil Chemistry Nickel - Slice A



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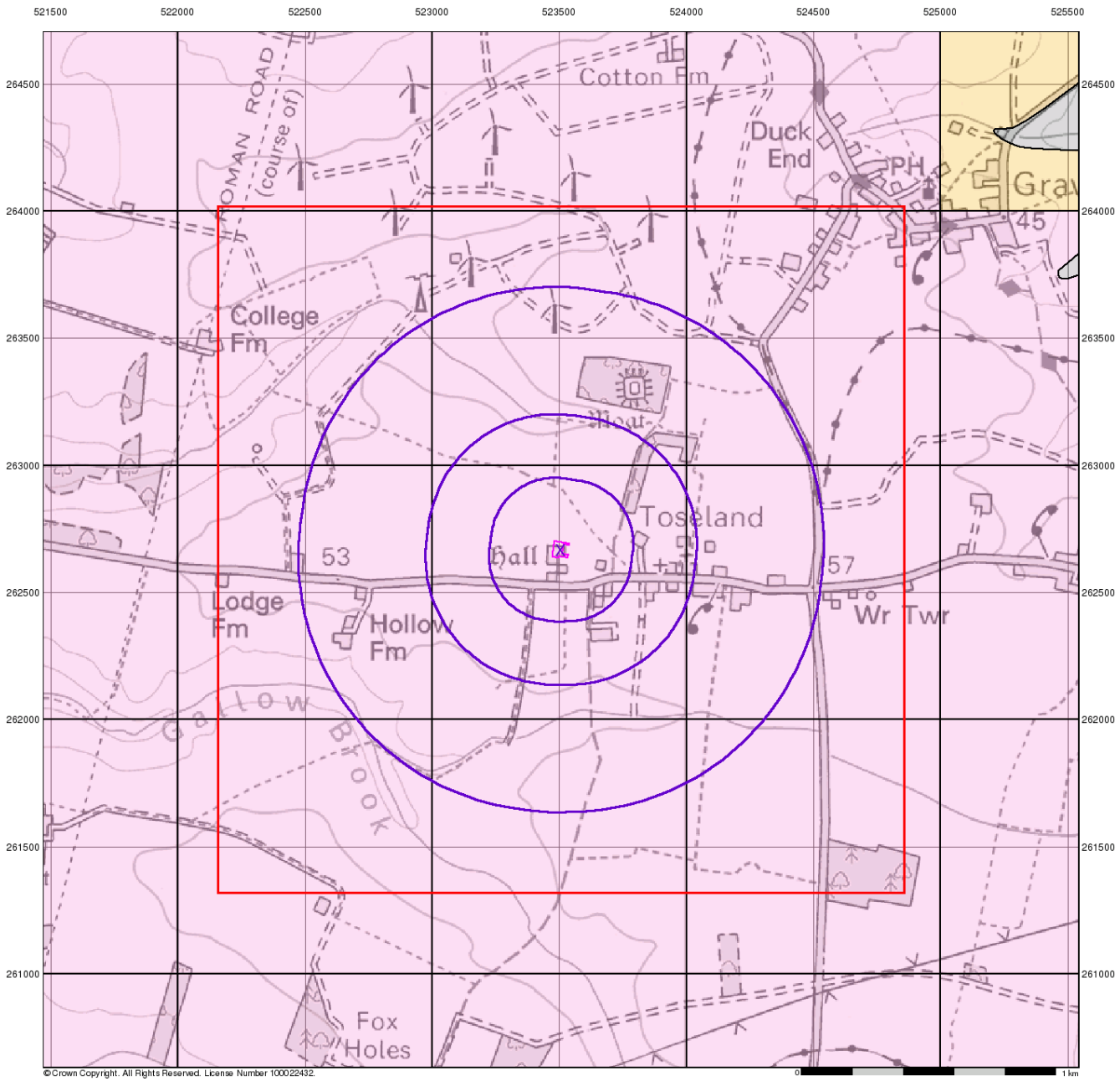


BRD

Groundwater Vulnerability

General

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

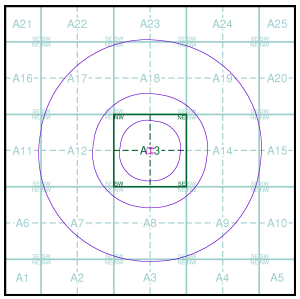
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



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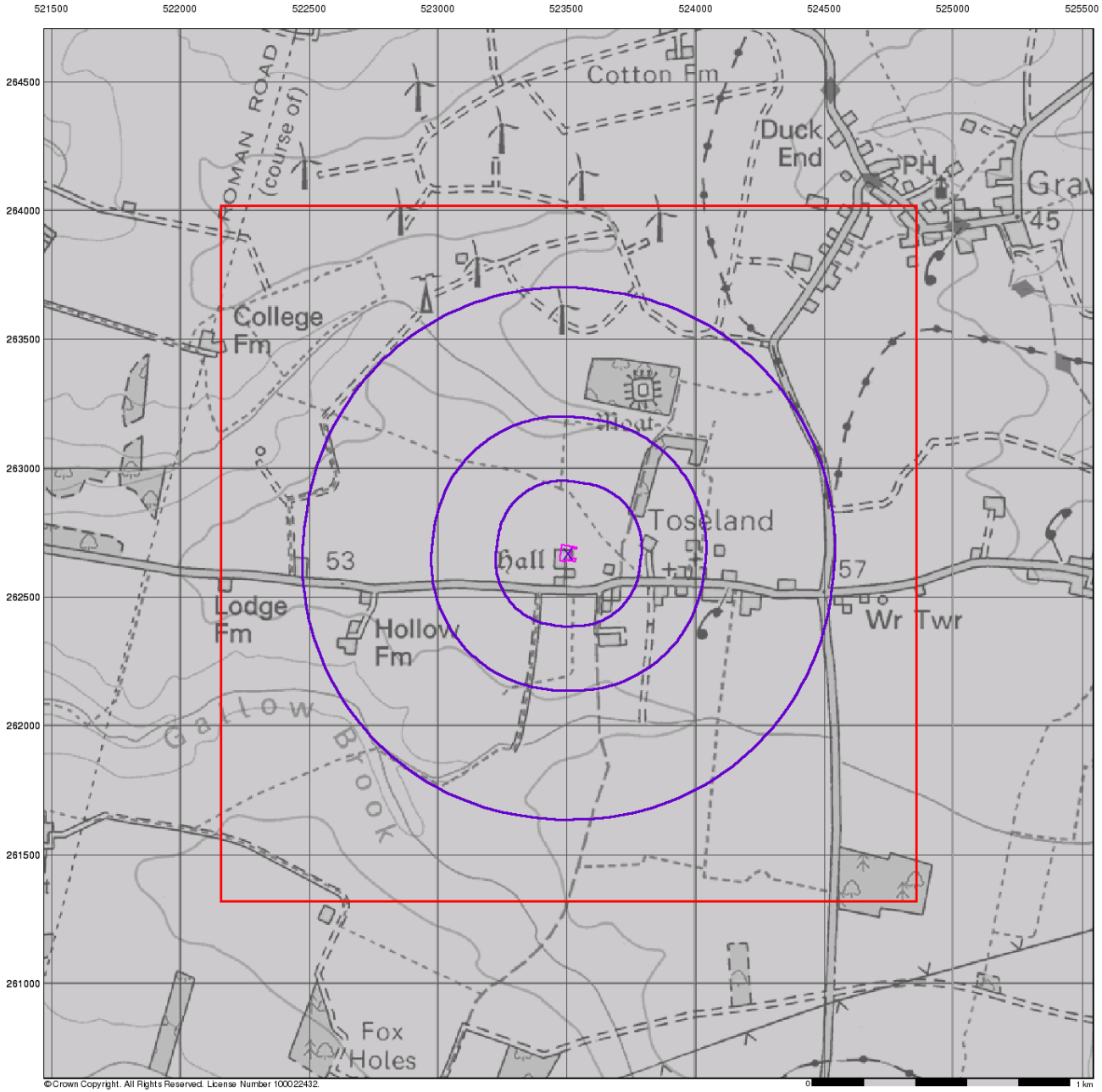


BRD

Bedrock Aquifer Designation

General

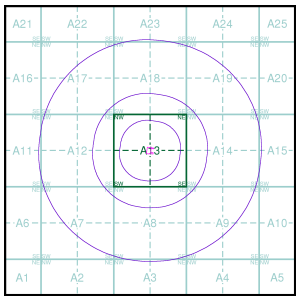
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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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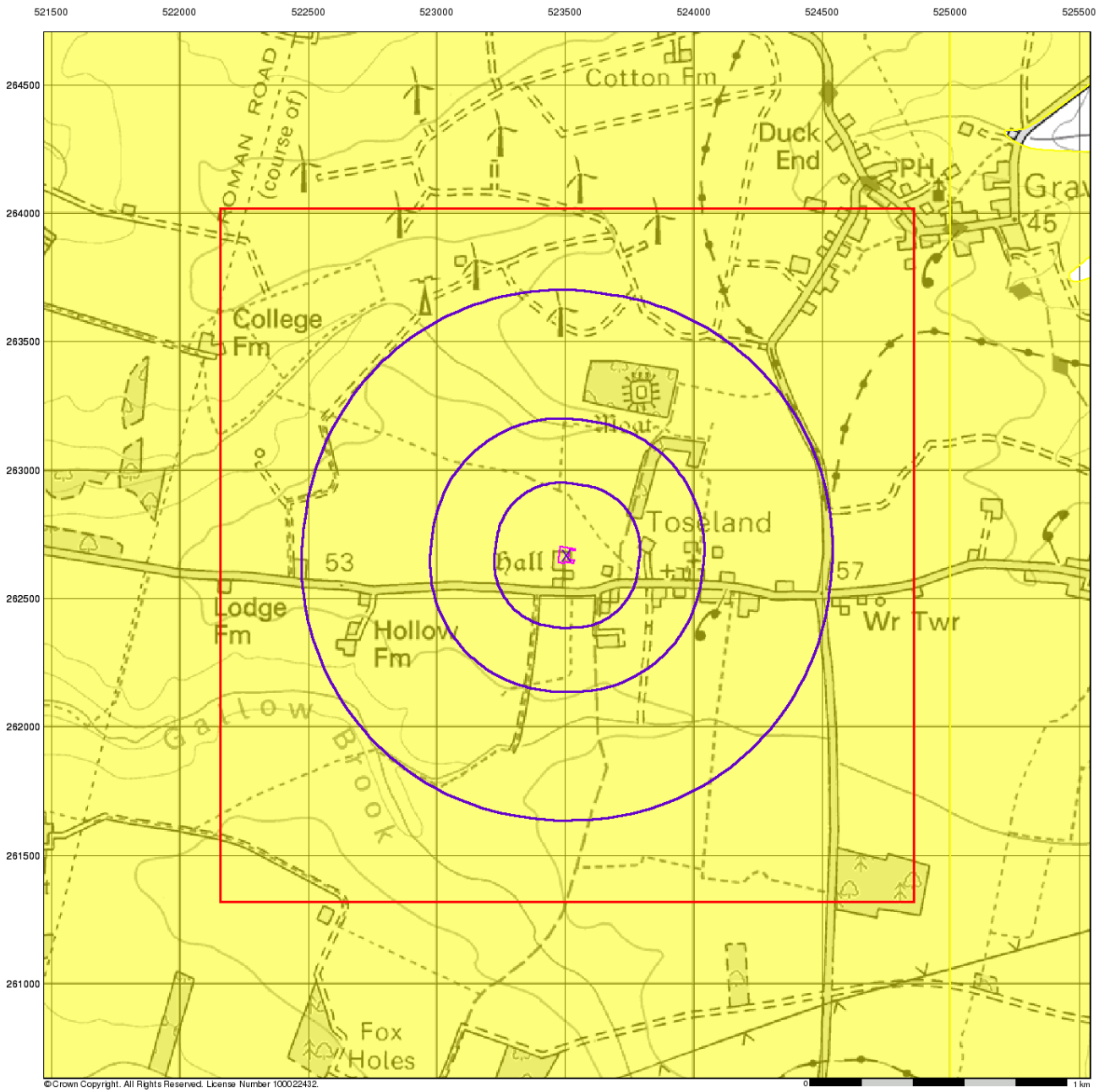


BRD

Superficial Aquifer Designation

General

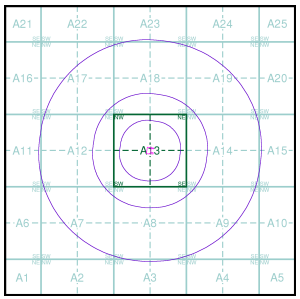
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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

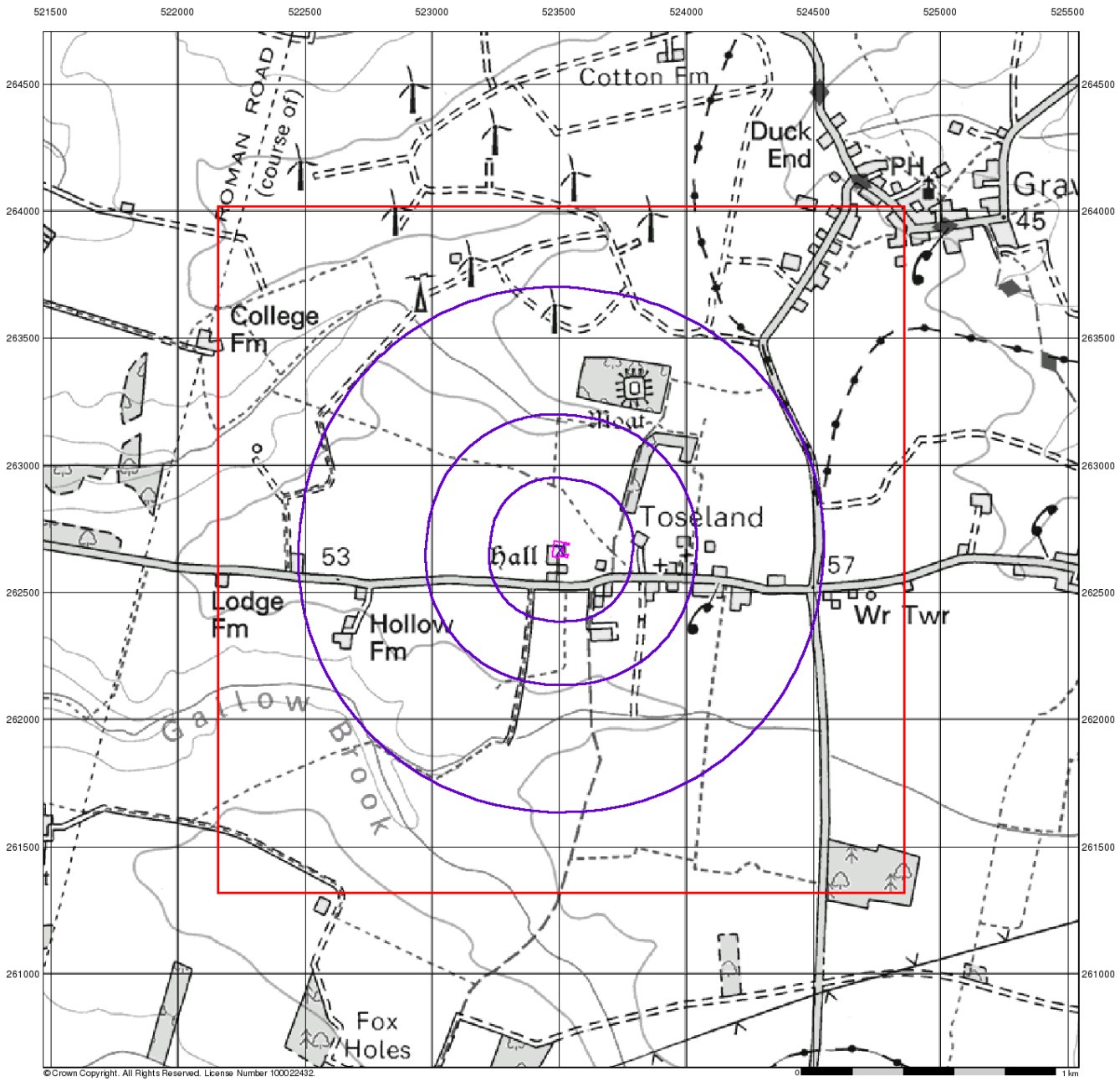


Order Details

Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU



BRD

Source Protection Zones

General

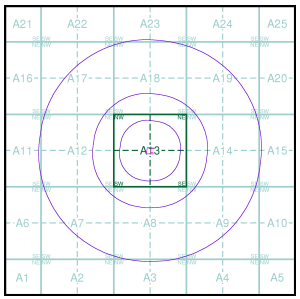
Specified Site | Specified Buffer(s) | Bearing Reference Point

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)

Site Sensitivity Context Map - Slice A



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Site Area (Ha):	0.28
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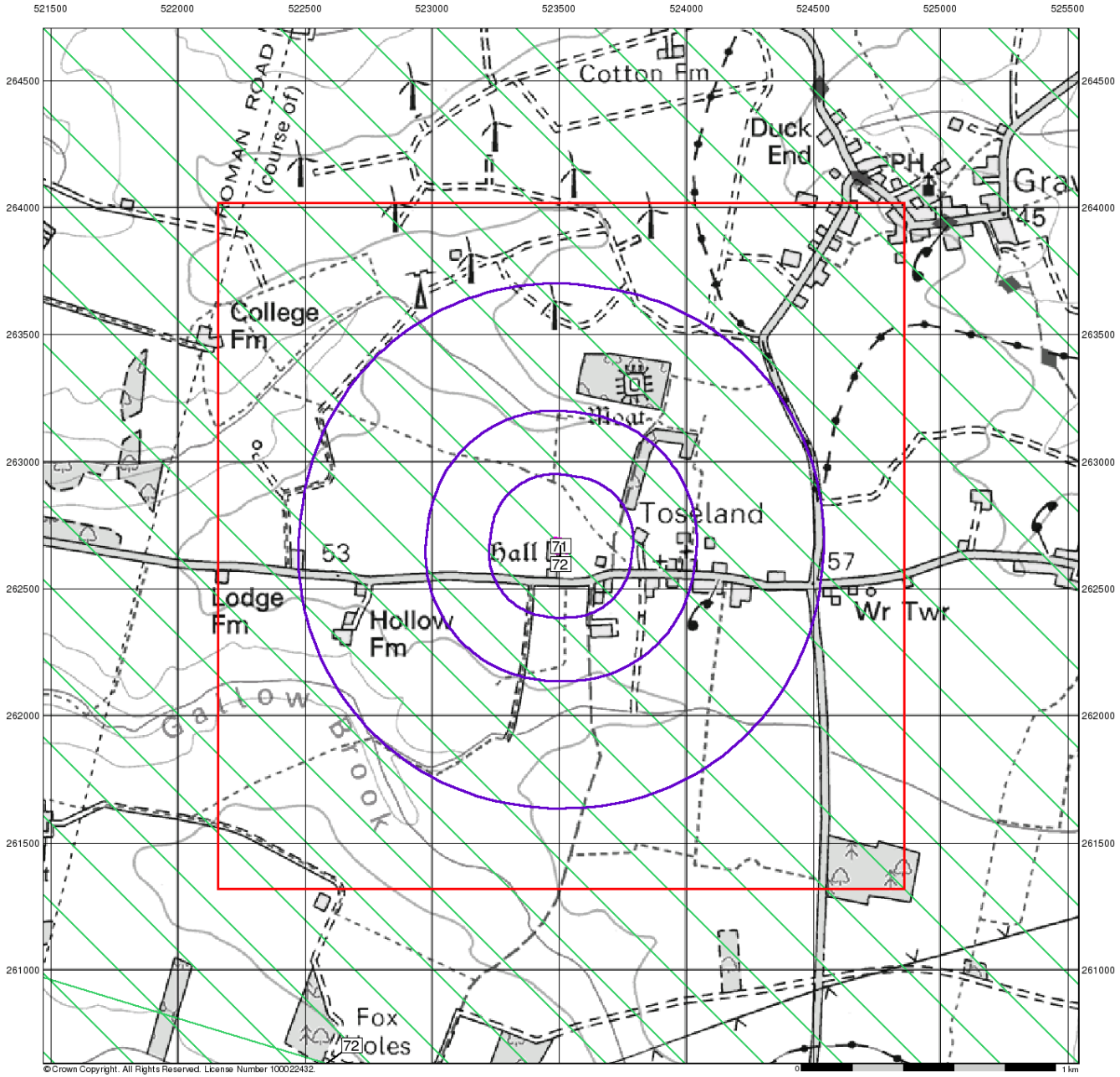
Web: www.envirocheck.co.uk



BRD

Sensitive Land Uses

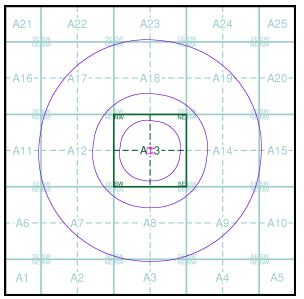
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



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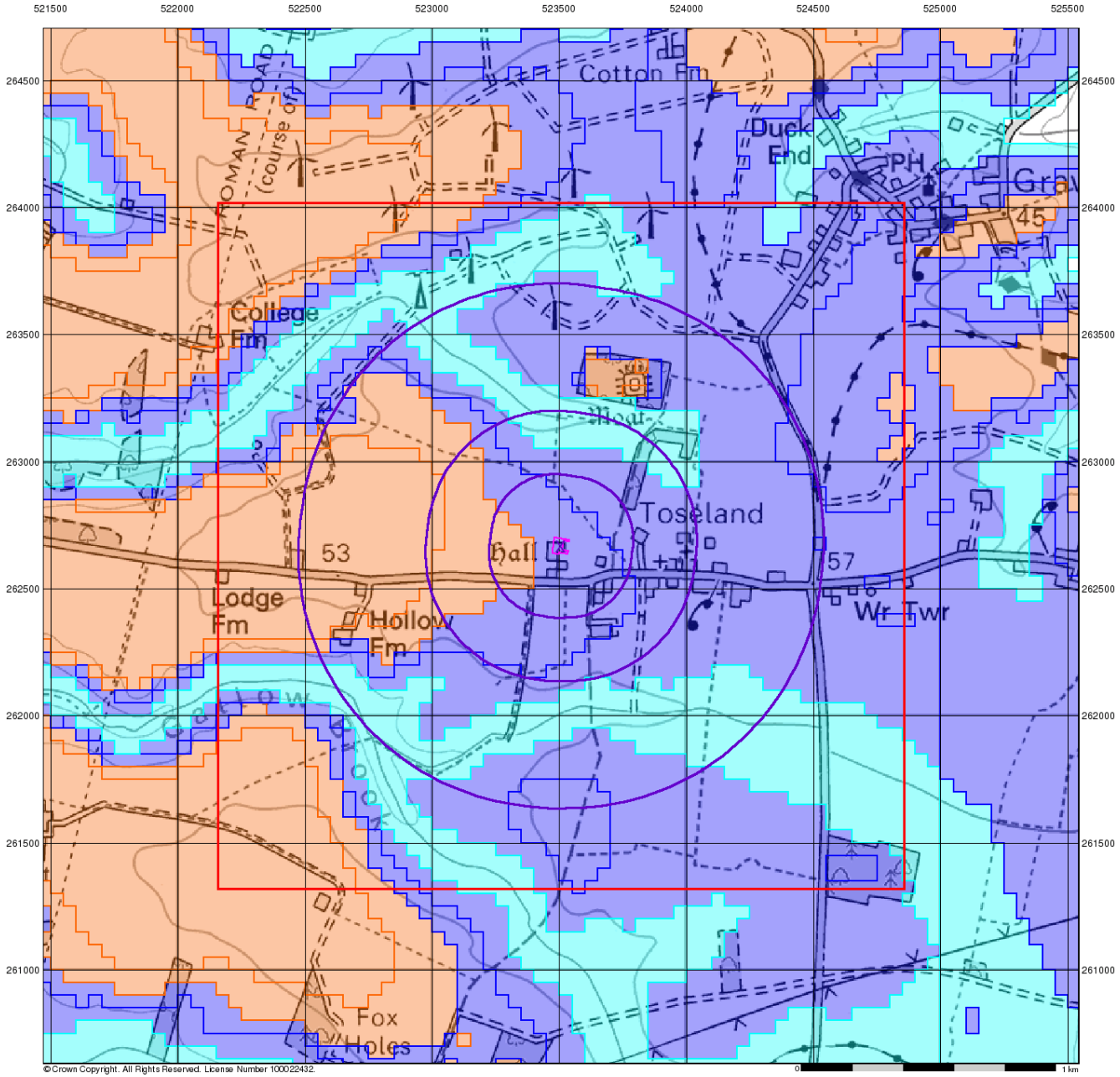


BRD

BGS Flood GFS Data

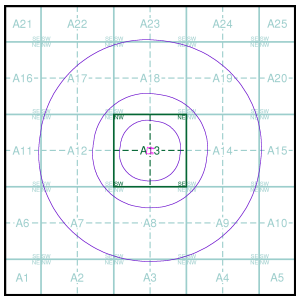
General

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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Envirocheck® Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:
313389616_1_1

Customer Reference:
BRD4279

National Grid Reference:
523510, 262670

Slice:
A

Site Area (Ha):
0.28

Search Buffer (m):
1000

Site Details:

, Toseland Hall, Toseland Road
Toseland
St. Neots
PE19 6RU

Client Details:

Ms A Stratford
BRD Environmental Ltd
Hawthorne Villa
1 Old Parr Road
Banbury
Oxfordshire
OX16 5HT

Prepared For:

Toseland Hall Farm

Contents

Report Section and Details	Page Number
Summary	-
The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer selected. For ease of reference, the report is broken down into 4 sections of data; Mining and Natural Cavities Data, Historical Land Use Information (1:2,500), Historical Land Use Information (1:10,000) and Ground Stability Data (1:50,000).	
Mining and Natural Cavities Data	-
The Mining and Natural Cavities Data section features data sets related to the existence of mining areas and their potential hazards; and details of naturally formed cavities. Data sets within this section are not plotted, with the exception of BGS Recorded Mineral Sites and Potential Mining Areas which feature on the Historical Land Use Information (1:10,000) map.	
Historical Land Use Information (1:2,500)	1
The Historical Land Use Information (1:2,500) section contains data captured from analysis carried out by Landmark of 1:1,250 and 1:2,500 scale historical Ordnance Survey mapping, identifying areas where, historically, the land uses were potentially contaminative. For the purpose of this Envirocheck module, only historical data relating to mining and ground stability has been included and plotted on the corresponding Historical Land Use Information (1:2,500) map. This section also includes the Subterranean Features data set, which details various man-made and man-used underground spaces obtained from the Subterranea Britannica society.	
Historical Land Use Information (1:10,000)	-
The Historical Land Use (1:10,000) section covers data captured from the systematic analysis carried out by Landmark of 1:10, 560 and 1:10,000 scale historical Ordnance Survey mapping dating back to the mid-19th century, identifying potentially contaminative past industrial land uses. For the purpose of this Envirocheck module, only data relating to mining and ground stability has been included and plotted on the accompanying Historical Land Use Information (1:10,000) map.	
Ground Stability Data (1:50,000)	2
The Ground Stability (1:50,000) section includes the BGS Geosure data suite, reporting features to 250m and plotted onto 3 separate maps. Also reported is brine subsidence, brine mining and salt mining data sets, of which Brine Pumping and Salt Mining Related Features are plotted, and subsidence insurance claims and insurance investigations data, which is not plotted.	
Historical Map List	3
The Historical Map List section details the historical mapping that has been analysed for your site, in relation to the Historical Land Use Information sections.	
Data Currency	4
Data Suppliers	5
Useful Contacts	6

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The brine subsidence data relating to the Driotwich area as provided in this report is derived from JPB studies and physical monitoring undertaken annually over more than 35 years. For more detailed interpretation contact enquiries@jpb.co.uk. JPB retain the copyright and intellectual rights to this data and accept no liability for any loss or damage, including in direct or consequential loss, arising from the use of this data.

The Mining Instability data was obtained on licence from Ove Arup & Partners Limited (for further information, contact mining.review@arup.com). No reproduction or further use of such Data is to be made without the prior written consent of Ove Arup & Partners Limited. The supplied Mining Instability data is derived from publicly available records and other third party sources and neither Ove Arup & Partners nor Landmark warrant the accuracy or completeness of such information or data.

Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Mining and Natural Cavities Data					
BGS Recorded Mineral Sites					
Coal Mining Affected Areas			n/a	n/a	n/a
Man Made Mining Cavities					
Mining Instability			n/a	n/a	n/a
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential Mining Areas					
Historical Land Use Information (1:2,500)					
Extractive Industries or Potential Excavations from 1855-1909 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1893-1915 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1906-1937 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1924-1949 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1950-1980 (100m)	pg 1		1	n/a	n/a
Subterranean Features (100m)				n/a	n/a
Historical Land Use Information (1:10,000)					
Air Shafts					
Disturbed Ground					
General Quarrying					
Heap, unknown constituents					
Mineral Railway					
Mining & quarrying general					
Mining of coal & lignite					
Quarrying of sand & clay, operation of sand & gravel pits					
Former Marshes					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)					
Ground Stability Data (1:50,000)					
CBSCB Compensation District			n/a	n/a	n/a
Brine Pumping Related Features					
Brine Subsidence Solution Area					
Potential for Collapsible Ground Stability Hazards	pg 2	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 2	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 2	Yes		n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 2	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 2	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 2	Yes		n/a	n/a
Salt Mining Related Features					

Summary

Report Version v53.0

Historical Land Use Information (1:2,500)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Extractive Industries or Potential Excavations from 1950-1980** Use: Pond First Map Published Date: 1977 Last Map Published Date: N/A	A13SE (S)	41	-	523512 262596

Ground Stability Data (1:50,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	CBSCB Compensation District The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
2	**Potential for Collapsible Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
3	**Potential for Landslide Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
4	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668
5	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	1	523506 262668

Historical Map List

The following mapping has been analysed for Historical Land Use Information (1:2,500):

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	TL2362	1977
Ordnance Survey Plan	TL2363	1977

The following mapping has been analysed for Historical Land Use Information (1:10,000):

1:10,560	Mapsheet	Published Date
Huntingdonshire	026_NW	1891
Cambridgeshire & Isle Of Ely	038_NW	1891
Cambridgeshire & Isle Of Ely	038_SW	1891
Huntingdonshire	026_NW	1902
Huntingdonshire	026_SW	1902
Cambridgeshire & Isle Of Ely	038_NW	1902
Cambridgeshire & Isle Of Ely	038_SW	1902
Cambridgeshire & Isle Of Ely	038_NW	1952
Cambridgeshire & Isle Of Ely	038_SW	1952
Ordnance Survey Plan	TL26SW	1958
1:10,000	**Mapsheet**	**Published Date**
Ordnance Survey Plan	TL26SW	1982

Data Currency

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	June 2023	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Man Made Mining Cavities Stantec UK Ltd	December 2022	Bi-Annually
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Natural Cavities Stantec UK Ltd	December 2022	Bi-Annually
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Historical Land Use Information (1:2,500)	**Version**	**Update Cycle**
Subterranean Features Landmark Information Group Limited	June 2022	Bi-Annually
Ground Stability Data (1:50,000)	**Version**	**Update Cycle**
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	 As notified
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Brine Subsidence Solution Area Johnson Poole & Bloomer	December 2020	

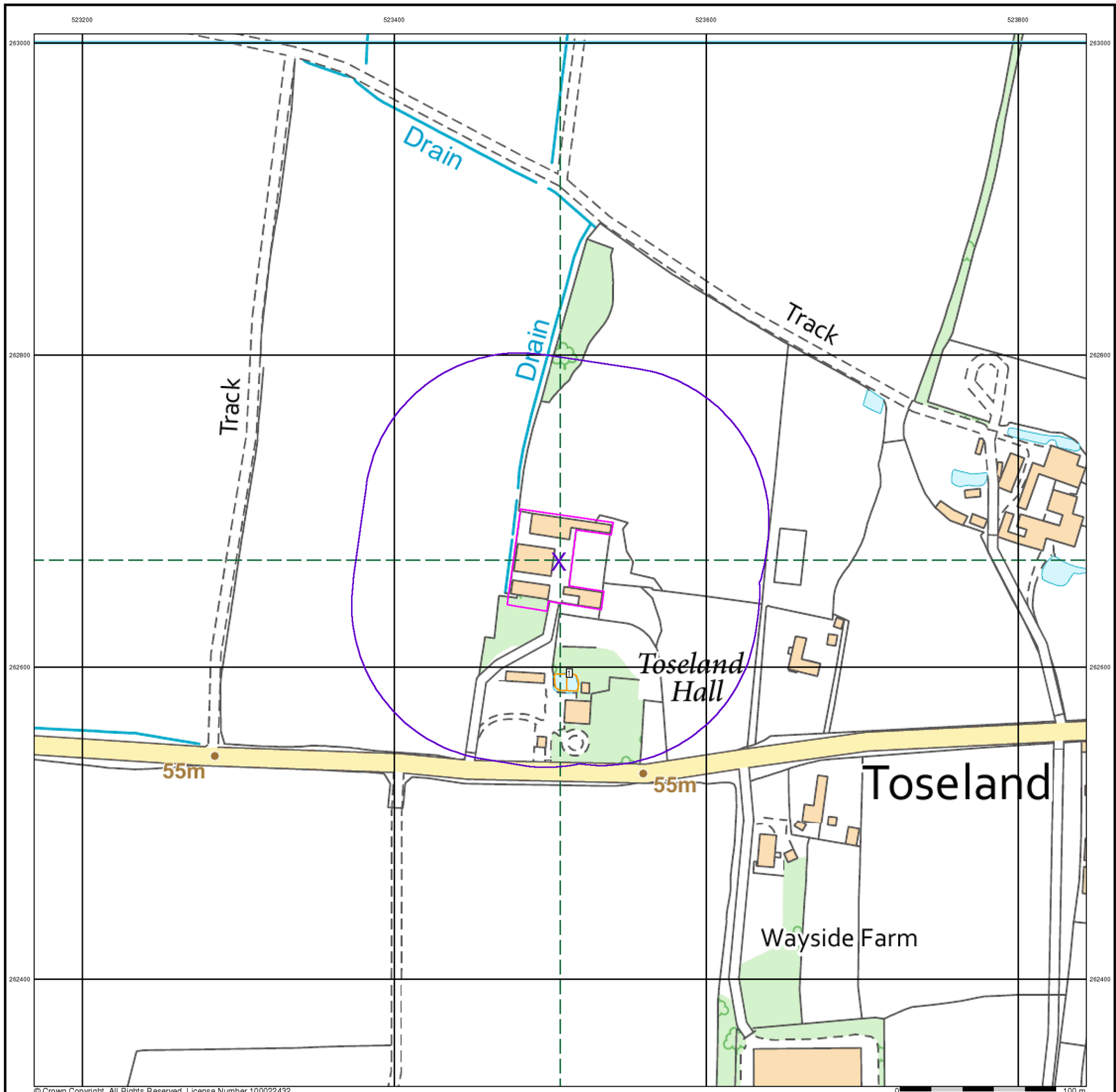
Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
British Geological Survey	
The Coal Authority	
Ove Arup	
Stantec UK Ltd	
Wardell Armstrong	
Johnson Poole & Bloomer	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
-	**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



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BRD

Historical Land Use Information (1:2,500)

General

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

Several of Type at Location

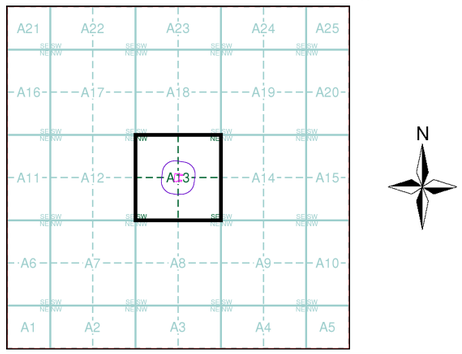
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity from 1855 - 1909	▲	—	▭
Extractive Industries Activity from 1893 - 1915	▲	—	▨
Extractive Industries Activity from 1906 - 1937	▲	—	▦
Extractive Industries Activity from 1924 - 1949	▲	—	▨
Extractive Industries Activity from 1950 - 1980	▲	—	▥

Subterranean Features

	Point	Line	Polygon
Subterranean Features	▼	- - -	▭

Mining and Ground Stability - Segment A13



Order Details

Order Number:	313389616_1_1
Customer Ref:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Plot Buffer (m):	100

Site Details

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

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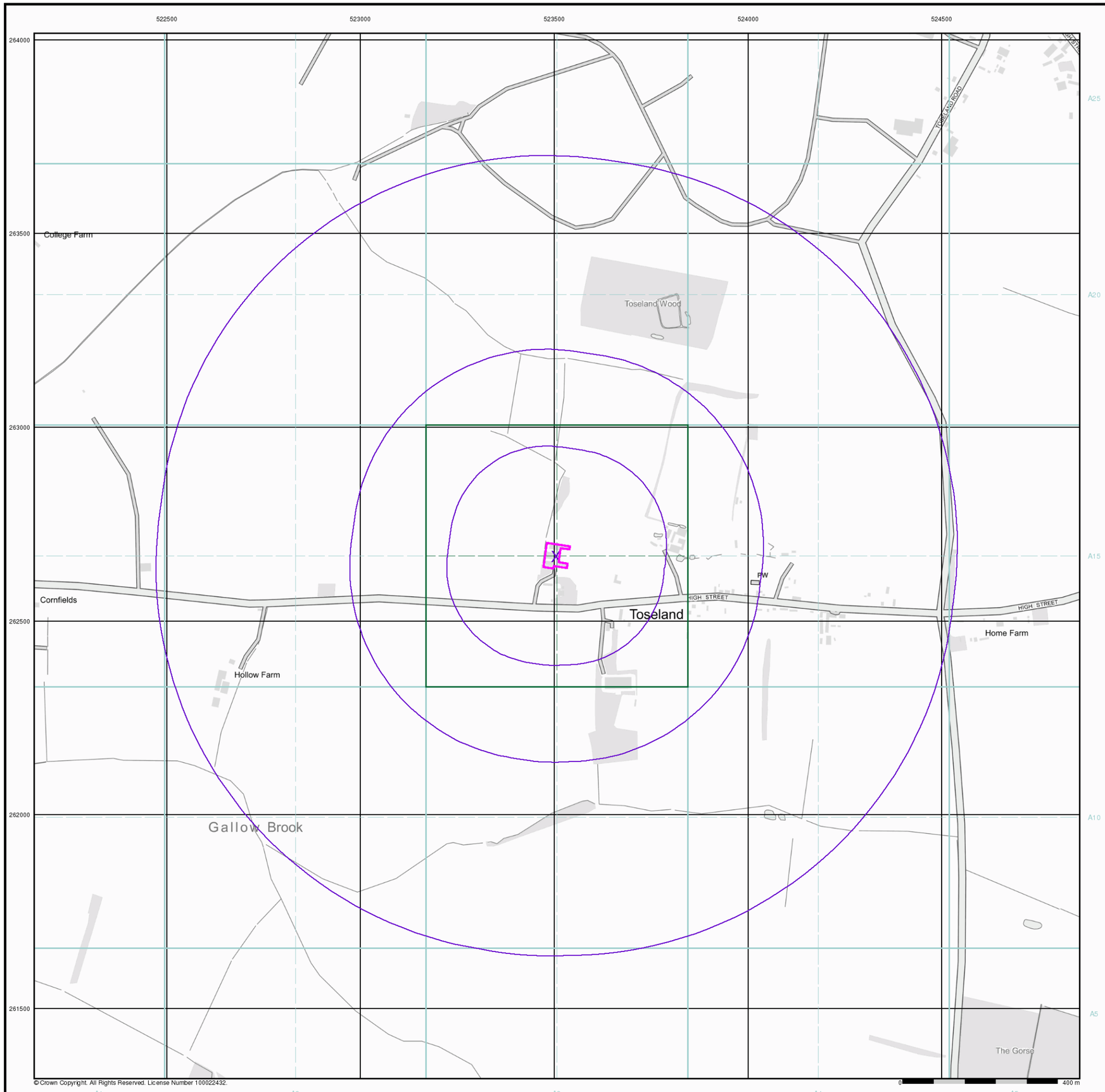

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BRD

Historical Land Use Information (1:10,000)

General

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

Several of Type at Location

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

	Point	Line	Polygon
Air Shafts	◆		
Disturbed Ground	◆		
General Quarrying	◆		
Heap, unknown constituents	◆		
Mineral Railway	◆		
Mining and Quarrying General	◆		
Mining of Coal & Lignite	◆		
Quarrying of Sand and Clay, Operation of Sand and Gravel Pits	◆		

Historical Land Use

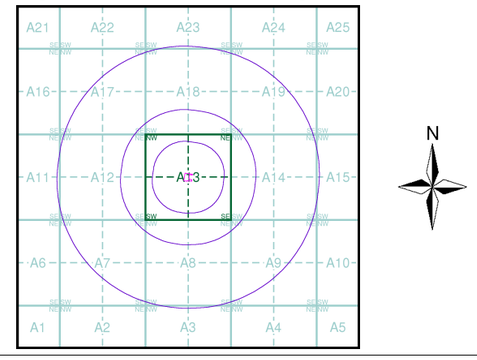
	Point	Line	Polygon
Potentially Infilled Land (Non-Water)	●		
Potentially Infilled Land (Water)	●		
Former Marsh	✠		

Mining Data

Potential Mining Area

BGS Recorded Mineral Site

Mining and Ground Stability - Slice A



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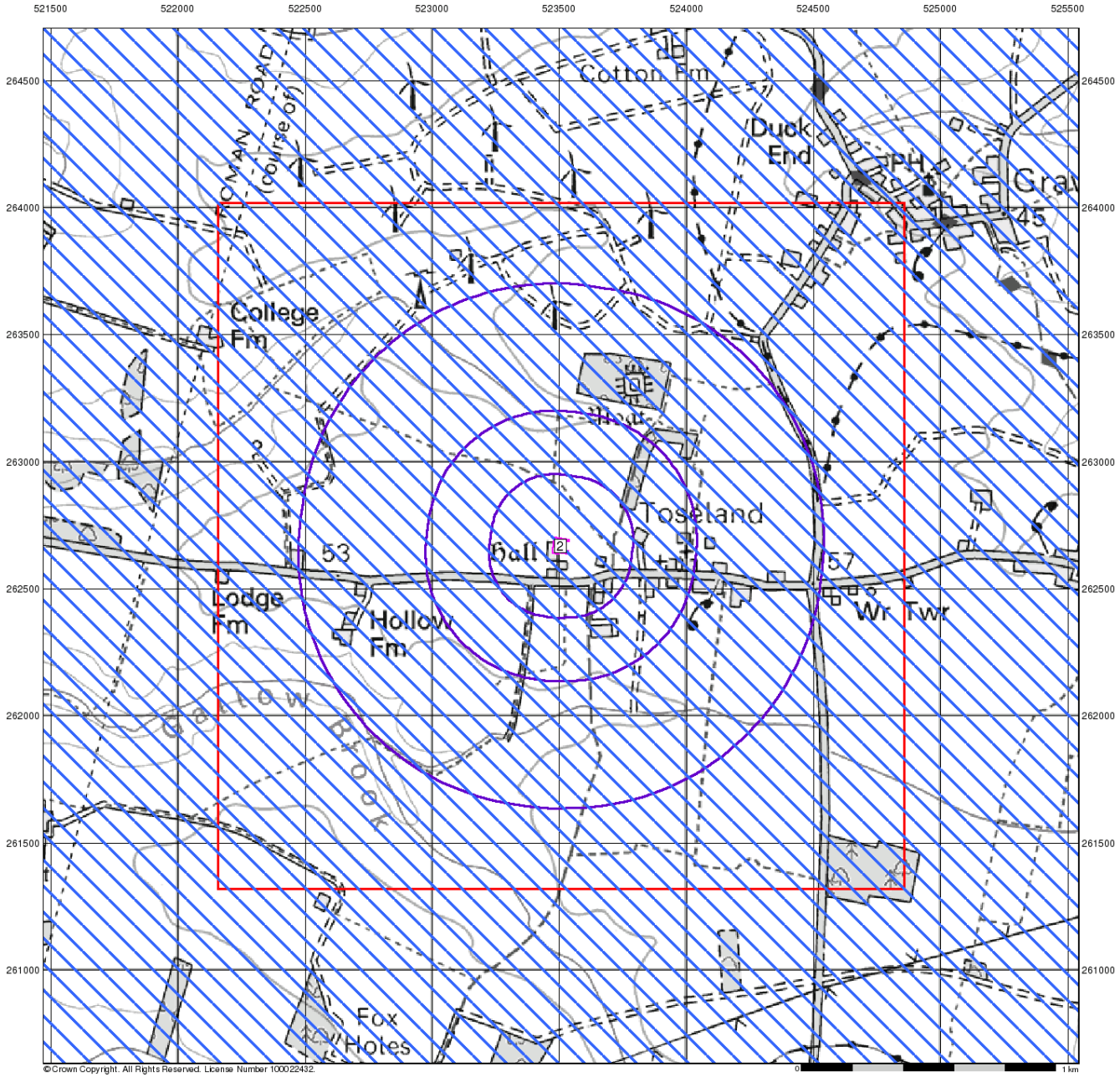


BRD

Ground Stability Data (1:50,000)

General

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

Potential for Compressible Ground Stability Hazards

High | Low | Moderate | Very Low

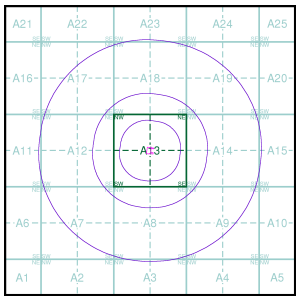
Potential for Collapsible Ground Stability Hazards

High | Low | Moderate | Very Low

Brine Pumping and Salt Mining

	Point	Polygon
Brine Pumping Related Feature		
Salt Mining Related Feature		

Mining and Ground Stability - Slice A



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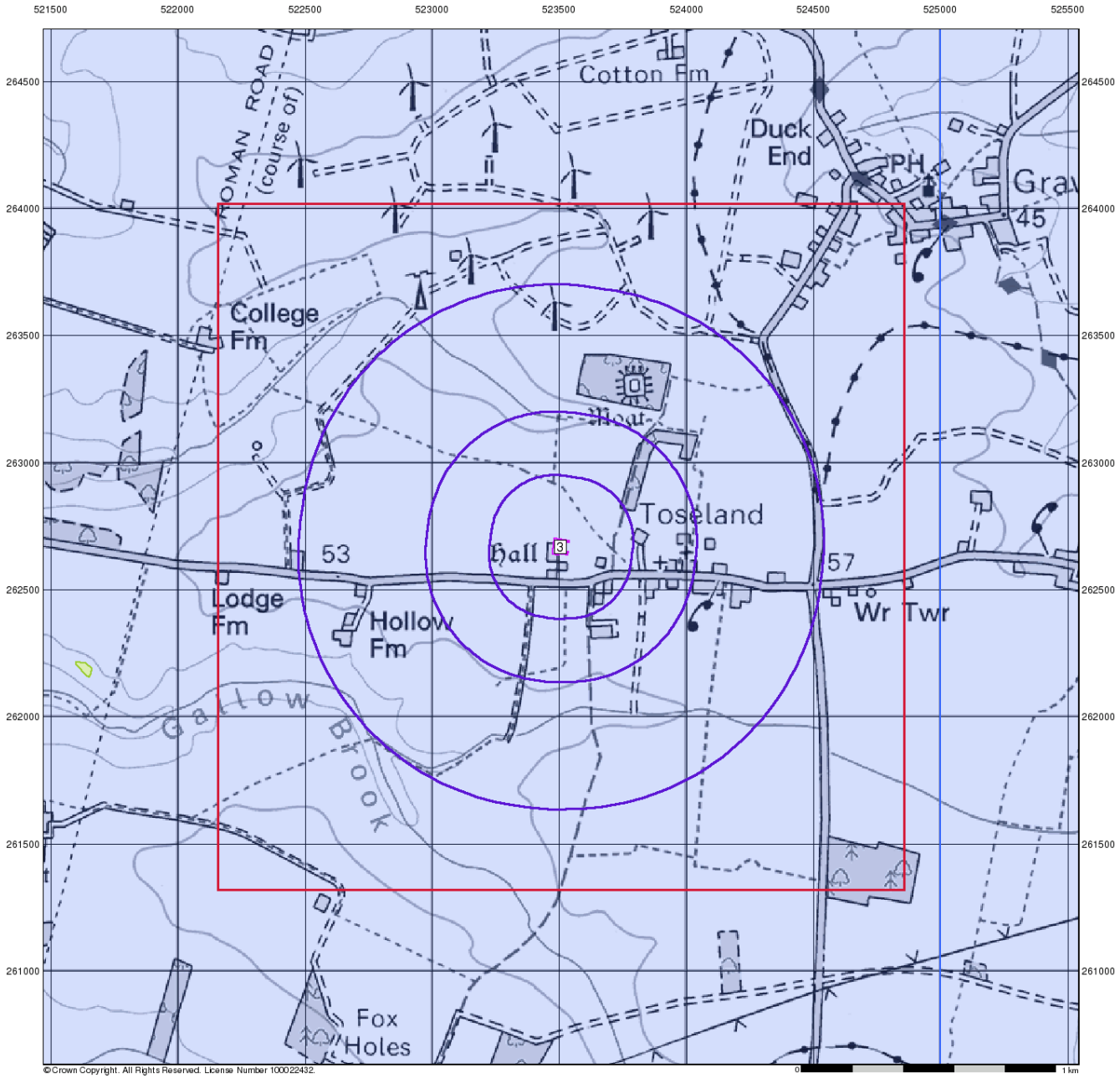


BRD

Ground Stability Data (1:50,000)

General

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

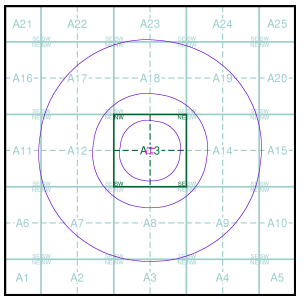
Potential for Landslide Ground Stability Hazards

High | Low | Moderate | Very Low

Potential for Ground Dissolution Stability Hazards

High | Low | Moderate | Very Low

Mining and Ground Stability - Slice A



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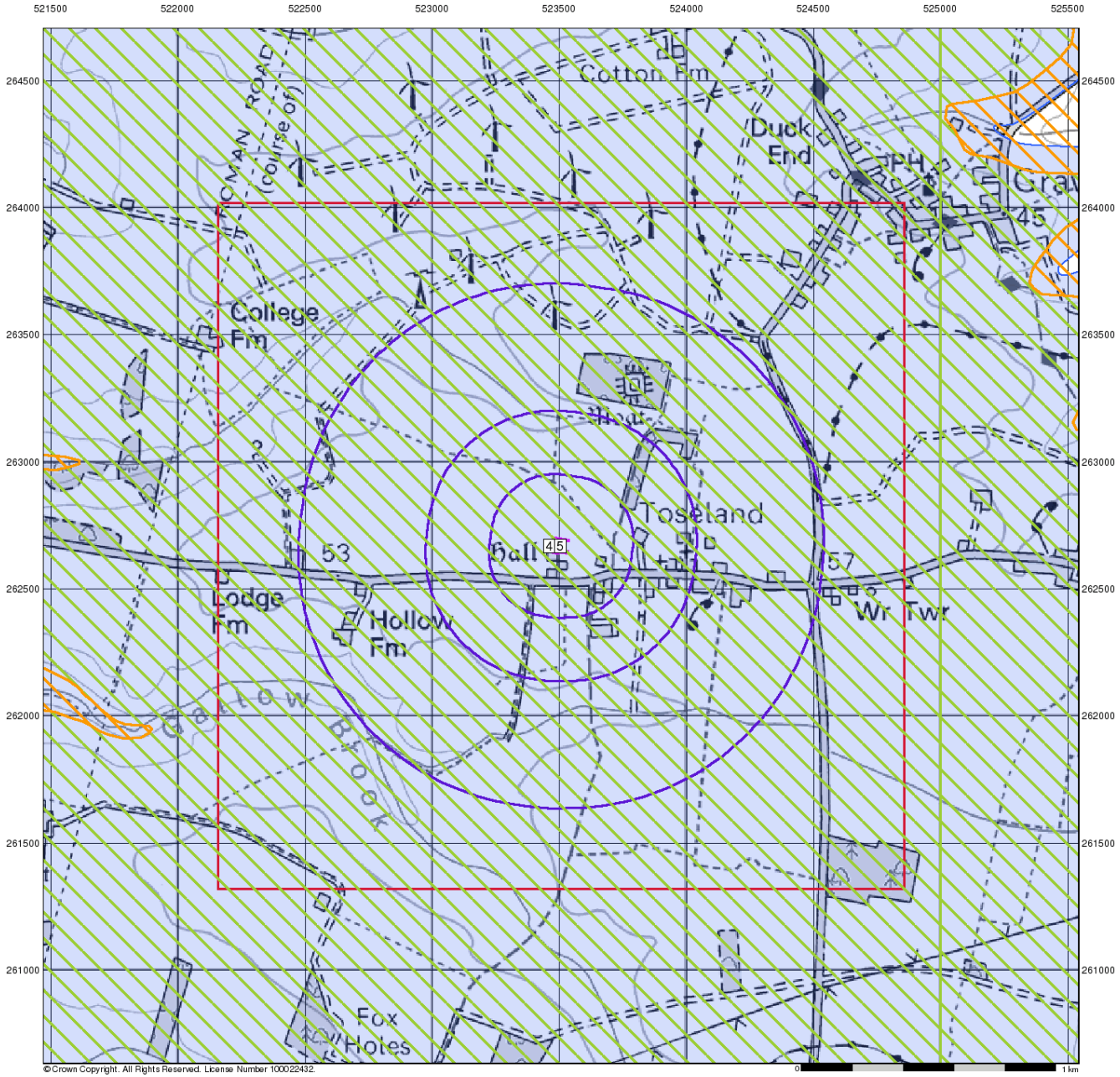


BRD

Ground Stability Data (1:50,000)

General

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

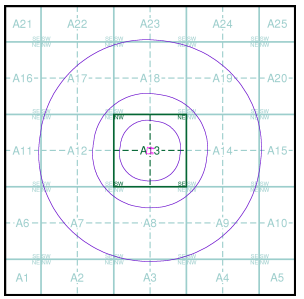
Potential for Running Sand Ground Stability Hazards

High | Low | Moderate | Very Low

Potential for Shrinking or Swelling Clay Ground Stability Hazards

High | Low | Moderate | Very Low

Mining and Ground Stability - Slice A



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Geology 1:50,000 Maps Legends

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ODT	Oadby Member	Diamicton	Not Supplied - Anglian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WWAC	West Walton Formation and Ampthill Clay Formation (Undifferentiated)	Mudstone	Not Supplied - Oxfordian
	OXC	Oxford Clay Formation	Mudstone	Not Supplied - Callovian

BRD

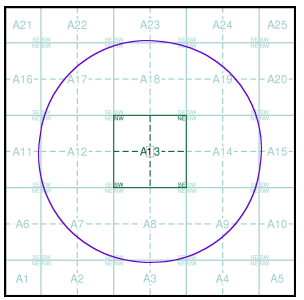
Geology 1:50,000 Maps

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:	**1**
Map Sheet No:	**187**
Map Name:	**Huntingdon**
Map Date:	**1975**
Bedrock Geology:	**Available**
Superficial Geology:	**Available**
Artificial Geology:	**Not Available**
Faults:	**Not Supplied**
Landslip:	**Not Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A

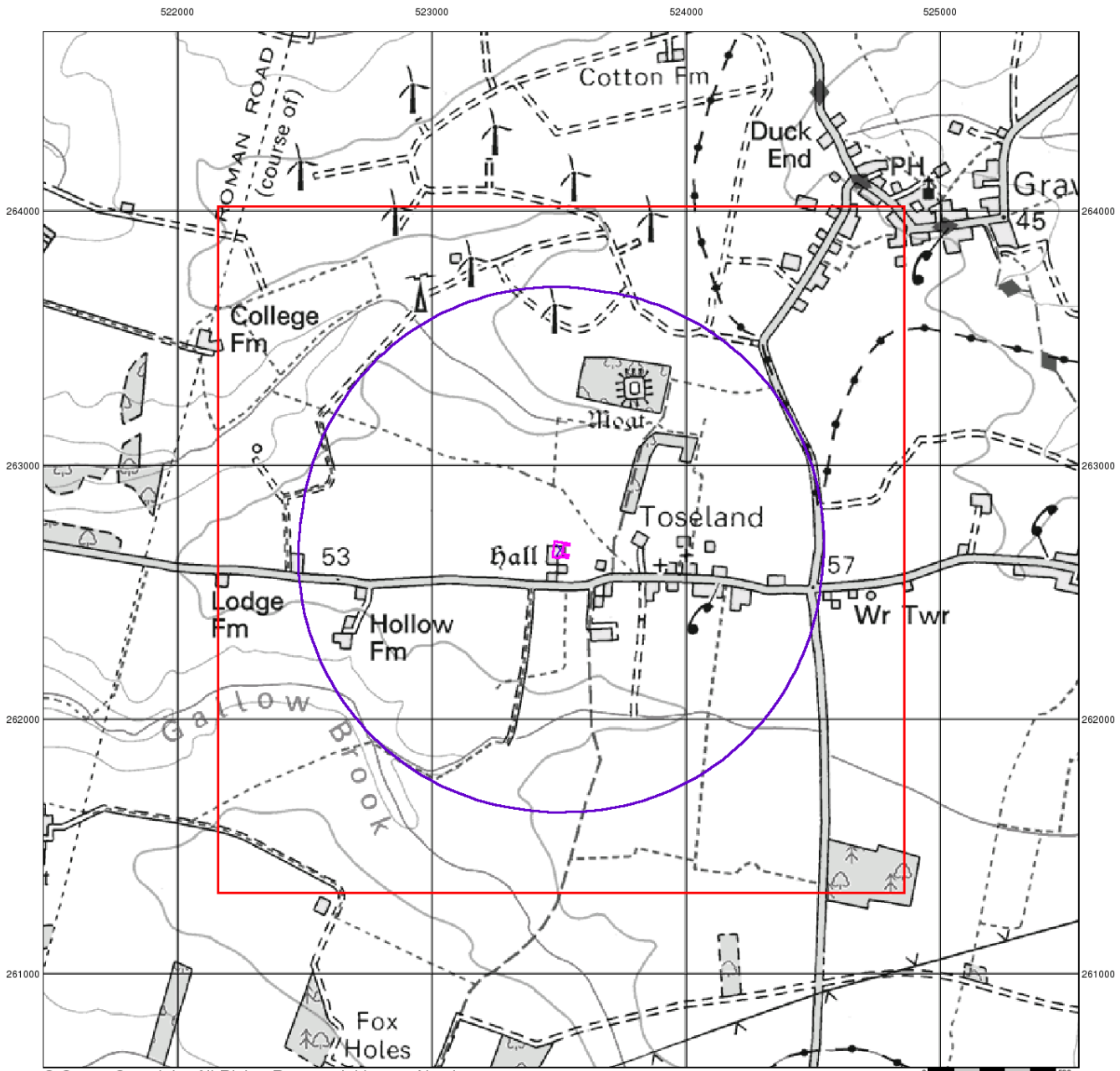


Order Details:

Order Number:	313389616_1_1
Customer Reference:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details:

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU



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BRD

Artificial Ground and Landslip

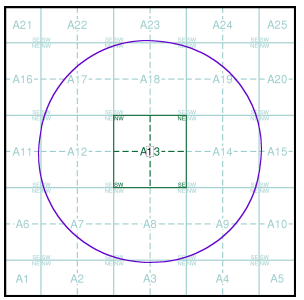
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions 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



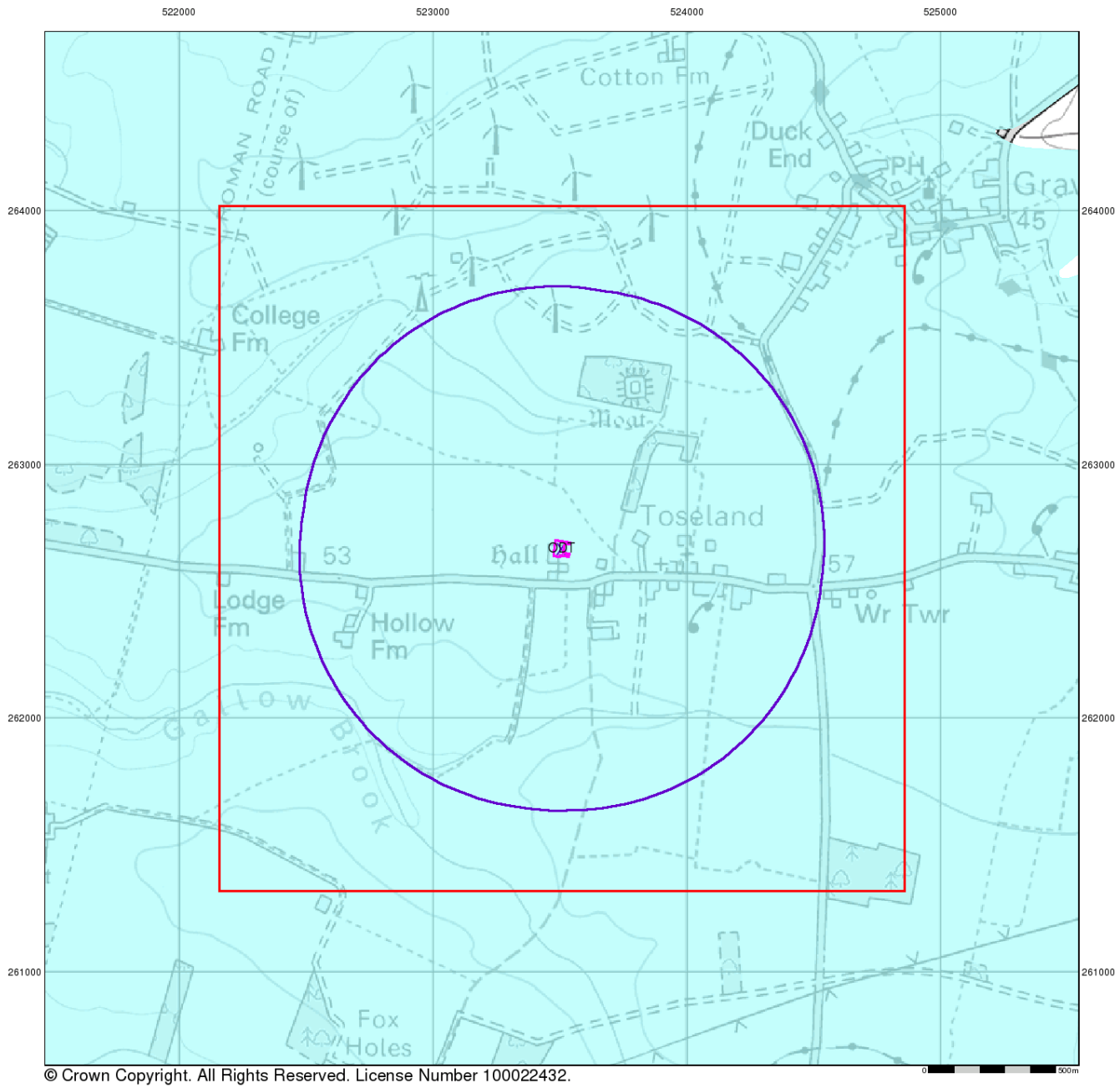
Order Details:

Order Number:	313389616_1_1
Customer Reference:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details:

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

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



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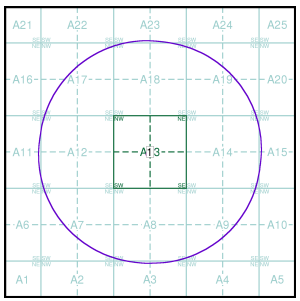
Superficial Geology

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



Order Details:

Order Number:	313389616_1_1
Customer Reference:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details:

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

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



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Bedrock and Faults

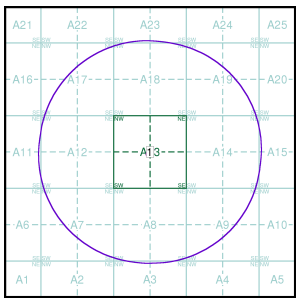
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

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



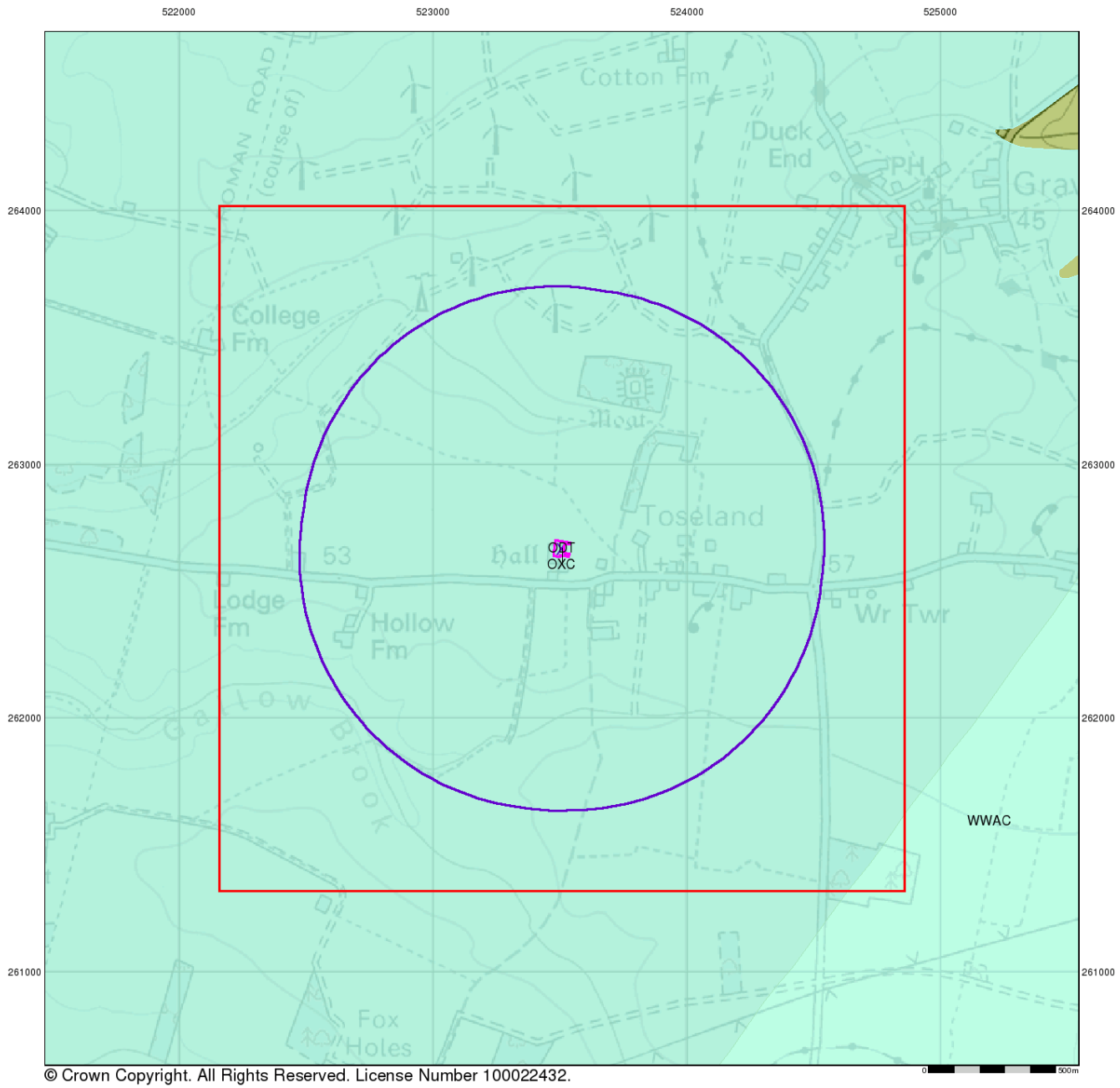
Order Details:

Order Number:	313389616_1_1
Customer Reference:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details:

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

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



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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.

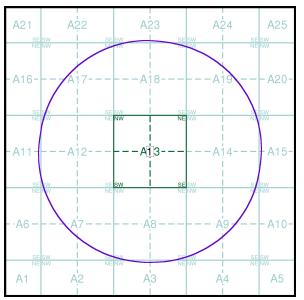
Additional Information

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



Order Details:

Order Number:	313389616_1_1
Customer Reference:	BRD4279
National Grid Reference:	523510, 262670
Slice:	A
Site Area (Ha):	0.28
Search Buffer (m):	1000

Site Details:

, Toseland Hall, Toseland Road, Toseland, St. Neots, PE19 6RU

APPENDIX 4

INSPECTION PIT RECORD

Client: Toseland Hall Farm
Project Title: Toseland Hall Farm, Toseland
Project No: BRD4279
Logged By: M Morgan
Date Completed: 29/06/2023
Method Used: Hand Dug

Pit No.

HD01

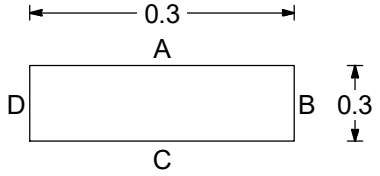
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			CONCRETE.	0.10 ()		
			MADE GROUND: Brown, sandy gravel and cobbles of angular concrete with some ceramic pipe, brick, flint, metal, wood, roof tiles and two fragments of asbestos cement.		MADE GROUND	
0.30 0.30 0.35	J1 PID D1	0.0 ppm				
			Firm, dark green grey with occasional grey staining, slightly sandy CLAY with a very slight hydrocarbon odour.	0.45 ()	OADBY M	
0.60 0.60	J2 PID	0.0 ppm		0.60 ()		
				1		

Pit Stability: Unstable in Made Ground
Groundwater: Seepage at 0.30m.

Surface Elevation Level:

Plan of Inspection Pit:



General Remarks:
Hand dug pit terminated at 0.60m due to groundwater and Made Ground collapsing in.

All dimensions in metres
Log Scale 1:10

BRD
Telephone: 01295 272244
Email: info@brduk.com

INSPECTION PIT RECORD

Client: Toseland Hall Farm
Project Title: Toseland Hall Farm, Toseland
Project No: BRD4279
Logged By: M Morgan
Date Completed: 29/06/2023
Method Used: Hand Dug

Pit No.

HD02

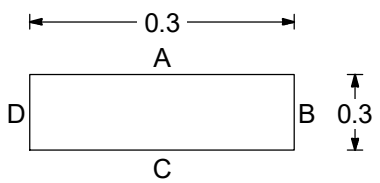
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			CONCRETE.	0.12 ()	MADE GROUND	
0.20 0.20	J1 PID	0.0 ppm	MADE GROUND: Brown, slightly clayey, gravelly sand. Gravel of fine to coarse, sub-rounded to angular flint and concrete.			
			Firm, green mottled grey, sandy, slightly gravelly CLAY. Gravel of fine, angular flint.	0.35 ()	OADBY MEMBER	
0.50 0.50	J2 PID	0.0 ppm		0.60 ()		
				1		

Pit Stability: Generally stable throughout
Groundwater: Slight seepage at 0.35m.

Surface Elevation Level:

Plan of Inspection Pit:



General Remarks:
Hand dug pit terminated at 0.60m.

All dimensions in metres
Log Scale 1:10

BRD
Telephone: 01295 272244
Email: info@brduk.com

INSPECTION PIT RECORD

Client: Toseland Hall Farm
Project Title: Toseland Hall Farm, Toseland
Project No: BRD4279
Logged By: M Morgan
Date Completed: 29/06/2023
Method Used: Hand Dug

Pit No.

HD03

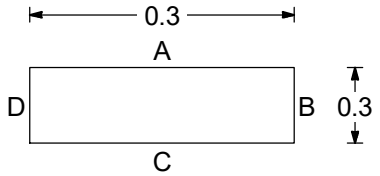
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	PID J1	0.0 ppm	MADE GROUND TOPSOIL: Brown, gravelly sand with some rootlets. Gravel of fine, angular brick and flint.	0.15 ()	MADE GROUND TOPSOIL	
0.30	PID J2	0.0 ppm	MADE GROUND TOPSOIL: Dark brown, very gravelly, slightly sandy, clay with occasional rootlets. Gravel of fine to medium, angular chalk, flint, brick and clinker.	0.40 ()		
			Firm, slightly desiccated, light brown, slightly sandy, gravelly CLAY with occasional fine roots and rootlets. Gravel of fine to coarse, angular chalk and flint.	0.60 ()	OADBY MEM	
				1		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level:

Plan of Inspection Pit:



General Remarks:
Hand dug pit terminated at 0.60m.

All dimensions in metres
Log Scale 1:10

BRD
Telephone: 01295 272244
Email: info@brduk.com

INSPECTION PIT RECORD

Client: Toseland Hall Farm
Project Title: Toseland Hall Farm, Toseland
Project No: BRD4279
Logged By: M Morgan
Date Completed: 29/06/2023
Method Used: Hand Dug

Pit No.

HD04

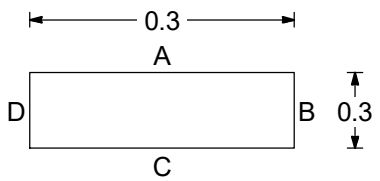
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	PID J1	0.0 ppm	MADE GROUND TOPSOIL: Dark brown, slightly desiccated, very sandy, gravelly clay with some rootlets. Gravel of fine to medium, angular flint, brick and chalk.	0.20 ()	MGTS	
0.40	PID J2	0.0 ppm	Firm to stiff, slightly desiccated, brown, slightly gravelly CLAY. Gravel of fine to coarse, angular flint.	0.45 ()	OADBY MEMBER	
				1		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level:

Plan of Inspection Pit:



General Remarks:
Hand dug pit terminated at 0.45m.

All dimensions in metres
Log Scale 1:10

BRD
Telephone: 01295 272244
Email: info@brduk.com

INSPECTION PIT RECORD

Client: Toseland Hall Farm
Project Title: Toseland Hall Farm, Toseland
Project No: BRD4279
Logged By: M Morgan
Date Completed: 29/06/2023
Method Used: Hand Dug

Pit No.

HD05

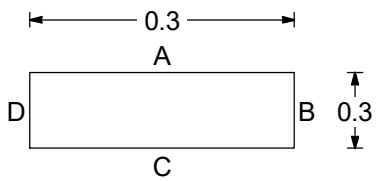
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.15	PID J1	0.0 ppm	MADE GROUND TOPSOIL: Dark brown, slightly desiccated, very sandy, gravelly clay with some rootlets. Gravel of fine to medium, angular flint, brick, chalk and rare charcoal.	0.25 ()	MGTS	
0.50	PID J2	0.0 ppm	Stiff, brown to orange brown, slightly sandy, gravelly CLAY. Gravel of fine to coarse, angular flint.	0.50 ()	OADBY MEMBER	
				1		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level:

Plan of Inspection Pit:



General Remarks:
Hand dug pit terminated at 0.50m.

All dimensions in metres
Log Scale 1:10

BRD
Telephone: 01295 272244
Email: info@brduk.com

INSPECTION PIT RECORD

Client:	Toseland Hall Farm
Project Title:	Toseland Hall Farm, Toseland
Project No:	BRD4279
Logged By:	M Morgan
Date Completed:	29/06/2023
Method Used:	Hand Dug

Pit No.

HD06

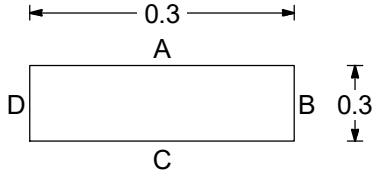
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.20	PID J1	0.0 ppm	MADE GROUND TOPSOIL: Dark brown, slightly sandy, slightly gravelly clay. Gravel of fine to coarse, sub-rounded to angular flint, occasional brick, charcoal and plastic.	0.25 ()	MGTS	
			Firm, brown mottled orange brown, slightly gravelly CLAY. Gravel of fine to coarse, sub-rounded to angular flint.	0.50 ()	OADBY MEMBER	
				1		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level:

Plan of Inspection Pit:



General Remarks:
Hand dug pit terminated at 0.50m.

All dimensions in metres
Log Scale 1:10

BRD
Telephone: 01295 272244
Email: info@brduk.com

Hand Dug Pit Photographs

HD01





Project Title: Toseland Hall Farm, Toseland
Client: Toseland Hall Farm
BRD Reference: BRD4279-OP3-A
Date Issued: July 2023

BRD
01295 272244
info@brduk.com

Hand Dug Pit Photographs

HD02





Project Title: Toseland Hall Farm, Toseland
Client: Toseland Hall Farm
BRD Reference: BRD4279-OP3-A
Date Issued: July 2023

BRD
01295 272244
info@brduk.com

Hand Dug Pit Photographs

HD03





Project Title: Toseland Hall Farm, Toseland
Client: Toseland Hall Farm
BRD Reference: BRD4279-OP3-A
Date Issued: July 2023

BRD
01295 272244
info@brduk.com

Hand Dug Pit Photographs

HD04





Project Title: Toseland Hall Farm, Toseland
Client: Toseland Hall Farm
BRD Reference: BRD4279-OP3-A
Date Issued: July 2023

BRD
01295 272244
info@brduk.com

Hand Dug Pit Photographs

HD05





Project Title: Toseland Hall Farm, Toseland
Client: Toseland Hall Farm
BRD Reference: BRD4279-OP3-A
Date Issued: July 2023

BRD
01295 272244
info@brduk.com

Hand Dug Pit Photographs

HD06





Project Title: Toseland Hall Farm, Toseland
Client: Toseland Hall Farm
BRD Reference: BRD4279-OP3-A
Date Issued: July 2023

BRD
01295 272244
info@brduk.com

APPENDIX 5

Matthew Morgan
BRD Environmental Ltd
Hawthorne Villa
1 Old Parr Road
Banbury
Oxfordshire
OX16 5HT

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 23-08580

Site Reference:	Toseland Hall Farm
Project / Job Ref:	BRD4279
Order No:	None Supplied
Sample Receipt Date:	03/07/2023
Sample Scheduled Date:	03/07/2023
Report Issue Number:	1
Reporting Date:	11/07/2023

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate						
DETS Report No: 23-08580	**Date Sampled**	29/06/23	29/06/23	29/06/23	29/06/23	29/06/23
BRD Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Toseland Hall Farm	**TP / BH No**	HD01	HD01	HD02	HD03	HD04
Project / Job Ref: BRD4279	**Additional Refs**	J1	J2	J1	J2	J1
Order No: None Supplied	**Depth (m)**	0.30	0.60	0.20	0.30	0.10
Reporting Date: 11/07/2023	**DETS Sample No**	661215	661216	661217	661218	661219

Determinand	Unit	RL	Accreditation			(n)		
Asbestos Quantification (S)	%	< 0.001	ISO17025	< 0.001		< 0.001		
pH	pH Units	N/a	MCERTS		8.6	9.7	7.9	7.7
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS		79	102	16	13
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS		0.08	0.10	0.02	0.01
Organic Matter (SOM)	%	< 0.1	MCERTS		1.4	1.8	3.8	5.8
Arsenic (As)	mg/kg	< 2	MCERTS		11	14	14	11
Cadmium (Cd)	mg/kg	< 0.2	MCERTS		0.2	< 0.2	0.2	0.3
Chromium (Cr)	mg/kg	< 2	MCERTS		19	15	17	15
Chromium (hexavalent)	mg/kg	< 2	NONE		< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS		11	12	17	19
Lead (Pb)	mg/kg	< 3	MCERTS		12	13	33	32
Mercury (Hg)	mg/kg	< 1	MCERTS		< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS		16	14	16	15
Selenium (Se)	mg/kg	< 2	MCERTS		< 2	< 2	< 2	< 2
Zinc (Zn)	mg/kg	< 3	MCERTS		107	123	113	96

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate						
DETS Report No: 23-08580	**Date Sampled**	29/06/23	29/06/23			
BRD Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Toseland Hall Farm	**TP / BH No**	HD05	HD06			
Project / Job Ref: BRD4279	**Additional Refs**	J1	J1			
Order No: None Supplied	**Depth (m)**	0.15	0.20			
Reporting Date: 11/07/2023	**DETS Sample No**	661220	661221			

Determinand	Unit	RL	Accreditation					
Asbestos Quantification (S)	%	< 0.001	ISO17025					
pH	pH Units	N/a	MCERTS	7.8				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	12				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.01				
Organic Matter (SOM)	%	< 0.1	MCERTS	6.6				
Arsenic (As)	mg/kg	< 2	MCERTS	10				
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3				
Chromium (Cr)	mg/kg	< 2	MCERTS	16				
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	MCERTS	21				
Lead (Pb)	mg/kg	< 3	MCERTS	31				
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1				
Nickel (Ni)	mg/kg	< 3	MCERTS	16				
Selenium (Se)	mg/kg	< 2	MCERTS	< 2				
Zinc (Zn)	mg/kg	< 3	MCERTS	107				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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4480

Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 23-08580	**Date Sampled**	29/06/23	29/06/23	29/06/23	29/06/23	29/06/23
BRD Environmental Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Toseland Hall Farm	**TP / BH No**	HD01	HD02	HD03	HD04	HD05
Project / Job Ref: BRD4279	**Additional Refs**	J2	J1	J2	J1	J1
Order No: None Supplied	**Depth (m)**	0.60	0.20	0.30	0.10	0.15
Reporting Date: 11/07/2023	**DETS Sample No**	661216	661217	661218	661219	661220

Determinand	Unit	RL	Accreditation	(n)				
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.27	0.12	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.29	0.12	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.18	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.13	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.18	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.13	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6

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Soil Analysis Certificate - TPH LQM Banded						
DETS Report No: 23-08580	**Date Sampled**	29/06/23	29/06/23			
BRD Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Toseland Hall Farm	**TP / BH No**	HD01	HD02			
Project / Job Ref: BRD4279	**Additional Refs**	J2	J1			
Order No: None Supplied	**Depth (m)**	0.60	0.20			
Reporting Date: 11/07/2023	**DETS Sample No**	661216	661217			

Determinand	Unit	RL	Accreditation	(n)				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C35 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10			
Aliphatic >C35 - C44 : EH_CU_1D_AL	mg/kg	< 10	NONE	< 10	< 10			
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 30	NONE	< 30	< 30			
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	< 3			
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	< 10			
Aromatic >C35 - C44 : EH_CU_1D_AR	mg/kg	< 10	NONE	< 10	< 10			
Aromatic (>C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 30	NONE	< 30	< 30			
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 60	NONE	< 60	< 60			

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 23-08580	**Date Sampled**	29/06/23	29/06/23			
BRD Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Toseland Hall Farm	**TP / BH No**	HD01	HD02			
Project / Job Ref: BRD4279	**Additional Refs**	J2	J1			
Order No: None Supplied	**Depth (m)**	0.60	0.20			
Reporting Date: 11/07/2023	**DETS Sample No**	661216	661217			

Determinand	Unit	RL	Accreditation	(n)				
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5			
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2			
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5			

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Soil Analysis Certificate - Semi Volatile Organic Compounds (SVOC)						
DETS Report No: 23-08580	**Date Sampled**	29/06/23				
BRD Environmental Ltd	**Time Sampled**	None Supplied				
Site Reference: Toseland Hall Farm	**TP / BH No**	HD01				
Project / Job Ref: BRD4279	**Additional Refs**	J2				
Order No: None Supplied	**Depth (m)**	0.60				
Reporting Date: 11/07/2023	**DETS Sample No**	661216				

Determinand	Unit	RL	Accreditation					
Phenol	mg/kg	< 0.1	NONE	< 0.1				
1,2,4-Trichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1				
2-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1				
Nitrobenzene	mg/kg	< 0.1	MCERTS	< 0.1				
0-Cresol	mg/kg	< 0.1	NONE	< 0.1				
bis(2-chloroethoxy)methane	mg/kg	< 0.1	MCERTS	< 0.1				
bis(2-chloroethyl)ether	mg/kg	< 0.1	MCERTS	< 0.1				
2,4-Dichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1				
2-Chlorophenol	mg/kg	< 0.1	ISO17025	< 0.1				
1,3-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1				
1,4-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1				
1,2-Dichlorobenzene	mg/kg	< 0.1	ISO17025	< 0.1				
2,4-Dimethylphenol	mg/kg	< 0.15	ISO17025	< 0.15				
Isophorone	mg/kg	< 0.1	NONE	< 0.1				
Hexachloroethane	mg/kg	< 0.1	MCERTS	< 0.1				
p-Cresol	mg/kg	< 0.15	MCERTS	< 0.15				
2,4,6-Trichlorophenol	mg/kg	< 0.1	MCERTS	< 0.1				
2,4,5-Trichlorophenol	mg/kg	< 0.15	MCERTS	< 0.15				
2-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1				
4-Chloro-3-methylphenol	mg/kg	< 0.1	NONE	< 0.1				
2-Methylnaphthalene	mg/kg	< 0.1	MCERTS	< 0.1				
Hexachlorocyclopentadiene	mg/kg	< 0.1	NONE	< 0.1				
Hexachlorobutadiene	mg/kg	< 0.1	ISO17025	< 0.1				
2,6-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1				
Dimethyl phthalate	mg/kg	< 0.1	NONE	< 0.1				
2-Chloronaphthalene	mg/kg	< 0.1	MCERTS	< 0.1				
4-Chloroanaline	mg/kg	< 0.15	NONE	< 0.15				
4-Nitrophenol	mg/kg	< 0.1	NONE	< 0.1				
4-Chlorophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1				
3-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1				
4-Nitroaniline	mg/kg	< 0.1	NONE	< 0.1				
4-Bromophenyl phenyl ether	mg/kg	< 0.1	MCERTS	< 0.1				
Hexachlorobenzene	mg/kg	< 0.1	MCERTS	< 0.1				
2,4-Dinitrotoluene	mg/kg	< 0.1	MCERTS	< 0.1				
Diethyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1				
Dibenzofuran	mg/kg	< 0.1	MCERTS	< 0.1				
Azobenzene	mg/kg	< 0.1	NONE	< 0.1				
Dibutyl phthalate	mg/kg	< 0.1	ISO17025	< 0.1				
Carbazole	mg/kg	< 0.1	ISO17025	< 0.1				
bis(2-ethylhexyl)phthalate	mg/kg	< 0.15	ISO17025	< 0.15				
Benzyl butyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1				
Di-n-octyl phthalate	mg/kg	< 0.1	MCERTS	< 0.1				

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Soil Analysis Certificate - Organochlorine Pesticides						
DETS Report No: 23-08580	**Date Sampled**	29/06/23	29/06/23			
BRD Environmental Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Toseland Hall Farm	**TP / BH No**	HD02	HD06			
Project / Job Ref: BRD4279	**Additional Refs**	J1	J1			
Order No: None Supplied	**Depth (m)**	0.20	0.20			
Reporting Date: 11/07/2023	**DETS Sample No**	661217	661221			

Determinand	Unit	RL	Accreditation	(n)				
Aldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
alpha-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
beta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
cis-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
delta-HCH	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Dieldrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Endosulfan A	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Endosulfan B	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Endrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
gamma-HCH (Lindane)	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Heptachlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Heptachlor epoxide	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Hexachlorobenzene (HCB)	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Isodrin	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Methoxychlor	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
o,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
o,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
o,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
p,p' - DDD	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
p,p' - DDE	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
p,p' - DDT	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
trans-chlordane	mg/kg	< 0.02	NONE	< 0.02	< 0.02			
Trifluralin	mg/kg	< 0.02	NONE	< 0.02	< 0.02			

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 23-08580
BRD Environmental Ltd
Site Reference: Toseland Hall Farm
Project / Job Ref: BRD4279
Order No: None Supplied
Reporting Date: 11/07/2023

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
661216	HD01	J2	0.60	16.1	Brown sandy clay with stones
661217	HD02	J1	0.20	11.6	Brown sandy gravel with stones
661218	HD03	J2	0.30	10.1	Brown sandy clay with stones and vegetation
661219	HD04	J1	0.10	11.5	Brown loamy sand with stones and vegetation
661220	HD05	J1	0.15	15.6	Brown sandy clay with stones and vegetation
661221	HD06	J1	0.20	14.9	Brown sandy clay with stones and vegetation

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 23-08580
BRD Environmental Ltd
Site Reference: Toseland Hall Farm
Project / Job Ref: BRD4279
Order No: None Supplied
Reporting Date: 11/07/2023

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

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List of HWOL Acronyms and Operators
DETS Report No: 23-08580
BRD Environmental Ltd
Site Reference: Toseland Hall Farm
Project / Job Ref: BRD4279
Order No: None Supplied
Reporting Date: 11/07/2023

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH LQM - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH LQM - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH LQM - Aliphatic >C16 - C35 - EH_CU_1D_AL
TPH LQM - Aliphatic >C35 - C44 - EH_CU_1D_AL
TPH LQM - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH LQM - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH LQM - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH LQM - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH LQM - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH LQM - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH LQM - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH LQM - Aromatic >C35 - C44 - EH_CU_1D_AR
TPH LQM - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH LQM - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH LQM - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH LQM - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH LQM - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS